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July 22, 2016

Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia, WA 98504-7600

RE: Comments of 3Degrees, Inc. on Chapter 173-442 WAC, Clean Air Draft Proposal

Thank you for the opportunity to comment on Washington Department of Ecology's ("Ecology") draft proposal of the Clean Air Rule. 3Degrees commends Governor Inslee and Ecology for their leadership on the important policy goals of reducing carbon emissions and increasing clean energy generation.

3Degrees is keenly interested in the final version of the Clean Air Rule because the company is one of the largest buyers and sellers of Renewable Energy Credits ("RECs") in the country and is particularly active in REC markets in the Pacific Northwest.

Washington is one of 36 U.S. states and territories that use RECs to track and transact renewable electricity on the grid. The scale of the overall REC market in Washington State is significant and merits careful consideration by policy makers; for instance, in 2016, 3Degrees estimates that over 4 million RECs from Washington state generators will be sold to either the voluntary market or into neighboring states for RPS compliance.¹ These REC sales directly support Washington-sited renewable energy generation.

Voluntary market customers include residential and large commercial buyers in Washington state and across the country. Without exception, 3Degrees' customers purchase RECs to acquire both the emissions attributes and renewable characteristics renewable energy generation. The value of these RECs - both for voluntary buyers and as a regulated instrument in compliance markets - depends upon policies that support rigorous REC tracking and retirement processes to prevent double crediting and maintain the environmental integrity of the renewable energy market. A bedrock principle is that only the owner of the REC has

¹ Based on publicly available information including: Washington state RPS compliance reports, EIA generator data, and Green-e Product Content Labels

the legal right to claim the renewable attributes. This is the reason RECs exist: to track, allocate, and match a specific MWh of renewable energy generation to a specific purchaser.

3Degrees applauds Ecology for responding to input about previous drafts of the Clean Air Rule by creating the reserve account, which is intended in part to ensure that new voluntary green power and compliance-driven REC sales to other states remain additional to Washington's emissions reductions under CAR. This has the potential to be an important new component of the rule; with a properly structured reserve account, double crediting of carbon reduction benefits may be eliminated. As drafted however, 3Degrees has concerns about the integrity and adequacy of the reserve account.

Integrity

Double crediting of carbon benefits can occur within the bounds of the proposed rules when energy from a new renewable energy facility is counted toward reduction of the smokestack emissions from a regulated entity, while the same energy production also generates an Emission Reduction Unit ("ERUs") used to charge the reserve account.

Double crediting can also occur when energy from a new renewable energy facility is counted toward reducing a regulated entities smokestack emissions while the same energy generates RECs that are sold for the voluntary market or other compliance purposes either inside or outside Washington State.

To address this problem, 3Degrees recommends that ERUs in the reserve account retired on behalf of the voluntary REC market or REC-based compliance markets in other states need to come from or directly result in a reduction in the emissions cap for covered parties. These ERUs must come from energy generated at facilities that have not been included in regulated entities' emissions profile. This will ensure Washington-generated RECs maintain their core value to the market--the right for purchasers to claim a reduction in their own emissions.

Adequacy

The Clean Air Rule proposes six priorities for withdraws and retirements from the reserve account; this raises the very real possibility that the account may not be sufficient to allocate the necessary ERUs to all six of the stated priorities. In addition REC sales to compliance markets in other states are not currently included as one of the priorities for retiring ERUs



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from the reserve fund, further increasing the likelihood that the reserve fund as envisioned is too small.

To address the potential limits of reserve account, 3Degrees recommends:

- Explicitly stating that the adequacy of the reserve account will be assessed each year, based on the latest market information about incremental growth in voluntary green power markets and compliance-driven REC sales in Washington and to other states.
- No prioritization for the list of uses for the reserve account - instead, make clear that all needs will be met.

We appreciate the opportunity to provide these comments to Ecology as the Department seeks to ensure the Clean Air Rule is as effective as possible. Ensuring the integrity and adequacy of reserve account will advance Ecology's goals of ensuring carbon reductions are real and additional to reductions from new renewable energy facilities built to meet compliance and voluntary market needs. We believe this is possible through careful design choices and we appreciate the opportunity to suggest recommendations.

Respectfully,

Adam Capage
Vice President, 3Degrees



Alcoa Global Primary Products

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July 22, 2016

Mr. Stu Clark
Air Quality Program Manager
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Re: Washington State Draft GHG Clean Air Rule

Dear Mr. Clark:

Please accept these comments regarding the draft Green House Gas (GHG) Clean Air Rule (CAR). Alcoa offers these comments with the intent to help identify solutions that reduce and control GHG emissions, while providing a platform to help keep Washington State aluminum smelters viable.

Alcoa has two primary aluminum smelters in Washington State, Intalco Aluminum Corporation in Ferndale and Alcoa Wenatchee in Malaga. Due to adverse impacts of global market forces, Alcoa curtailed its Wenatchee smelter in December 2015. Intalco continues to operate. Prior to Wenatchee's curtailment, Alcoa's total direct headcount in Washington was 1,100 employees with a combined annual payroll of more than \$100 million and an estimated economic impact of \$500 million. In addition, over \$500,000 was contributed to non-governmental organizations in the neighboring communities each year. Intalco currently employs 580 people in family-wage positions and has an annual payroll of \$65 million. The plant pays over \$4 million in local taxes and our employees volunteer thousands of hours each year in the local community.

Alcoa has been a leader in GHG emissions reductions for more than two decades and has been a constructive partner with both Governor Gregoire and Governor Inslee in the development of policies to address climate change. Our company was a founding partner in the Western Climate Initiative and has worked with both the current and previous administrations to find solutions that protect human health and the environment while maintaining jobs and a contributing to a thriving economy. We strive to be an environmental steward, responsible operator and partner in Washington State.

Through our commitment to continuous environmental improvements, Alcoa aluminum smelters in Washington State have already achieved the goals set forth by Washington State in RCW 70.235.020 to reduce GHGs below the 1990 baseline level by 2020 and to reduce 25% below the baseline by 2035. In addition, Intalco has achieved the 2050 goal of reducing 50% below 1990 levels. In sum, the two facilities have reduced GHG emissions by an estimated 2.8 million metric tons. Alcoa made these improvements through voluntary, non-regulatory driven reductions.

Aluminum has a unique role to play in helping to shape a sustainable future, and that role continues to expand. Alcoa is a global leader in lightweight metals technology, innovating multi-material

solutions that advance our world. Our technologies enhance transportation, including automotive and commercial transport, air and space travel, smart buildings and sustainable food and beverage packaging. For example, in the transportation sector, increasing aluminum in vehicles has shown to boost fuel economy, and, when compared to competing materials, offers the lowest lifecycle carbon footprint. An aluminum intensive vehicle can achieve up to a 20 percent reduction in CO₂ emissions. Aluminum is the most abundant metal in the earth's crust and due to its strength, product life, and recyclability, approximately 75% of all primary aluminum ever produced since 1888 is still in productive use. Alcoa's aluminum smelters in Washington help contribute to this sustainable future.

The Washington State draft Green House Gas (GHG) Clean Air Rule (CAR) as proposed in WAC Chapter 173-442 is likely to have a profound impact on the ability of Alcoa to restart and operate smelters in Washington State. Decisions on curtailments and restarts are based on a series of factors ranging from global market conditions, regulatory certainty, capital investments, energy pricing and alignment with Alcoa's strategy to create a globally competitive commodity business. As written, the draft rule introduces increased costs and uncertainty, both of which decrease the ability of the businesses to successfully compete in a global commodity marketplace. The Washington smelters, like all Alcoa smelters, are standalone entities in the Global Primary Products business portfolio and must meet profitability standards to compete for investment and remain operational.

As an Energy Intensive Trade Exposed (EITE) business, aluminum smelters are especially susceptible to carbon leakage as they cannot pass on increased costs to consumers. If aluminum smelters in Washington, which are run on clean, renewable hydropower, are unable to compete globally, that production is likely to move elsewhere in the world where smelters are powered primarily by coal sources. This has the net impact of increasing GHG emissions globally. It is our understanding that this is not DOE's intent.

Alcoa acknowledges and appreciates that the Department of Ecology recognizes the complexity and risks associated with applying the Clean Air Rule to EITEs. In the rule, it is noted that the agency delayed the implementation effective date by three years for EITEs, and allowed for reduced emission reduction pathways for EITEs which took early action. These provisions, however, do not fully mitigate the potentially damaging impact of the rule.

Alcoa shares, and incorporates by reference, the substantive elements of the comments prepared and submitted by Association of Washington Business. In addition, Alcoa offers the comments below which align with the goal of reducing emissions yet allow the viability of aluminum smelting within the State of Washington.

Comment 1: Make Provisions for Sector Subcategorization

WAC 173-442-070 (3)(a) should be revised to allow for subcategorization within sectors. The current rule states "Ecology must calculate an efficiency intensity distribution for each sector with an EITE covered party that meets the requirements in WAC 173-442-030." The suggested revision is: "Ecology must calculate an efficiency intensity distribution for each sector, or subsector, with an EITE covered party that meets the requirements in WAC 173-442-030."

The Clean Air Act in section 112(c)(1) (as amended on November 15, 1990) recognizes and set precedence for establishment of subcategories for major sources. There are significant technology

differences within the NAICS 331312: Primary aluminum production sector. Alcoa proposes that the existing subcategories established in 40 CFR Part 63 Subpart LL's National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants be used for purposes of classifying primary aluminum reduction facilities within the Washington State GHG CAR.

Comment 2: If a company is required to relinquish ERUs to the reserve, it should be as a result of permanently ceasing operations (closure) and not curtailment.

WAC 173-442- 240 (1)(ii)(b) requires that ERUs generated as a result of facility curtailment must be transferred into the reserve "within one hundred twenty days after each applicable compliance period (WAC 173-442-200)." In WAC 173-442-240 (3)(a) regarding withdrawals from the reserve it states that "Ecology may assign reserve ERUs to covered parties for the following purposes: (a) A curtailed stationary source that restarts operations will be assigned fifty percent of the ERUs that were allocated to the reserve during the calendar year prior to restart as per subsection (1)(a)(ii) of this section."

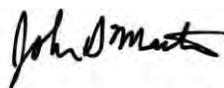
Fundamentally, Alcoa argues that curtailed facilities should be able to retain ERUs and not be required to forfeit them to the reserve. Alcoa requests that Ecology remove the draft provision to transfer ERUs from curtailed facilities to the reserve, and instead structure the rule such that emission reduction obligations required by a curtailed facility's efficiency reduction rate be suspended until the facility resumes operations. Upon restarting operations, the facility would resume its position on the reduction pathway at the year when operations were curtailed. This approach is consistent with curtailed facilities which maintain emission inventories and operating permits necessary to resume operations, unlike a facility which permanently shuts down and relinquishes its operating permit and associated emission reductions.

Comment 3: Provisions for EITE economic hardship relief should be included in the rule.

Provisions for economic hardship relief should be included in the final rule and should be consistent with those in the previous version of the rule which Ecology withdrew. The withdrawn WAC 183-442-220 allowed for an EITE covered party to petition for compliance progress determination relief or be exempted. A covered entity should have the opportunity to demonstrate unaffordability, or economic hardship, using either of the following standards previously proposed by Ecology: "(a) The covered party's earnings before taxes, including accounting for cost of compliance with this chapter, are less than or equal to zero dollars per year. This analysis is conducted at the facility level. (b) The economic status of the covered party, including the cost of compliance with the requirements of this chapter, would result in the temporary or permanent closure of the covered party."

We thank the Department of Ecology for the opportunity to share our comments on the Clean Air Rule.

Sincerely,



John Martin
VP Smelting Operations, US & Brazil
Alcoa Inc.

Alliance for Jobs and Clean Energy

Joint Recommendations on Clean Air Rule

Greenhouse Gas Limits

Update emissions limits to best available science

Ecology should establish a rule that uses best available science and establishes health-based limits on global warming pollution. The Washington State Clean Air Act directs Ecology to set standards on air pollution to protect the public health and safety, and the overall welfare of the state. While the legislature established state-wide emissions limits in 2008, these limits should be a ceiling on pollution levels, not a floor limiting state action to respond to the critical threats that global warming poses to populations around the world. The best available science, including the most recent Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), clearly shows that emissions in developed world economies need to drop more steeply than established in the 2008 law.

Regularly evaluate and adjust limit for effectiveness

Ecology should review the effectiveness of the established caps every 3 to 5 years and the Rule should include the flexibility to adjust the caps as appropriate to ensure the reductions are aligned with the state, national and international objectives for emission reductions and strategies. Several carbon markets have updated caps set in the early years to more accurately account for the introduction of low cost emission reduction options and changing market conditions. Regular review of the caps at scheduled times will help to ensure that Washington's emission caps continue to drive improvements over business as usual while providing businesses with the expectation to plan for future changes to the caps.

Use existing authority to support setting an aggregate, statewide cap over existing and potential new covered entities

Use Ecology's existing authority to set a statewide cap. The Washington Clean Air Act is similar to federal law and other state laws that allow an overall emissions cap with emissions limits shared by the capped facilities. Washington law requires "emission standards" and "emission limitations" that "limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis." Under this definition, an overall emissions cap fits within the concept of a limitation on the quantity of emissions on a continuous basis.

This overall cap should cover new entities to ensure new entrants are immediately accountable and there is an aggregate limit over new and existing covered emitters that declines over time. New entrants to the program must be addressed within this aggregate limit. An overall cap that reduces each year and includes new entrants would provide for a fair, certain and economically and environmentally efficient rule.

Policy alignment

Interactions with other policies need to be clarified

The Clean Air Rule should result in emissions reductions that go beyond business as usual under existing state and federal policies. Since carbon reductions that result from existing policies are already required by law, emissions reductions under the Clean Air Rule should go above and beyond existing policies if emissions reductions are attributable to the rule.

Double Counting must be addressed

The initial Clean Air Rule Proposal contained various provisions that would allow for double counting of carbon reductions. First, the state should not allow double counting of carbon reductions by providing additional 'credits' generated by projects that also reduce pollution from the regulated entity, such as renewable energy, energy efficiency and commute trip reduction programs.

Secondly, the state should not allow reductions driven by Washington policies to prevent further emissions reductions in other states. For example, excess allowances created from emissions reductions in the electricity sector under the Clean Air Rule should not be permitted for sale or transfer under the CPP in a mass-based system, and renewable energy used for compliance under the WA RPS or the CPP should not be divisible from Emission Reduction Credits (ERCs) in other states in a rate-based system. In order for the Clean Air Rule to result in additional carbon reductions nation-wide, Clean Power Plan headroom created as a result of the Clean Air Rule, or other WA clean energy programs, should not be sold or freely allocated for compliance with other state programs to other states to reduce their compliance obligations.

Coverage

Include EITEs (and all other covered entities) from the beginning:

Because of the phase-in portion of the previous draft of the rule, we believe all covered emitters that do not require new data collection for baselines, including Energy Intensive, Trade Exposed entities (EITEs) should be obligated to begin complying at the start of the program. If there is demonstrated need for compliance flexibility program to support EITEs Ecology should develop and include that in the initial rule, but they should not be exempted from compliance. In California, EITEs were granted partial free allocation of allowances and not other exemptions.

EITE flexibility, if provided, should be limited to evidence based adjustments

If Ecology does develop a program to support EITEs, it should be offered only to EITEs as determined based on a combination of their emissions intensity—a ratio of their total carbon emissions per millions of dollars of value produced—and the percentage of their business subject to trade. And any compliance flexibility afforded them should be based on evidence of the possibility of leakage, particularly considering that the Clean Air Rule requires no payment per ton of emissions as many other carbon reduction programs require, and instead freely allocates all emissions credits.

Create a strategy to prevent leakage

The policy should seek to minimize the movement of polluting activities to other jurisdictions as a mechanism to avoid compliance. In particular, the policy should include imported fuels and emissions from imported electricity which have the same polluting negative impacts to Washington residents regardless of their site of production. Secondly, the policy should preclude windfalls to regulated entities that reduce or halt production in WA.

Don't allow voluntary entrants

Allowing voluntary entrants into the program poses a high risk of counting business as usual reductions that have already been planned, and therefore not additional to the program, so should not be allowed to participate in the program. If there are offsets/Alternative Reduction Methods(see concerns below) they can offer that meet the additional, verifiable, real, enforceable and permanent validation requirements, we encourage the department to allow them through defined and narrow protocols (as discussed below) rather than by joining the covered entities as capped emitters.

Instruments/Mechanism

Clean Air Rule compliance must result in improved air quality in highly impacted communities in Washington

In addition to generating critical climate related benefits, the Clean Air Rule can significantly reduce emissions of potential pollutants co-produced with greenhouse gases. Because these conventional pollutant emissions, including NO_x, SO₂, PM, and mercury and other hazardous air pollutants, are associated with significant adverse health outcomes, reductions in such emissions constitute an important benefit of greenhouse gas regulation. These benefits are most needed in those communities which experience the most severe pollution and socio-economic related health consequences, and which are disproportionately likely to be communities of color and low income communities.

The Department should conduct a cumulative impacts analysis to identify Washington State's communities highly impacted by pollution and socio-economic disparity. This study should be mapped to be able to target emissions reductions to the communities that would benefit the most. All covered entities should be encouraged to make their required reductions within their own operations. For entities unable to do so; a share of their reduction requirement should be met through emissions reductions in highly impacted communities. That share should increase over time. Covered emitters that have stationary sources of pollution located in a community identified as highly impacted by the cumulative impacts analysis must receive special consideration and be appropriately addressed by the Clean Air Rule to maximize air quality improvements.

Communities of color and low-income communities are disproportionately affected by environmental contaminants, including air pollutants like ozone and PM_{2.5}, and they suffer disproportionately from pollution related illness. Because these frontline communities often experience dangerously unhealthy levels of conventional air pollutants, despite longstanding implementation of clean air regulatory programs, the Clean Air Rules authority to regulate greenhouse gas emissions is an essential and necessary for providing needed conventional pollutant benefits.

Covered emitters should be incentivized to make investments that benefit Washington communities most vulnerable to climate change.

Although climate change is a global phenomenon, every global impact will be locally manifested, with profound impacts on the communities and individuals who are directly affected. Harm from climate change is shaped not only by exposure to discrete impacts, but by underlying vulnerability and by the capacity to cope. The Clean Air Rule should ensure that investments stimulated by greenhouse gas regulation create, reach, and sustain economic and environmental benefits and opportunities for communities of color and communities with low incomes and fossil fuel workers.

Recognize local economic development opportunity presented by the Clean Air Rule. Regulating greenhouse gases not only presents an opportunity for cleaner air and water, but also an opportunity for local economic development. Renewable energy and energy efficiency have already resulted in economic development in the state, and future economic growth as a result of the Clean Air Rule should be taken into consideration in the policy design. The policy design for renewable energy and energy efficiency should include labor standards such as prevailing wages, apprenticeship utilization, community workforce agreements, and domestic content provisions where applicable.

Ensure Actual Emissions Reductions by limiting and defining Alternative Reduction Mechanisms (ARMS)

We have significant concerns about Ecology's proposal to allow sources to meet up to 100% of their compliance obligations by using "Alternative Reduction Mechanisms" (ARMS). This is a new and untested approach that creates a significant potential to undermine the integrity and effectiveness of the program. ARMs are intended to serve the same purpose that offsets fill in other carbon cap programs, allowing regulated sources an alternative to either directly reducing their covered emissions or purchasing reductions from other sources covered by the program.

Offsets need to meet very specific criteria, namely they must demonstrate that reductions are real, verifiable, permanent, enforceable, and additional. An overly broad scope for ARMS poses several major challenges: First, compliance will impose an administrative burden. Second, since the proposed projects go far beyond those allowed under existing offset programs, it will be impossible to establish clear standards for third-party verification and oversight to ensure projects meet all of the required criteria—specifically the additionality criterion—which in turn would make it impossible to know if the promised reductions are actually occurring. Third, many of the categories that Ecology is considering allowing will create a substantial danger of double counting. For example, energy efficiency and renewable energy are important ways to reduce the need to generate electricity from fossil fuels, and investing in electric vehicles will necessarily cause a reduction in transportation emissions. A utility that invests in these solutions can directly reduce capped emissions and should not be able to get additional credit. Allowing other measures to offset increased emissions in the capped sector creates a real danger that we will not see the needed decrease in overall emissions to meet the state's overall targets.

Enforcement/Validity

Identify and monitor cumulative impacts of Rule:

In order for Ecology to fulfill its duty to protect the health and safety of sensitive members of the population, Ecology should define 'sensitive members of the population' as highly impacted communities using cumulative impacts analysis. This analysis should include consideration of aggregate pollution hazards or burdens and health, social and economic and climate vulnerability. The Department should then map the cumulative impacts analysis to locate the communities with high percentages of sensitive members of the population that will carry the heaviest burden of air pollution/climate change. The Department should monitor these highly impacted communities on a regular basis to ensure that the Rule does not create or exacerbate pollution hot spots and result in back-sliding on air and water quality. To ensure maximum effectiveness, accountability and equity, Ecology should form board of representatives from highly impacted communities to advise on implementation of the Clean Air Rule.

The Department of Ecology has an obligation to protect the health and safety of communities and address the potential for disproportionate impacts to communities resulting from the Clean Air Rule.

The Clean Air Act declaration of purpose provides Ecology the authority “to maintain levels of air quality that protect human health and safety, including the most sensitive members of the population.” The Washington Clean Air Act also provides strong support for requiring monitoring of highly impacted communities to ensure hot spots are not created or exacerbated and to guard against backsliding.

Ensure adequate accounting, monitoring and verification of emissions

Ecology should implement a clear and transparent tracking system for emission reductions and credits to ensure that they are not counted towards compliance by two different covered facilities or by other carbon reduction programs. Ecology’s proposal to use an entity’s compliance report as a ‘ledger’ is a helpful first step, but the Rule should include detailed language laying out how these ledgers will function together as a more comprehensive system to track the creation and use of credits. Ecology should also develop very clear guidance in the regulatory language or in a separate document outlining which entity can claim credit for an emission reduction, and engage in similar conversations with external carbon markets if compliance instruments are considered as credits under the Rule. Specifically, Ecology should ensure that its Rule does not undermine the emissions reduction goals of other carbon reduction programs.



July 22, 2016

VIA ELECTRONIC FILING

Washington Department of Ecology
Sam Wilson
P.O. Box 47600
Olympia, WA 98504-7600

RE: Chapter 173-442 WAC Clean Air Rule

Dear Sam:

The American National Standards Institute (ANSI) wants to thank Washington Department of Ecology for the opportunity to comment on the Clean Air Rule. ANSI is a 501(c)3 not-for-profit organization and has served as coordinator of public and private sector voluntary consensus standards and conformity assessment systems in the United States since 1918.

ANSI is the official U.S. representative to the International Organization for Standardization (ISO) and, via the U.S. National Committee, the International Electrotechnical Commission (IEC), and is a U.S. representative to the International Accreditation Forum (IAF).¹

Our comments are divided into two parts: 1) Introduction to ANSI's ISO 14065 Program and 2) ANSI's comments on WAC 173-442-220 (6) (a) (iii).

1. Introduction to the ANSI ISO 14065 Accreditation Program

ISO 14065² is the international standard against which accreditation bodies such as ANSI assess Greenhouse Gas (GHG) verification bodies. The standard's principles include impartiality, competence, and confidentiality. Verification bodies accredited to ISO 14065 must adhere to the verification principles defined in ISO 14064-3³, which include

¹ See www.iso.org for information about ISO. ANSI, through its U.S. National Committee, is also the sole U.S. member body representative to the International Electrotechnical Commission (IEC) www.iec.ch, see <http://www.iaf.nu/> for information about IAF.

² ISO 14065:2013, *Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition*.

³ ISO 14064-3:2006, *Greenhouse gases – Specification with guidance for the validation and verification of greenhouse gas assertions*

independence, ethical conduct, fair presentation, and due professional care. The purpose of these standards is to:

- develop flexible, regime-neutral tools for use in voluntary and/or regulatory GHG schemes;
- promote and harmonize best practice;
- support the environmental integrity of GHG assertions;
- assist organizations to manage GHG-related opportunities and risks; and
- support the development of GHG programs and markets.

Consistency is vital in promoting best practice and providing support for developing GHG programs and markets. Consistency also delivers accurate and consistent assessments results. ANSI and its peers work to ensure that ISO standards such as ISO 14065 are applied consistently and that the accreditation process meets the requirements of ISO 17011⁴ which specifies requirements for accreditation bodies assessing and accrediting conformity assessment bodies.

Accreditation allows a body to demonstrate that its quality assurance system and verification process can generate valid results. As part of the accreditation process, the accreditation body assesses a verification body's internal systems, processes, quality controls, impartiality, and independence to successfully complete emissions verifications. The accreditation body assessors reach assessment conclusions by first remotely reviewing the verification body's documentation and then conducting an onsite visit to the verification body's offices. Assessors also observe the verification body conducting a facility visit as part of its verification activities. In order to maintain its accreditation, verification bodies must undergo annual surveillance and periodic reaccreditation.

Since its launch in 2008, ANSI's ISO 14065 accreditation program has grown steadily and is recognized by a number of voluntary and regulatory programs. To date, ANSI has 21 accredited validation/verification bodies (VVB) and has partnered in the efforts of other accreditation bodies that are operating or establishing similar programs globally, making ANSI an international leader in the field of GHG validation and verification accreditation.

The growing list of national GHG accreditation bodies (ANSI peers and members of the International Accreditation Forum, or IAF), who follow the same approach to overseeing GHG reporting and offset programs, underscores the importance of accrediting to international standards. This growth also represents the demands of programs and stakeholders for consistency, accountability, and transparency in GHG reporting. ANSI is a member body of the IAF and is a signatory to the Pacific Accreditation Cooperation (PAC) Multilateral Recognition Arrangement for Accreditation of GHG Verification/Validation Bodies. This arrangement ensures that ANSI undergoes rigorous audits by its peers and holds its accreditation program to the highest standards.

⁴ ISO/IEC 17011:2004 – *Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies*.

The following mandatory reporting programs accept ANSI-accredited VVBs:

- British Columbia Greenhouse Gas Emission Reporting Regulation
- British Columbia Greenhouse Gas Emission Control Regulation
- Quebec Regulation Q-2, r.15 Reporting Regulation
- Quebec Regulation Q-2, r.46.1 Cap & Trade Regulation
- Massachusetts Greenhouse Gas Emissions Reporting Program
- Ontario Regulation 452/09
- Province of Nova Scotia, Greenhouse Gas Emission Regulations
- Regional Greenhouse Gas Initiative

The following voluntary programs accept ANSI Accredited VVBs:

- American Carbon Registry
- Climate Action Reserve
- Gold Standard Foundation
- The Climate Registry
- Verified Carbon Standard

2) ANSI Comments on WAC 173-442-220:

Specifically, section (6) Eligible third-party verifiers which states:

- (a) A third-party verifier must be approved by ecology. Approval requires:
 - i. Demonstrating to ecology's satisfaction that the third-party verifier has sufficient knowledge of the relevant methods and protocols in this chapter. Ecology may limit certification to certain types or sources of emissions.
 - ii. Registering as a third party with ecology (both individuals and organizations); and
 - iii. Active accreditation or recognition as a third-party verifier under at least one of the following GHG programs:
 - (A) California Air Resources Board's mandatory reporting of GHG emissions program;
 - (B) The Climate Registry;
 - (C) Climate Action Reserve;
 - (D) American National Standards Institute (ANSI); or
 - (E) Other GHG verification program approved by ecology.

This text identifies five pathways acceptable for verifier approval by ecology. Of the five options, only ANSI is an accreditation program based on international standards of best practice for accreditation (ISO 17011)⁵. Therefore, only ANSI is consistent with global accreditation programs. The remaining options do not operate such accreditation programs.

California Air Resources Board (CARB) is a verifier approval program developed specifically for the State of California. The procedures which CARB adheres to in order to ensure conformance with ISO 14065 and ISO 14064-3 are not publicly available. Its training is only administered in Sacramento specific to CARB-approved methodologies and regulatory requirements. In addition, it is not clear how Ecology will have any insight, enforcement options, or feedback into the CARB oversight process of verifiers operating in its state. The rule also states earlier that verification bodies shall follow ISO 14064-3. It is not clear how CARB assesses that accredited verification bodies understand or follow this standard. CARB also does not follow ISO 17011 in the operation of its accreditation program.

The Climate Registry (TCR) requires that its verification bodies maintain ANSI accreditation; making the intent of TCR's inclusion in this list unclear. Similarly, the Climate Action Reserve requires that verification bodies under its voluntary program maintain ANSI accreditation, making the reasoning for CAR's inclusion also unclear.

Option E, "other GHG verification program approved by ecology," is not clearly defined and may result in disreputable parties devising a system lacking the integrity, rigor, and consistent oversight that ANSI has provided the carbon market since 2008.

ANSI is the only accreditation body listed and the only body that can provide:

1. feedback to Ecology on the performance of verifiers in its state.
2. the ability for Ecology to participate on ANSI's GHG Validation/Verification Body Accreditation Committee (GVAC) so Ecology can review ANSI assessment reports, discuss quality issues and issues pertinent to measurement, reporting, and verification of GHG emissions.
3. the option to sign a Memorandum of Understanding (MoU) with ANSI which would allow ANSI and Ecology to share information, collaborate on communications, and ensure consistency in the accreditation process.

ANSI encourages the Department of Ecology to recognize only ANSI accredited validation and verification bodies and to partner with ANSI in this important aspect of its Clean Air Rule. This will provide greater clarity and consistency in the verification requirements, provide a platform for continual improvement of the verification function in the rule, be complimentary and consistent with the majority of other GHG programs which recognize ANSI, and avoid a race to the bottom in terms of the quality of verification performed under the rule.

⁵ ISO/IEC 17011:2004 – *Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies.*

We welcome further dialogue and the opportunity to assist the Department of Ecology as in developing requirements for verifiers that rely on the successful U.S. voluntary consensus standards and conformance infrastructure already in place.⁶

Thank you,

Ann M Howard
Director, ANSI Environmental Accreditation Programs

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Submitted July 22, 2016

⁶ For more information about ANSI's accreditation programs: www.ansi.org/accreditation

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JULY 22, 2016

VIA ELECTRONIC MAIL

Sam Wilson (AQComments@ecy.wa.gov)
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Comments on Clean Air Rule (WAC 173-442)

Dear Mr. Wilson;

Ash Grove Cement Company (“Ash Grove”) is writing to offer comments on the Department of Ecology’s proposed Clear Air Rule (“CAR”) seeking to impose stringent greenhouse gas limitations on Washington manufacturers. Ash Grove supports the comments being submitted by the Association of Washington Business (“AWB”) and, to the maximum extent that those comments are consistent with those stated here, adopts those comments as Ash Grove’s own. However, Ash Grove is uniquely positioned on certain issues and so finds it necessary to write comments in supplement to those submitted under AWB letterhead.

I. Background

Ash Grove is an American owned business headquartered in Overland Park, Kansas. Ash Grove is the largest U.S. owned cement company in the country and the fifth largest cement manufacturer in the United States with cement plants in eight states, including the only remaining cement manufacturing facility left in the state of Washington. Unlike all of its major competitors, Ash Grove has no manufacturing operations outside the U.S. A pioneer of the limestone and cement industries, the company was incorporated in Missouri in 1882 and has been majority owned and controlled by the Sunderland family since 1913. The eight cement plants operating in the Ash Grove system are some of the most efficient and best maintained in the country. The quality portland and masonry cements produced at these plants are used in the construction of highways, bridges, commercial and industrial complexes, residential homes, and a myriad of other structures.

Ash Grove's Seattle plant is a highly efficient facility capable of producing 750,000 tons of clinker per year. The plant was first awarded an EPA Energy Star rating in 2006 and was given its most recent Energy Star certification in February 2016--a tangible indication of our dedication to fuel efficiency. The Seattle plant directly employs approximately 90 people (the plant pays roughly \$9 million/year in salaries and benefits) and creates over 700 indirect jobs in the community. Ash Grove is an important part of the Seattle economy, paying roughly \$800,000 annually in property taxes and actively involved in many local charitable activities. In 2015, Ash Grove manufactured roughly 1/3rd of the cement used in the state of Washington. The remaining 2/3rds (roughly 1.3 million tons) was all imported into the state, predominantly from foreign manufacturers. We note that there is currently tremendous over-capacity in the cement manufacturing sector in countries such as China and Korea as a combined result of over-building and sluggish economies in those countries.¹ As both of those countries have ready access to Washington's ports, these countries generally loom heavily over the Energy Intensive, Trade Exposed ("EITE") rule, and very specifically in regard to the cement industry.

II. Cement Manufacturing and CO₂

Manufacturing cement results in CO₂ emissions from two sources. The manufacturing of portland cement is essentially the process of applying thermal energy to CaCO₃ (limestone) to convert it to CaO (calcium oxide). This process is known as "decarbonization." Decarbonization is one step in the manufacturing process with the resulting material called "clinker" as an intermediate product. Ground clinker, plus any additives allowed or required per ASTM standards, is referred to as portland cement. By definition, the clinkering process necessarily generates one molecule of CO₂ for every molecule of CaO produced.

There is nothing that can be done to reduce these process emissions as they are inherent to the chemical process by which cement is formed. Roughly 60% of our CO₂ emissions come from the liberation of CO₂ from CaCO₃ (i.e., are process emissions). The remaining 40% are from combustion of fossil fuels. Converting CaCO₃ to CaO requires a lot of heat input which necessarily must be provided by fossil fuel. Ash Grove's Seattle plant is a preheater/precalciner kiln--the most energy efficient type of kiln configuration in use today.

While all cement manufacturing shares the common approach of liberating CO₂ from CaCO₃ to form CaO, there are different types of cement that are specific to certain performance requirements. For example, on any given day, the Seattle kiln could make Type I clinker, Type II clinker, Type III clinker or a specialty cement for a local customer. The particular pyro-processing and grinding requirements for one type of cement can vary from another type of cement, thus the energy profile differs. This affects the GHG emission profile from a kiln. While the process emissions do not change based on product, the combustion emissions can materially differ between when a plant

¹ To put the overseas production capacity into perspective, in 2014 the U.S. had the capacity to make 91 million tons of cement. During that same time period, China had the capacity to make 2,730 million tons of cement. With the downturn in the Chinese economy and new Chinese cement plants continuing to come on line, exports from China are aggressively taking market share from U.S. manufacturers serving the State of Washington.

or mill is making masonry cement and when it is making conventional Type 1 cement. This fact makes comparisons between plants or mills difficult, as it is necessary to know what type of cement was being produced at any one time--information that is typically considered business confidential.

The cement manufacturing process also requires a significant amount of electricity consumption for raw material handling, clinker grinding and finished cement handling. Ash Grove obtains its electricity from Seattle City Light. As a result, 98% of the electricity used in the Seattle plant is generated without any CO₂ emissions (i.e., from a mix of nuclear, solar, hydro and other renewables from the Bonneville Power Administration). To put that into perspective, for every ton of cement manufactured at our Seattle plant, there is 155 lbs of CO₂ avoided from electricity generation alone as compared to if the same ton of cement was manufactured at one of our Chinese competitors. That is before you even take into account the significant additional CO₂ emissions attributable to the different fuels used in foreign kilns and the substantial CO₂ emissions associated with shipping cement from overseas ports into Washington.

Portland cement is the most commonly used construction material in the world. There is no equivalent or substitute product, so demand for cement is proportional to population growth in order to support the necessary construction related to growth (e.g., roads, bridges, infrastructure, schools, houses, etc.). Ash Grove has estimated that if the Seattle kiln were to shut down and the cement replaced with imported Chinese cement, **then global CO₂ emissions would increase by 327,000 tons per year** (see attached spreadsheet). That assessment does not include the economic impact on the hundreds of Washington residents that depend on the Ash Grove plant for their livelihood.² In short, the best thing to reduce greenhouse gas emissions is to maximize the production of cement in Seattle to meet Washington's cement demand. That ensures that the electricity used in the process has the extremely low carbon footprint associated with Seattle City Light, that the kiln is fired with a lower GHG fuel mix than is associated with Asian kilns and that the substantial carbon emissions associated with moving 750,000 tons of cement around the globe from China to Seattle are avoided. Any action that decreases production at the Seattle kiln will directly increase GHG emissions to the atmosphere.

III. Comments on Clean Air Rule

With this background in mind, Ash Grove has several specific comments on the proposed CAR. As we have consistently stated during the rulemaking process, we want to emphasize the potentially catastrophic impact that the proposed rule could have on Ash Grove's ability to continue operations in Seattle. The cement manufacturing business is extremely competitive with vast amounts of cement ready to flow into the U.S. markets from countries like China. Because portland cement is a true commodity, purchases are determined almost entirely based on price. Increasing the cost of cement even by pennies per ton can make the difference between whether Ash Grove supplies the cement for a

² Ash Grove notes that none of these impacts appear to have been assessed by Ecology in developing the rule or assessing its obligations under the State Environmental Policy Act ("SEPA"), Ch. 43.21C RCW. The GHG impacts are clearly significant impacts that require analysis under SEPA through the preparation of an environmental impact statement.

Seattle construction project or a Chinese kiln does so. If the CAR materially increases Ash Grove's cost of doing business, as the proposed rule is written, the inevitable result will be that the plant shuts down and all of Washington's cement is imported. In order to reduce the likelihood of this outcome, which is bad for the global environment and bad for Seattle, Ash Grove submits the following comments.

A. Ecology Needs to Exempt Unavoidable Process Emissions:

Ash Grove strongly suggests that Ecology revise the rule to specifically exclude process emissions that are not subject to reduction or control. Ash Grove recognizes that not all GHG process emissions are alike. Some process emissions are capable of control as evidenced by the tremendous work done in the semiconductor industry to reduce perfluorocarbon emissions through point-of-use abatement devices (see, <http://www.semiconductors.org/news/2011/06/02/news-2011/global-semiconductor-industry-exceeds-goal-to-reduce-greenhouse-gases/>). That is an example where process emissions could be (and were) controlled. Ash Grove recognizes that those process emissions amenable to control may be appropriately addressed within the CAR program. However, where an EITE can demonstrate that it can neither reduce nor control its GHG process emissions, there is no policy basis for requiring reductions in those process emissions.

Ecology has included no provisions to address the process emissions from EITE sources that are incapable of being reduced or controlled. Portland cement is particularly vulnerable to leakage when process emissions are included within the scope of the CAR reduction requirements. We strongly encourage Ecology to reconsider the application of annual reduction requirements to process emissions that are demonstrated to be irreducible and uncontrollable for industries that are highly subject to leakage. Where such a showing is made for an EITE source, reductions should be limited to combustion emissions alone. Ash Grove encourages Ecology to add language to the CAR requiring a demonstration that process emissions are not capable of being reduced and, where such a showing is made, exempting those process emissions from regulation.³ Ash Grove does not object to having to periodically revisit the determination to ensure that technology has not changed since a demonstration was last made.

B. The CAR Needs to be Revised to Prevent Leakage and Increased GHG Emissions

One of the stated fundamental principles underlying the CAR is that it avoids doing significant harm either environmentally or economically by causing leakage. As noted above, cement is a true commodity as it is fungible and easily transportable. This is why all cement manufacturing capacity in the state of Washington has been shut down other than Ash Grove's Seattle plant. Washington is a coastal state into which foreign cement can be easily imported thus undercutting the economic viability of local producers. The potential impacts of leakage on cement manufacturing in Washington are not an abstract possibility, but an economic reality.

³ Exempting unavoidable process emissions would be consistent with Ecology's obligations under RCW 34.05.328(1)(e).

Ecology stated that the revised rule is intended to reduce the possibility of leakage. Leakage is the result of driving up the cost of domestic production of a commodity with the result that production moves to an offshore producer with equal or greater emissions. In order to avoid leakage, Ecology must provide relief to EITE covered parties. This need is particularly acute for cement as offshore production results in considerably greater global GHG emissions. Demand for cement is inelastic--it will continue unabated regardless of whether the cement used in Washington is manufactured in this country or in Asia. For every ton of cement made in China rather than Washington, global greenhouse gas emissions will increase by an estimated 872 pounds. Therefore, setting aside the loss of over 700 jobs, **the closure of Ash Grove's Seattle plant would result in annual GHG increases of roughly 327,000 tons per year** assuming that the shortfall in supply were entirely made up for by Chinese cement plants. For these reasons, preventing leakage is a serious concern to all and the proposed rule needs to be revised to avoid causing leakage in the cement, and other, industries.

Ash Grove encourages that Ecology amend the CAR language to prevent leakage several ways.

i. Leakage Prevention: Process Emissions

As noted above, process emissions should be exempted from the rule upon a demonstration that they are not reasonably amenable to control or reduction. Process emissions will occur wherever clinker is produced. There is no policy reason to impose a reduction requirement on something that cannot be reduced.

ii. Leakage Prevention: Revise Benchmarking Approach

a. *Benchmarking Data are Not Available for Cement Industry*

Ecology should not mandate that EITEs employ a benchmark approach. Ash Grove is proud of the energy efficiency of its Seattle plant, as demonstrated by our multiple years of certification as an Energy Star facility. One of the ways that we remain competitive with Chinese cement (with its lower production costs and negligible environmental compliance and workplace safety standards) is through careful attention to energy efficiency. However, we do not believe that the benchmarking process specified in the proposed rule (i.e., comparing the output-based baseline to a sector efficiency intensity distribution) is workable for the cement industry.

The data required in order for the benchmarking process to work are not available for the cement sector. Benchmarking requires that Ash Grove and Ecology have access to GHG emissions data and production data for the cement sector. As explained below, GHG emissions data are not available for a vast part of the cement sector and production data are not uniformly available.

Reliable GHG emissions data are not available for those plants that are Ash Grove's competition in the Washington cement market. As described above, as a coastal state, Ash Grove's Seattle plant is not competing against plants in Florida or even closer states

due to the high cost of interstate transport (e.g. truck or rail) as compared to the low cost of international shipping. The policy reason to benchmark is to steer production to the lowest emitting producer. If the most likely producer is in China, the Washington benchmarking process must ensure that benchmarking is against that plant located in China. Otherwise, increased costs would be imposed on the Washington plant that would result in leakage to a less efficient producer. This would result in a substantial net increase in GHG emissions as a result of the CAR. However, foreign plants/governments are notorious for how inaccurate their GHG emissions data are.⁴ In the absence of reliable GHG emissions data from the sector participants potentially selling cement into Washington, it is impossible to ensure accurate benchmarking.

The same issues lie in relation to production data. Cement companies aggressively protect production data as confidential business information. Information about individual plant production is not typically available to Ash Grove or Ecology. For example, under the federal GHG mandatory reporting rule (40 CFR 98), EPA has stated that production data do not need to be submitted and have established a detailed system so as to ensure that a cement manufacturer does not have its production data subject to FOIA requests or otherwise amenable to public review. Our review of EPA's GHG reporting web page did not identify any cement plants that reported production information to EPA. For example, see the following federal reports by the companies identified below:

National Cement Company of California -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1006642&et=undefined>

Lehigh Southwest Cement Company -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1002566&et=undefined>

Cal Portland Company -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1006842&et=undefined>

Hanson Permanente Cement -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1002431&et=undefined>

Mitsubishi Cement -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1005662&et=undefined>

CEMEX Construction Materials -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1002308&et=undefined>

Riverside Cement Company -

<https://ghgdata.epa.gov/ghgp/service/html/2014?id=1007927&et=undefined>

⁴ See, e.g., November 3, 2015 New York Times story entitled, *China Burns Much More Coal Than Reported, Complicating Climate Talks*, http://www.nytimes.com/2015/11/04/world/asia/china-burns-much-more-coal-than-reported-complicating-climate-talks.html?_r=0 (“The sharp upward revision in official figures means that China has released much more carbon dioxide — almost a billion more tons a year according to initial calculations — than previously estimated.”), as well as the more recent April 3, 2016 New York Times story where the author noted: “Problems with the accuracy of Chinese data make figuring out what is happening here particularly challenging. A paper published late last month by the journal *Nature Climate Change* warned that preliminary energy statistics from China were unreliable, and that “the most easily available data is often insufficient for estimating emissions.” http://www.nytimes.com/2016/04/04/world/asia/china-climate-change-peak-carbon-emissions.html?_r=0.

Note that none of these reports include production data, which EPA allows a source to not submit specifically as to protect the sanctity of these highly confidential data.

Similarly, trade associations do not release facility specific data. Even if some data were available, because there are many types of cement plants (e.g., preheater, preheater/precalciner, wet, hybrid), it would be impossible to derive meaningful efficiency information using data aggregated across all types of cement plants. This problem is further compounded when you take into account the variety of products manufactured in different kilns and in the same kiln at different times of the year. To meaningfully benchmark between cement kilns, it would be necessary to know, at the very least, the kiln type and the products that were being made at any specific time.

As a result of the challenges outlined above, it is impossible to gather the information required under section -070(3)(a) of the proposed rule to determine an efficiency intensity distribution. The data sources specified in -070(3)(a)(i)(B) simply do not exist. We recognize that -070(3)(a)(i)(C) provides a pathway whereby Ecology can use “existing benchmarking information for the sector” when “no production data or emissions data is available.” However, reliable benchmarking information does not exist for the cement kilns that are potential suppliers of Washington’s cement. In addition, any such information would have to be specific to kiln type and cement product made. Comparing the energy efficiency of a long wet kiln making oil well cement to a preheater/precalciner kiln making Type V cement yields no meaningful information.

Benchmarking also suffers from the issue in the portland cement industry that there is no agreed upon appropriate production or product measure.” In the portland cement industry, there has been a great amount of strife over the subject of what is the appropriate product to reference when assessing GHG emissions. While “clinker” production is the source of all direct CO₂ emissions, that is not the product most cement companies in the U.S. sell. Cement is what is sold in the market place, but, as noted above, there are many different types of portland cement (e.g., Type I, Type II, Type III, Type V, Oil Well, Masonry, etc.). The other metric commonly used is “cementitious material” (referring to the mix of ground clinker and additives), but this value is even more difficult to assess with limited data. Either way, we have little remedy for the lack of data concern.

b. Data Availability Penalties Are Arbitrary and Should be Deleted

Ash Grove strongly objects to the proposed rule language punishing EITE covered parties that are not able to provide Ecology with the information required under the rule through no fault of the covered party. The proposed language in -070(3)(b)(iv) states that if “an EITE covered party has not supplied sufficient information to complete this assessment, then the EITE covered party’s efficiency reduction rate must be set at a level that would reduce emissions at a rate greater than required by WAC 173-442-060(1)(a).” In other words, if Ash Grove is unable to extract production data for its competitors (who have zero interest in helping Ash Grove), then the Seattle kiln will be required to achieve reductions in excess of 1.7 percent annually. It is difficult to understand why the rule is structured in a way that punishes EITE sources that may not have access to data from

similar sources. In the case of cement, there is only one plant in the state of Washington and all of the remaining cement used in the state is imported. How is the source supposed to account for the sources outside of the U.S.? What policy reason is served by penalizing a source for lack of available information over which that source has no control? This is an arbitrary and capricious requirement and we strongly recommend that Ecology delete -070(3)(b)(iv) from the final rule. Failure to do so is not only contrary to state law, it also greatly increase leakage as Washington produced cement will no longer be able to compete against foreign producers.

c. Benchmarking Approach Imposes Significantly More Stringent Compliance Obligation

The benchmarking based compliance approach outlined in -070 does not provide relief to Ash Grove, Washington's lone remaining cement manufacturer. The benchmarking approach in -070 was added with the intent to ease the compliance burden for EITE sources so as to prevent leakage and the inadvertent increase in GHG emissions as EITE sources lose the ability to compete against imports. Because Ash Grove cannot obtain the required information under -070, our company will be penalized with a more aggressive reduction requirement. Even if this punitive requirement is eliminated, the remaining provisions not only fail to offer Ash Grove relief, they impose a significantly more stringent set of requirements as compared to compliance with the -060 program.

In order to evaluate the impact of the proposed -070/Equation 1 approach, we reviewed several different scenarios. The simplest example we looked at was a cement plant with 700,000 tons/year of production year in and year out with no variation in production or emission rate. We assumed 0.8 tonnes of GHG (CO₂e) per ton of cement. As shown in Table 1, If that plant were to comply with the -070/Equation 1 approach, then between 2020 and 2035 it would have to purchase 1,142,400 tonnes of ERUs in aggregate through 2035 and it would be required to reduce GHG emissions by 25.5% as compared to the baseline.⁵ At the current California allowance auction price this translates to 15 million dollars of cost to a plant that is making a commodity and competing against foreign manufacturers that do not face this added expense. This is certainly no better than if the same facility had to comply using the -060 compliance methodology. In fact, if that facility happened to be in the bottom quartile of the efficiency intensity distribution, it would be subject to more stringent compliance obligations than the exact same non-EITE facility.

More complicated scenarios result in more horrific results. For example, if a source chose to reduce production annually by the amount necessary to avoid having to purchase any ERUs, then that same hypothetical cement plant that started with 700,000 tons/year of production during the baseline would have to reduce production to 272,154 tons/year by 2035. This would result in 56.5% reductions under -070 as compared to the baseline period. If that same source complied via the -060 pathway, it would have to reduce production to 465,625 tons/year by 2035 to achieve the aggregate 25.5% reduction. Cement plants are not able to operate at significantly reduced levels for any prolonged

⁵ We assume that the plant was in the 25th to 75th percentile and so was subject to the 1.7% annual reduction obligation.

period of time and so if a significant prolonged reduction is required the plant would simply have to stop operating (due to high fixed cost nature of production). In other words, under this scenario, the EITE source would have to achieve more than double the reduction in GHGs that would be required under -060.

We ran a more representative scenario reflecting normal variation in production. As shown in Table 2 below, production was allowed to change much the way it naturally does over time, but the emission rate was held even. We note that as kilns reduce output, there is the potential for efficiency to drop as the kiln is not operating consistent with its design. However, we conservatively ignored that effect. The scenario shown in Table 2 resulted in the cement plant having to purchase 1,114,232 tonnes of ERUs under the -070 pathway through 2035 as compared to 689,376 tonnes of ERUs under the -060 compliance strategy. We understand that -240 was intended to provide some relief to EITE sources, but note that the express terms of the proposed rule do not actually provide that relief (-240(c) only provides for withdrawals from the reserve in the case of curtailment and to address environmental justice concerns). However, even if -240 is revised such that Equation 2 provides relief to EITEs that increase production, and assuming that the reserve contains ERUs to distribute, the relief falls far short of bridging the gap between the -070 compliance pathway and the -060 compliance pathway.

In short, Equation 1 has the potential to impose significant penalties on EITE industries that would not be experienced by competitors outside of Washington or even by non-EITE industries in Washington. We do not suggest that under every possible scenario for every EITE source the -070 pathway is punitive. However, we have documented that under typical scenarios for our sector the -070 pathway has precisely that impact. We do not believe that this was the intent of Ecology and we do not believe that there is any justifiable policy basis for forcing EITE sources to shoulder a greater compliance burden than non-EITE sources.

We do not believe that the -070 approach has been adequately considered for it to be memorialized in the CAR at this time. Given the current issues with the EITE approach, we strongly urge Ecology to withdraw -070 from the current rulemaking to enable the EITE covered parties to explore better approaches for providing relief for EITE industries. At the very least, any EITE covered party should have the option of opting out of the -070 compliance pathway and instead comply with the -060 compliance pathway starting in 2020.

d. More Holistic Benchmarking (If Benchmarking Approach is Retained)

For the reasons stated above, Ash Grove has serious concerns about Ecology proceeding with the benchmarking approach in the proposed -070. We question whether data of comparable sources can be amassed such that an efficiency intensity distribution can be established for a sector. However, if the benchmarking approach is retained in some form either now or in future rulemaking, we believe that it should consider facilities more holistically. Indirect emissions from the use of Washington's abundant hydro and other renewable electric supply at our plant should be factored into any determination of an efficiency intensity distribution. Electricity is a huge component of the greenhouse gas

footprint of many cement plants. Ash Grove invests millions of dollars per year at its plants to decrease electricity consumption. Leakage would create substantial GHG increases if it forced the production of cement used in Washington from a facility using very low carbon electricity to a plant using very high carbon electricity. The current construct of the rule ignores the fact that Seattle City Light's portfolio is only 2% fossil fuel based while, according to values provided by the U.S. Energy Information Administration, Chinese kilns employ electricity that, on average, is 69% fossil fuel based.⁶ There is no policy basis for excluding this component of a facility's carbon footprint if a benchmarking process is going to be employed.

If a benchmarking approach is employed, the rule must also account for transportation emissions associated with imported product. If a ton of cement is supplied to the Washington market from China, there are roughly **600 lbs GHG (CO₂e) per ton of cement shipped** simply to move that cement from Shanghai to the Seattle docks. Nearly all of the cement produced in our Seattle plant is sold in the Seattle metro area thus avoiding the significant transportation emissions associated with moving imports into the Washington market. Again, given the tremendous GHG emissions associated with imports it would be counterproductive and contrary to any intelligent policy for Ecology to ignore the impact of transportation emissions when performing a benchmarking analysis.

These two factors (carbon footprint of electricity and transportation emissions) result in a substantial increase in global GHG emissions when our plant is forced out of business by imports that do not have to meet equal environmental standards. We recognize that it may be impractical to include all indirect GHG emissions when performing a benchmarking analysis. However, where indirect emissions data are reliable and easily gatherable, it subverts the purpose of the rule to ignore them.

iii. Conclusions About Leakage

Portland cement is a fungible commodity product produced in many countries with low production costs, lax environmental standards and using carbon-intensive energy resources. **As constructed, this rule will likely result in the permanent closure of EITE industries in Washington, including our plant in Seattle.** The rule offers little protection, only time, which equates to a slower death sentence for industry. If there were a benefit, one might reasonably argue that it is a worthy cause to lose industry for, but there is none in the case of our plant. In fact, if our plant were to be shut down, we determined there would be a **327,000 ton increase in global GHG emissions** due to the resulting increase in imported cement from China. Simply stated, this proposal is ill conceived policy that harms the global ecology and harms the local economy at the same time.

Ready access to deep water ports makes Washington highly exposed to foreign imports. Rail and truck transport of cement in the US is typically limited to about a 300 mile radius. Ocean vessels can ship vast quantities for thousands of miles and readily do so

⁶ China Electricity Generation Fuel Mix Source: US Energy Information Administration (<http://www.eia.gov/beta/international/analysis.cfm?iso=CHN>)

for less than the cost of ground transportation. It is cheaper for us to import cement more than 5,000 miles from Korea at our terminal in Portland, OR than it is to ship it 325 miles from our Durkee, OR plant by truck or rail. This is the reality of modern trade exposure for the cement industry and this leakage concern has been addressed by every other GHG program in existence today. Washington has failed to address the major concern of leakage in this proposal.

C. Ecology Should Not Proceed with the EITE Provisions at This Time

Ash Grove appreciates that Ecology understands the plight of the EITE industries and that global GHG emissions will increase if EITE industries are not carefully handled. We appreciate that Ecology has tried to find a viable pathway for assisting EITEs while meeting the policy goals underlying the CAR. However, Ash Grove has identified many issues with the proposed -070 approach that will require time to work through. California has studied how best to address EITEs for many years and has still not identified a good long term solution; Ecology should not think that it can do so in a fraction of that time. Therefore, we recommend that Ecology remove -070 from the rule, defer the regulation of EITEs under the CAR until at least 2024 and allow time to develop a viable means of addressing the EITE sectors.

D. Ecology Should Allow EITE Covered Parties to Use 2012 Through 2014 as Baseline Period to Avoid Penalizing Early Actions

As proposed, the output-based baseline is calculated by using “the EITE covered party’s average emissions and average production data during the 2012 through 2016 period.” Ash Grove is very concerned that this approach will penalize the company for early actions it has taken in 2015 and 2016 to reduce its GHG emissions. It is harmful and serves no policy purpose to penalize companies that have taken steps to reduce emissions in the way the benchmarking procedure does. We recognize that under either the -060 or the -070 compliance pathways, there is a need to establish a baseline. However, we see no reason to penalize Ash Grove for having moved aggressively to curb its GHG emissions in recent years. We strongly suggest that Ecology adopt an approach where a source must establish a baseline using three consecutive years of valid data of its choice. That leaves facilities the ability to use 2012 through 2014 for purposes of establishing baseline and at least reduces some of the penalty against sources that have proceeded with GHG reduction projects in the past several years.

E. Banked ERUs for EITE Covered Parties Should Not Expire

Ecology claims to have heard our comments and accounted for our concerns in the proposal, yet the Department has constructed the rule so that banked ERUs expire after 10 years. This is unacceptable for EITE facilities in particular since they have limited tools at their disposal to make significant reductions in CO₂ and they must pay high fuel and power prices as this rule is proposed. It appears that from its inception in 2017, EITEs would have to bear the cost of increases in fossil fuel and fossil fuel based electricity. Then, beginning in 2020, EITEs are regulated at the stack and must buy ERUs if they cannot comply with the ever reducing cap in later years. As noted above, this scheme is a death sentence for EITEs; it allows some time, but will eventually result in an

inability to bear the additional costs not borne by foreign competitors. Allowing EITE sources a longer ERU life is a small, but important aspect of trying to assist these sources and allowing them to benefit from reductions early in the life of the program.

F. Ecology Must Provide a Program Offramp in Event that I-732 Passes

Carbon Washington has placed onto the November 2016 ballot an initiative that would impose a carbon tax of \$15/tonne in the first year, \$25/tonne in the second year and increasing thereafter at 3.5% (plus inflation) with a cap at \$100/tonne (2016 dollars). Compliance with the CAR would be challenging to Washington's EITE sources. However, having to pay the CAR rule's significant compliance costs while also paying the I-732 carbon tax would bankrupt most EITE businesses in the state. It is critical that Ecology recognize this possibility and include in the final rule a provision stating that if the initiative passes, the CAR rule will not go into effect or, if it has already gone into effect, remain in effect. Failure to include such a provision would be a clear signal to industry that it is not wanted in the state.

G. Ecology Must Provide a Safety Valve

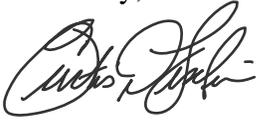
All other greenhouse gas regulatory programs of which we are aware contain a safety valve measure to reassure the covered entities, the markets and the general public that the program will not have runaway costs. Such a measure could be as simple as removing the limit on the use of out-of-state allowances as ERUs if the price of an ERU exceeds \$15. Such a provision provides critical information to covered parties and ERU developers alike that there is a point after which the price of an ERU will be effectively capped. We have heard Ecology state that perhaps the agency should not have a safety valve measure as its program is not controlling a market. However, other similar program (e.g., the CA low carbon fuel standards) similarly do not create allowance markets and yet they contain a maximum price cap. Ecology should similarly impose a reasonable price cap rather than leave covered parties guessing as to their potential liability under the program and hoping that Ecology will issue an emergency rule to address market price spikes.

Conclusions

Ash Grove recognizes the difficulty in developing a rule of this magnitude on the schedule that has been demanded by the Governor. We appreciate Ecology's recognition of the special challenges faced by EITE industries and the potential to increase global GHG emissions if the EITE sectors do not receive unique treatment. However, we do not believe that the appropriate means of addressing EITEs has yet been developed. Therefore, we strongly urge Ecology to finish the rulemaking for the non-EITE industries and defer the rulemaking for the EITE sectors until it can be adequately evaluated. In order to provide some certainty for the EITE sectors, Ecology should state in the current rulemaking that the initial EITE compliance period will be 2023 - 2025 (as opposed to 2020 - 2022). This will allow the EITE sector adequate time to work with Ecology to evaluate the rules and to enable an orderly transition into regulation.

If you have any questions about these comments, please contact me at (913) 319-6065, or curtis.lesslie@ashgrove.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis D. Lesslie". The signature is fluid and cursive, with a large initial "C" and "L".

Curtis D. Lesslie, P.E.
Vice President, Environmental Affairs
Ash Grove Cement Company

Attachments:

GHG Emissions Comparison: Chinese cement v. Seattle Cement

cc: Charlie Sunderland
Mike Hrizuk
Carey Austell
Dan Peters

Table 1: Cost of Steady State Production

Year	Production (tons clinker)	Output-Based Baseline (MT CO ₂ e/ton clinker)(OB)	Average Production (AP)	Efficiency Reduction Rate (RR)	Calendar Years Subject to Program (Y _x)	GHG Emission Reduction Pathway (RP _x)	Actual Emission Rate (MT CO ₂ e/ton clinker)	Actual Emissions (MT)	ERUs Required	% Reduction as Compared to Baseline
2012	700,000	0.8					0.8	560,000		
2013	700,000	0.8					0.8	560,000		
2014	700,000	0.8					0.8	560,000		
2015	700,000	0.8					0.8	560,000		
2016	700,000	0.8					0.8	560,000		
2017	700,000	0.8					0.8	560,000		
2018	700,000	0.8					0.8	560,000		
2019	700,000	0.8					0.8	560,000		
2020	700,000	0.8	700,000	1.7%	0	560,000	0.8	560,000		0.0%
2021	700,000	0.8	700,000	1.7%	1	550,480	0.8	560,000	9,520	1.7%
2022	700,000	0.8	700,000	1.7%	2	540,960	0.8	560,000	19,040	3.4%
2023	700,000	0.8	700,000	1.7%	3	531,440	0.8	560,000	28,560	5.1%
2024	700,000	0.8	700,000	1.7%	4	521,920	0.8	560,000	38,080	6.8%
2025	700,000	0.8	700,000	1.7%	5	512,400	0.8	560,000	47,600	8.5%
2026	700,000	0.8	700,000	1.7%	6	502,880	0.8	560,000	57,120	10.2%
2027	700,000	0.8	700,000	1.7%	7	493,360	0.8	560,000	66,640	11.9%
2028	700,000	0.8	700,000	1.7%	8	483,840	0.8	560,000	76,160	13.6%
2029	700,000	0.8	700,000	1.7%	9	474,320	0.8	560,000	85,680	15.3%
2030	700,000	0.8	700,000	1.7%	10	464,800	0.8	560,000	95,200	17.0%
2031	700,000	0.8	700,000	1.7%	11	455,280	0.8	560,000	104,720	18.7%
2032	700,000	0.8	700,000	1.7%	12	445,760	0.8	560,000	114,240	20.4%
2033	700,000	0.8	700,000	1.7%	13	436,240	0.8	560,000	123,760	22.1%
2034	700,000	0.8	700,000	1.7%	14	426,720	0.8	560,000	133,280	23.8%
2035	700,000	0.8	700,000	1.7%	15	417,200	0.8	560,000	142,800	25.5%
								Total:	1,142,400	

Table 2: Cost of Variable Production

Year	Production (tons clinker)	Output-Based Baseline (MT CO ₂ e/ton clinker)(OB)	Average Production (AP)	Efficiency Reduction Rate (RR)	Calendar Years Subject to Program (Y _x)	GHG Emission reduction Pathway (RP _x)	Actual Emission Rate (MT CO ₂ e/ton clinker)	Actual Emissions (MT)	ERUs Required	% Reduction as Compared to Baseline
2012	730,000	0.8					0.8	584,000		
2013	720,000	0.8					0.8	576,000		
2014	710,000	0.8					0.8	568,000		
2015	700,000	0.8					0.8	560,000		
2016	730,000	0.8					0.8	584,000		
2017	715,000	0.8					0.8	572,000		
2018	675,000	0.8					0.8	540,000		
2019	700,000	0.8					0.8	560,000		
2020	700,000	0.8	696,667	1.7%	0	557,333	0.8	560,000	2,667	3.0%
2021	720,000	0.8	696,667	1.7%	1	547,859	0.8	576,000	28,141	4.6%
2022	730,000	0.8	696,667	1.7%	2	538,384	0.8	584,000	45,616	6.3%
2023	715,000	0.8	716,667	1.7%	3	544,093	0.8	572,000	27,907	5.3%
2024	700,000	0.8	716,667	1.7%	4	534,347	0.8	560,000	25,653	7.0%
2025	710,000	0.8	716,667	1.7%	5	524,600	0.8	568,000	43,400	8.7%
2026	600,000	0.8	708,333	1.7%	6	508,867	0.8	480,000	0	11.4%
2027	625,000	0.8	708,333	1.7%	7	499,233	0.8	500,000	767	13.1%
2028	575,000	0.8	708,333	1.7%	8	489,600	0.8	460,000	0	14.8%
2029	650,000	0.8	600,000	1.7%	9	406,560	0.8	520,000	113,440	29.2%
2030	660,000	0.8	600,000	1.7%	10	398,400	0.8	528,000	129,600	30.6%
2031	675,000	0.8	600,000	1.7%	11	390,240	0.8	540,000	149,760	32.1%
2032	700,000	0.8	661,667	1.7%	12	421,349	0.8	560,000	138,651	26.6%
2033	690,000	0.8	661,667	1.7%	13	412,351	0.8	552,000	139,649	28.2%
2034	710,000	0.8	661,667	1.7%	14	403,352	0.8	568,000	164,648	29.8%
2035	725,000	0.8	700,000	1.7%	15	417,200	0.8	580,000	162,800	27.4%
								Total:	1,172,699	

calculates the greenhouse gas (GHG) emissions attributable to manufacturing a ton of cement in China, the world's
and attributable to making a ton of cement at the Ash Grove Cement Company (Ash Grove) plant in Seattle, WA.
ons are calculated using the best available information from Ash Grove and government sources. These data are
total additional GHG emissions that would occur were the Ash Grove Seattle plant to close and its production
ports from China.

that if the Ash Grove Seattle plant were shut down and the missing capacity met by Chinese exports, the total
s annually would be approximately:

296477.3954 MT/yr

Ash Grove Cement Company

Assessment of Additional Greenhouse Gas Emissions Associated With Transporting Cement to U.S. Markets

GHG Emissions Attributable to Cement Made in China v. at Ash Grove Seattle Plant
China

Washington (Seattle City Light 2014)

%	CO2 EF (kg/MMBtu)			Total GHG (kg/MMBtu)	Source %	CO2 EF (kg/MMBtu)				China Weighted EF	WA Weighted EF
	CH4	N2O				CH4	N2O				
63%	95.52	0.011	0.0016	96.27	0.9%	95.52	0.011	0.0016	96.27	60.1776	0.85968
2%	75.1	0.003	0.0006	75.35	0%	75.1	0.003	0.0006	75.35	1.502	0
4%	53.06	0.001	0.0001	53.11	0.9%	53.06	0.001	0.0001	53.11	2.1224	0.47754
22%	0	0	0	0	89.6%	0	0	0	0	0	0
1%	0	0	0	0	4.3%	0	0	0	0	0	0
8%	0	0	0	0	4.3%	0	0	0	0	0	0
										63.80	1.34

US Energy Information Administration (<http://www.eia.gov/beta/international/analysis.cfm?iso=CHN>)

Seattle City Lights (<http://www.seattle.gov/light/FuelMix/>)

Table C-1

0,089 Btu/kWh	0.010089 MMBtu/kWh
0,354 Btu/kWh	0.010354 MMBtu/kWh
0,334 Btu/kWh	0.010334 MMBtu/kWh

(<http://www.eia.gov/tools/faqs/faq.cfm?id=667&t=2>)

Use

63%	148.89 lb GHG/ton cement	0.9%	2.13
2%	3.80 lb GHG/ton cement	0.0%	-
4%	5.34 lb GHG/ton cement	0.9%	1.20
22%	- lb GHG/ton cement	89.6%	-
1%	- lb GHG/ton cement	4.3%	-
8%	- lb GHG/ton cement	4.3%	-
	158.03 lb GHG/ton cement		3.33 lb GHG/ton cement

10.60

1	25	298	1	25	298
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155 lb/ton cement

%	CO2 EF (kg/MMBtu)			Total GHG (kg/MMBtu)	Source %	CO2 EF (kg/MMBtu)			
	CH4	N2O				CH4	N2O		
90%	95.52	0.011	0.0016	96.27	54%	95.52	0.011	0.0016	96.27
0%	75.1	0.003	0.0006	75.35	3%	75.1	0.003	0.0006	75.35
10%	53.06	0.001	0.0001	53.11	43%	53.06	0.001	0.0001	53.11

2,000 BTU/ton clinker
at the plant
based on industry knowledge

90%	606.35638	54%	363.81383
0%	0	3%	15.820229
10%	37.1707993	43%	159.83444
	643.527179		539.46849
	592.045005		496.31101

96 lb/ton cement

Ash Grove Cement Company

Assessment of Additional Greenhouse Gas Emissions Associated With Transporting Cement to U.S. Markets

2.4 gal/1,000 ton-statute mile Diesel

CO2	CH4	N2O
22.3587	0.006615	0.01323
1	25	298
22.36	0.17	3.94
26.47		
0.06		

170 statute mile
10%

11.88 lb/ton cement

54 Source: Oregon Freight & Climate Change Background Paper (2010).
Note: Paper suggests 54 grams CO2e/ton-mile for domestic marine and higher for international
5067 miles from Shanghai to Seattle
73618 gs to SEA
601.96 lbs

Transportation (NRDC) (<http://www.nrdc.org/international/cleanbydesign/transportation.asp>)

601.96 lb/ton cement

5 lb/ton cement	Environ Study
2.4 lb/ton cement	Environ Study

871.7 lb/ton cement

750,000 tons/yr
Note: Calculations based on tons clinker produced. Clinker is ground to produce cement.

500 lb/ton cement

1,371 lb/ton cement

6,877 ST/yr **296,477 MT/yr**



June 17, 2016

Ms. Sarah L. Rees
Special Assistant, Climate Policy
Washington Dept. of Ecology
PO Box 47600
Olympia, WA 98504-7600

Re: Request for extension to public comment - Clean Air Rule

Dear Ms. Rees:

On behalf of the Association of Washington Business (AWB), I am writing today to ask for an extended public comment period on the recently proposed Clean Air Rule – Chapter 173-442 WAC and Chapter 173-441 WAC – as well as the accompanying support documents that are part of the official record.

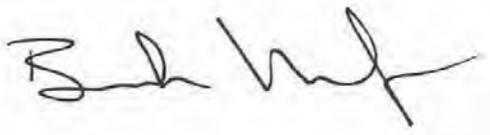
AWB serves as the state's Chamber of Commerce and Manufacturing Association, representing more than 8,000 employers throughout the state. Our broader membership includes many of the covered facilities and companies that would be regulated under the new rule proposal.

While we, and our members, are appreciative of the ongoing dialogue with the Department, we believe more time will be required to provide meaningful feedback and public comment on such a complex rule. Attached is an addendum that includes examples of language within the draft-rule that is confusing or ambiguous, highlighting our need for more time during the public comment period to review the rule language and develop meaningful comments.

We are proposing that Ecology provide an additional 30 days of public comment beyond the current deadline of July 22nd.

Thank you for your willingness to work with the broader stakeholder community, providing adequate and timely review. Please let us know if you have any questions regarding our request for additional comment time. We look forward to your reply, and working with you in the development of a workable Clean Air Rule.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Houskeeper", written over a light gray rectangular background.

Brandon Houskeeper
Government Affairs Director
Association of Washington Business

Cc – Maia Bellon
Chris Davis
Matt Steuerwalt
Stu Clark

Addendum to AWB's request to extend the public comment on proposed Clean Air Rule.

Washington Clean Air Rule (WAC 173-442/441)

Following are issues AWB, and our member companies, believe need additional clarification / explanation in order to prepare competent comments on this rulemaking.

-020 Definitions Section:

General Questions:

- What is meant by "The definitions in this section apply throughout this chapter unless the context clearly requires otherwise"? Aren't contextual assumptions subject to interpretation?

Non-defined terms:

- "Allowances" are not defined in either WAC 173-441 or WAC 173-442. What is the definition of allowances?
- "Final distribution" as used in WAC 173-442-040(ii) is not defined.
 - What is meant by "final distribution"?
- How does an EITE source assure that a "unit of production" appropriate for their "sector" is used for "output-based baseline" and compliance determination? The "unit of production" concept does not account for variability in space heating associated with weather conditions. Furthermore, the variability in co-location of office/administrative space with production operations can skew "unit of production" metrics leading to arbitrary results.
- What is a "sector" within which comparisons can be made? NAICS codes are very broad and may include very different kinds of facilities. For example, an aerospace facility where large components (e.g., wings and fuselages) produced off-site are assembled into a final aircraft is very different from a facility that both builds those large components and assembles final aircraft.
 - If it is not possible to define a rational throughput-based reduction rate, what is the outcome?
 - Where is the latitude to compare comparable processes defined?
 - What principles constrain Ecology's discretion in defining the sector?
 - What is the approach for a facility that is unique?

Specific to the Proposed Rule:

- 1(k)(ii) specifically states that electric generating units are ineligible for this provision. There seems to be at least one double negative in the implications of excluding the generation sector. What was the intent of this exclusion and does the language come together to support that intent?
- 1(m) & 1(q) What is the difference between (m) Emissions reduction unit (ERU) and (q) renewable energy credit?
 - Does ERU = one renewable energy credit?
- 1(r) Why doesn't the definition for "reserve" more clearly indicate it is an "ERU" account for consistency with 173.442.240? "REC" should also be accounted for?
- 1(s) In the definition of "Vintage Year," reference is made to an allowance. What is an allowance?
- 1(i) Aren't all emissions "covered GHG emissions" under the rule (because the rule applies to all stationary sources, NG distributors, and petroleum product producers or importers of GHG emissions)?
 - What are the obligations of a facility that is owned by a covered party but that does not have an emission reduction requirement itself?
- 1(i)(iii)(A): Is a "natural gas distributor" under 173-442 the same as a "supplier of natural gas" under 173-441?
- 1(i)(iii)(B): The rule is confusing as to how voluntary parties do and do not participate in the program. Merely reporting one's emissions under 173-441 should not bring a facility within operation of the rule.
- 1(i) and (j) include the definition of covered natural gas emissions and identifies natural gas distributors as "covered Parties." The rule cross references WAC 173-441-120, which is a rule relating to Ecology's GHG reporting requirements. This is the operative language that makes the natural gas distributor responsible for the combustion/oxidization that occurs at stationary source (aka point source), over which the distributor has no control.
 - Is it Ecology's intention to issue an air operating permit (AOP) to the natural gas distributor instead of the owner of the actual stationary source to account for the emissions associated with that source?
 - If so, how can Ecology issue an AOP to an entity that does not operate or control the stationary source?
 - How can the natural gas distributor ensure or verify that the natural gas is properly or efficiently combusted versus being released as methane?

- Who is the responsible party in such cases and who is accountable for operational control of the stationary source?
- 1(j) Why was the vocabulary (e.g., covered parties vs. facilities) changed to be inconsistent with -441?
- 1(j) What is the regulated entity – i.e. is it the owner/operator, or is it the facility that is capped?
 - If the latter, how are multiple smaller sources owned by the owner/operator excluded?
 - If the former, why isn't Washington State as owner/operator of numerous facilities adding up to more than 100,000 tons/year a "covered party" under this rule?
- 1(l) What is the hardship threshold that was utilized to designate a facility an EITE?
 - Please describe the difference between the facilities thus far qualified under the EITE category, natural gas local distribution facilities and refinery facilities.

-030 Applicability Section:

General:

- Responsibility and Baseline: What are the boundaries for an affected facility. For example, JBLM has several different gas meters, all located on one contiguous property. All of them together may put JBLM into the stand-alone compliance category.
- Will the utilities be required to increase their compliance obligation to cover EITE emissions reductions for 2017-2019?
 - Please clarify a utility's responsibility in the event that an EITE facility does not meet its reduction requirements. Would the utility service provider be responsible for making up the difference?
- How will the Clear Air Rule apply to Federal facilities operating within Washington state?

Specific:

- (1) Need to confirm that for EITEs that baseline emissions and Table 1 together determines applicability year.
- (2) Applicability of this chapter (rather than *to*)?

- (3) Is (3) limited to facilities for with baseline emissions less than 70,000 tpy during the 2012-16 time period since other the other facilities (i.e., those with baselines over 70,000 tpy) already have a compliance obligation?
- (3) and (4) What is the difference in effect of subsection (3) and subsection (4)?
- (4) The statement that *“Whenever there is any change that affects covered GHG emissions, a covered party must reevaluate whether this chapter applies”* is overly inclusive because some listed changes, such as changes in operating hours and changes in production are not necessarily anticipated in advance and are not known until after annual operational or emissions data are collected. The timing of the mandatory evaluation is unclear; it would be impossible to reevaluate contemporaneously with the change.
 - (4) It is not clear how (4) applies at a facility for which emission reduction requirements have already been established.
- (5) A covered party only escapes this section once it complies with the provisions of -210(7). There is no exclusion for “covered parties” that should never have been subject to this rule.
 - Did Ecology intend to make all sources prove that their emissions are below 50,000 for three years or only those that at some point triggered a compliance obligation? It is not clear whether a covered party with emissions <50K MT escapes only the requirements of section 173-442-030 (section) or the entire chapter 173-442.
- (5) states after 3 consecutive years of falling below the 50 MT CO₂e, the party will not be subject to these requirements.
 - Does that mean if we go 3 years in a row below 50 MT CO₂e, that we lose all our allowances that could be sold?
- (3) vs. (5) – (3) establishes the “compliance threshold” at 100,000 metric tons/year and declining to 70,000 metric tons/year in 2035 “and beyond.” Yet WAC 173-442-030(5)(a) establishes that a covered party will no longer be “subject to the requirements of this section” once, after three consecutive years, “covered GHG emissions [are] less than 50,000 metric tons/year of CO₂e.
 - So, if a covered entity has emissions of less than 70,000 metric tons/year of CO₂e for one, or even two years, but more than 50,000 tons/year, is it still subject to “the requirements of this section” during those times, even though they have fallen below the 70,000 metric ton/year threshold?

- If so, then there is an inconsistency in the definition of “compliance threshold,” for a covered party would still be subject to regulation – even if it had reduced emissions below 70,000 metric tons/year in perpetuity.
- What is Ecology’s rationale for this difference?

-040 Exemptions Section:

- 1(a)(iii) exempts Suppliers of Industrial Greenhouse Gases.
 - What entities are covered under this exemption?
 - What is the rationale for exempting the emissions from the combustion of the fuels these entities supply?
- 1(b) states CO2 from industrial combustion of biomass is carbon free.
 - Does this include biomass for electric generation?

-050 Baseline for non-EITE covered parties

General:

- 050 and WAC 173-441-120 Fuel Importers: It is implied that subpart mm is the basis for importer analysis in Category 2, but not clearly stated.
 - How would imported data, as defined in the rule, be collected in the form of subpart mm *back* to 2012?
- How is weather normalization factored into a utility’s compliance obligation?
- What safeguards will be put into place to ensure that consumers do not migrate from natural gas to less environmentally viable fuel sources such as wood-burning stove?

Specific:

- (1)(b)(iii) This is the definition of a Category 2 covered party. Sub (iii) defines a Category 2 covered party as “A covered party which: ... Had average covered GHG emissions less than 70,000 MT CO2e per year during calendar years 2012 through 2016;”
 - There does not appear to be a minimum emission threshold for covered parties.
 - Is it the intend of this rule to capture all stationary source owners, petroleum producers and natural gas distributors who emit less than 70,000 MT CO2e in the definition of Category 2 covered parties?
- 2(c) How would exported or imported data, as defined in the rule, be collected in the form of subpart mm *back* to 2012?

- A list of excluded mm products, rather than a list of included products, exacerbates the technical issues and data gaps from a carbon accounting perspective.
- How will Ecology be addressing this confusion?
- (3)(a)(ii) is unclear. *(a) Ecology must calculate the Category 1 baseline GHG emissions value based on the average (in MT CO₂e per year) of: (i) Five years of covered GHG emissions data between 2012 through 2016; or (ii) At least three years of covered GHG emissions* subject to (b) of this sub-section.*
 - It appears that (b) addresses omitting specific calendar years, at Ecology's discretion. It would seem that a comma or text inserted at the * above could be useful: "from 2012 to 2016, with data omitted...".
- (3)(b)(i)(B)/(C) - (B) Explains why you should cut a year from the baseline, but then (C) states the change can't be a result of process or production changes, regardless of whether outside of control.
 - Does this mean we cannot adjust the baseline for hydro conditions, because in a good hydro year, we would have less generation?

-060 GHG Emission Reduction Pathway

- (1)(b) requires annual decrease of the GHG emission reduction pathway. The GHG emission reduction pathway is defined as the annual reduction requirement. Decreasing the reduction requirement means increasing the emission cap each year – allowing higher emissions. This doesn't make sense.
- How does an entity dropping out of the program work with the LDC provider being responsible for everyone not regulated separately? For example, if a covered facility is regulated on its own and reduces its emissions to 49 MT CO₂e each year for three years in a row, it drops out of the program. Does that mean that it is now considered under LDC providers' emissions? Is the LDC emissions 49 MT CO₂e higher as a result? Does the LDC baseline get to include the previously covered facilities baseline?

-070 GHG Emission Reduction Pathway – EITE

General:

- Did Ecology intend that EITE treatment be mandatory or optional? Where's the opt-out provision?
- Does the EITE sector have a pre-determined GHG reduction schedule that will have to be achieved by aggregated reductions at individual facilities?

- Why is the term “efficiency reduction rate” rate used?
 - Isn’t it counter intuitive?
 - Isn’t the objective to increase efficiency to reduce GHG emissions?
 - Isn’t the amount of GHGs produced per unit of production better described as an intensity factor?
- The draft rule does not contain any information as to a description of the process that would be utilized, by ecology, to set the efficiency reduction rate. What would be the process and variables considered to calculate the efficiency reduction rate for those EITEs that fall into these two categories?
- What formula and variables must Ecology use to calculate “efficiency intensity distribution?”
- What safeguards are being put into place to ensure that participants won’t be penalized in the event that an ERU market is not fully developed or matured by the start of the CAR compliance period?

Specific:

- (1) How will Ecology protect confidential business information from public access?
- (2) How will the efficiency benchmarks be determined for sites that produce multiple products (such as electricity that is produced at the mill and sold to the grid rather than consumed on site)?
- (2) Baseline definition is unclear?
 - (2)(a)(i)(A), what if an EITE covered party’s annual emissions are <70K MT for any given year? Are those <70K emissions excluded (recall that the Chapter is not applicable for EITEs until 2020 per -030). Also, this presents a huge issue for any facility with a project permitted but not yet constructed and operational in the 2012 to 2016 period (or a project that becomes operational late in this five-year period).
- (2)(c) include reference to Table 1 for clarity
- (3)(a) How will Ecology calculate an efficiency intensity distribution for each sector with an EITE covered party, specifically;
 - What is the spatial scale of the distribution (e.g., Washington state, U.S., global, etc.)?
 - What is meant by efficiency intensity distribution?
 - What is meant by “meets the requirements in WAC 173 – 442 -030?”

- Why is there no reference to efficiency intensity distribution requirements in 173- 442 -030.
 - Will the entire section need to average 1.7%?
 - Will facilities within the sector that are required to report GHG emission data to either EPA (25K threshold) or Washington state (10K threshold), but that do not meet the proposed CAR applicability threshold (less than 70K), be included an EITE covered party be included in the efficiency intensity distribution
- (3)(a) is unclear: “Ecology must calculate an efficiency intensity distribution for each sector with an EITE covered party that meets the requirements in WAC 173-442-030.”
 - What / who has to meet the requirements in -030?
- (3)(a)(i)(A)(V) Will a covered parties’ data be compared on a state, US, North America, or Global basis?
 - Will it be a global comparison, as suggested by the allowed use of data from Trade associations?
 - Why does the plain English Document state a covered party will be compared to “National peers” when that isn’t clear in the rule?
- (3)(a)(i)(C) How would a source know that their “unit of production” is acceptable and how can we evaluate this as-yet unknown unit in preparation of comments?
- (3)(a)(i)(C)(I) What year would “reasonably current” refer to?
- (3)(a)(i)(B) How will Ecology use production data from EPA’s GHG reporting program when EPA has determined that production levels are confidential business information (76 FR 30738, May 26, 2011; 78 FR 71904, November 29, 2013)?
- (3)(a)(i)(B)(III) What is the particular source for production data from the DOE energy information agency (not found in EIA form 1605(b) or EIA form 846)?
- (3)(b) Why does section 070 reference back to 060 (non-EITEs)? Why does it reference “GHG emission reduction pathway” instead of the “efficiency reduction rate.”
- (3)(b)(i) How will Ecology determine the specific numerical value to set as the efficiency reduction rate of an EITE covered party with output-based baseline less than or equal to the twenty-fifth percentile value of the sector’s efficiency intensity distribution?
- (3)(b)(i) For facilities that have an output-based baseline less than or equal to the twenty-fifth percentile, what is the maximum efficiency reduction rate?

- (3)(b)(ii) How will Ecology determine the specific numerical value to set as the efficiency reduction rate of an EITE covered party with output-based baseline greater than or equal to the seventy-fifth percentile value of the sector's efficiency intensity distribution?
- (3)(b)(iv) What criteria will Ecology use to determine if a facility has "supplied sufficient information to complete [the assessment of the facility's efficiency reduction rate]"?
 - What specific information does Ecology expect a facility to provide? This does not appear to be specified in the rule.
- (3)(b)(iv) and (v) are not clear enough for parties to distinguish their differences.
 - Can you provide clarity?
- (3)(b)(iv)/(v) stipulates that parties unable to supply sufficient data must be given an "efficiency reduction rate" greater than would have been required under -060.
 - What math will be used to determine "greater" since values in -060 are absolute (not normalized) and those in -070 are divided by units of production – they are not comparable so how would "greater than" be calculated?
- Is (3)(b)(iv)/(v) intended to force Ecology to mandate a more aggressive emission reduction pathway than the vulnerable EITE facility would otherwise be assigned in -060?
- (4)(b) What criteria are used to define "units of production" per Equation 1 in determining emission reduction pathway for EITE covered parties?
 - EPA's GHG reporting program requires reporting of fuel combusted – would this be a "production data" denominator?
- How is a baseline set for modified EITE facilities? There are no provisions for EITE facilities equivalent to -050(4)(b) for non-EITE facilities.

-100 Emission Reduction Units

General:

- A facility can purchase ERUs from outside of WA State but cannot sell them outside of Washington State?
 - Is that correct?

-110 Generating Emission Reduction Units

General:

- Is there any connection between ERUs and ERCs in WAC 173-400-131 *Issuance of emission reduction credits* and 173-400-136 *Use of emission reduction credits (ERC)*?
- What does it mean that ERUs are not a property right?
- What secures the value of an ERU if it is stipulated in the rule not to be a property right?

-140 Exchanging Emission Reduction Units

General:

- Will there be dollar amount given to the ERU's when transferred from one entity to another?
- If ERUs have an economic value, how are they not also a property rights?
- "ERUs must be enforceable by the state of Washington." How is this accomplished?
- What are the protocol and process for acceptance?
- If only covered parties may bank or exchange ERUs, how are they contributed by third parties?
- Please elaborate on the ERU registry and transfer of ERU's between entities. What will this look like under existing rules and laws?
 - What are the protocol and process for acceptance?

-150 Criteria for activities and programs generating ERUs

General:

- Why is there an additionality requirement?
- Why is there an enforceability requirement?
- Would becoming a generator of an ERU have implications for a party or facility not otherwise subject to this rule?
- Emission reductions have to be permanent, but how will it be addressed that an ERU contributor may have future expansion needs unrelated to the reduction?
- If emission reductions are vintage, aren't they already permanent and enforceable inasmuch as they've already happened? Or does Ecology have something else in mind?
- It is essential to note that utilities are already mandated to achieve all cost effective forms of conservation under WUTC rules.

- Please describe how the Clear Air Rule intends to qualify ERU's resulting from energy conservation if mandated savings does not count under this pathway.
 - Does Ecology intend to coordinate with the Washington Utilities and Transportation Commission to define qualifying conservation projects?
- Will direct use of natural gas natural gas as a substitute for a less efficient fuel source, or natural gas fired combined heat and power be considered an allowable ERU generation source?
- Will Ecology allow diesel/gasoline to CNG fuel switching for the transportation sector?

Specific:

- (1)(b) defines the term "permanent", which is one of the criteria that must be met in order for an activity or program to generate ERUs.
 - How will Ecology enforce emissions arising from "activities" that are not under the control of a covered party may not be "permanent," including those enumerated in WAC 173-442-160, such as transportation activities, including those defined in WAC 173-442-160(3)?
- (1)(e) How are emission reductions resulting from RCW 80.80.040 (GHG emission performance standard) "additional" and therefore acceptable under this rule?
- 1)(e)(ii) Is this subsection meant to provide specific exemptions to subsection (1)(e) and (1)(e)(i)?
 - Why does subsection (1) (e) (i) use the terms "statute, rule or other legal requirement" but subsection (1) (e) (ii), which may be attempting to list exemptions, use the word "policies?" Is there a distinction intended by drafters of the rule for the use of these different terms?
- (1)(e)(ii) If this subsection is meant to provide exemptions from the prohibition on double counting of emission reductions, what did authors of the rule envision as the potential for emission reductions effectuated by a new baseload electric generating source meeting the terms of the state's emission performance standards under Chapter 80.80.040 RCW?

- WAC 173-442-150(1)(e)(ii)(B) identifies the emissions performance standard as a “policy” that can be used to generate ERUs. Can Ecology explain how this “policy” would do so?
- (1)(e)(ii)(D) How are Commute Trip Reduction program emission reductions “enforceable?”
 - Is Ecology aware of the methodology DOT applies in calculating emission reductions associated with achievements in CTR programs?
- (2) This includes the exemption for biomass as an emitting resource.
 - Why is that exemption called out here?
 - Does this mean biomass combustion can be used to generate ERUs?
 - Please elaborate on the types of biomass combustion projects that can be used to generate ERUs.

-160 Activities and programs recognized as generating ERUs

General:

- We do not understand how there are sufficient credits/offsets for compliance, in terms of the projects described for Washington.
 - Can Ecology describe the methodology used to determine how it projects sufficient credits?
- What happens when protocols upon which these emission reductions are calculated change?
- Nowhere in the proposed WAC is it explicit that an action by a covered entity to no longer engage in an activity that produces GHG emissions is considered a program or activity that generates an ERU. For example, the compliance threshold applies to electric generation facilities for which the owner (an electric utility) is responsible for making reductions.
 - What if that electric utility decommissions a fossil-fueled generating unit with emissions below the compliance threshold that triggers the rule’s application to electric generating units?
 - Why shouldn’t the utility be allowed to accrue ERUs for the permanent reduction that occurs by its action?
- What is Ecology’s intention in expressing natural gas conservation in unites of megawatt-hours?
 - Is natural gas being considered only as a fuel for electric generation?

Specific:

- (2) What external registry programs are acceptable under?
- (2)(b) What are the parameters for an acceptable “process”?
- (2)(c) What does the text in WAC-173-442-160(2)(c) mean?
 - What is meant by the following phrase in -160(2)(c): “Project types must not be included in the methodologies used in the emission calculations that generate the covered GHG emissions for any covered party reporting as per chapter 173-441 WAC”?
- (3)/(8) Are the emission reduction protocols identified in -160(3)-(8) deemed to meet the requirements in WAC 173-442-150(1)(a)-(e), or do covered parties also need to demonstrate that these criteria are met?
- (4) How can a facility submit a methodology for demonstrating GHG emission reductions and calculating emission reduction units associated with operation of industrial combined heat and power (CHP) systems to Ecology for approval?
 - What criteria will Ecology apply when approving such methodology? (WAC-173-442-160(4)).
- (5)(a)(iii) says only conservation and energy efficiency that exceeds targets established through RCW 19.285 for electrics, or put in place by Commission Order for gas, will count.
 - Will only incremental conservation that is cost effective because of CAR count?
- (5)(c): The citations of WAC 173-442-170 (2)(a) and (b) are uncertain and may be incorrect.
 - Can you clarify how they apply?

-170 ERUs derived from Allowances

General:

- Please provide more guidance on what types of state allowances will be acceptable for the purposes of this program.
- Can natural gas distributors use Reserve allowances to compensate for the expansion of their system and the addition of new customers?

Specific:

- (1)(a) What is a multi- sector program, and why do allowances need to come from it?
- (2)(a) How do tables 3 and 4 interact?
- Please clarify the meaning of Table 4 and explain with examples how Tables 3 and 4 work together?
 - What is the rationale for this section?
 - Table 3 outlines a percentage limit of usage of allowances for covered parties which indicates that over time the upper limit for usage is reduced as each compliance period passes. For example, for the compliance period (2017 – 2019) the upper limit is 100% while in (2035 and beyond) the upper limit is 5%.

In (2)(b) the rule states “A covered party may use allowances from a single vintage year within a compliance period consistent with the percentages in Table 4. The originating program assigns the vintage year for each allowance”.
 - Table 4 outlines limits on the use of allowances from a vintage year within a compliance period. More specifically Table 4 outlines that for each year within the three-year compliance period a further limitation on the use allowances exist. For example, for the 1st year of the compliance period it indicates that 35% of the allowances can be utilized in the same year as the first year of the compliance period. This seems to conflict with Table 3 which says that in the first two compliance periods 100% of the compliance obligation can be achieved via allowances from external GHG emission reduction programs.
- (2)(a): What is the objective in restricting the use of allowances?
 - How is this addressed in the economic impact assessment?
- 2(b) What is the objective in restricting the use of allowances by vintage year?
 - How is this addressed in the economic impact assessment?
 - What does “not to exceed 35%” of a vintage in year one of a compliance period mean?

-200 Demonstrating Compliance

- 6(b) “The emission reduction requirement established for each compliance period ending in 2035 must continue to be met for all following compliance periods”.
 - When do the reductions end? Is there an end-date for compliance past 2035?
 - When they are below 70,000 mt?

- What if facility never gets there?

-210 Compliance Report

General:

- Why is Dept of Ecology requiring compliance record keeping for 10 years?
- Why are compliance reports required annually if the compliance period is 3 years?

Specific:

- (6)(b)(iii) What, specifically, is meant by the broad statement “other forms of noncompliance with this chapter”?

-220 Verification

- Under what circumstances would more than one verification audit be needed?

-240 Reserve

General:

- Why do reductions from a curtailed facility go into the reserve when the facility has not been permanently shut down?
- What happens when the reserve is exhausted?
- The Clean Air Rule refers to a 2% annual decrease in emissions that goes towards the reserve. Is this in addition to the Participant’s annual reduction target, or is this included in that goal?

Specific:

- (1)(b) Do all “reductions” from a curtailment go into the reserve, or just the quantity to be reduced during the compliance period?
- (1)(C) includes language on curtailment. Given earlier exclusion of electric generation from curtailment, does this mean that if CCCT plants are not running for 4 consecutive months, it has no impact on whether the year will be counted?
- (2) What are those conditions where two ERUs may be generated for each metric ton of reduced GHG emissions?
 - Would this provision be used to account for RECs generated under the EIA that include multipliers for various factors associated with generating those RECS?
- (2)/(3) What happens if the emissions associated with these activities exceed the available ERUs in reserve?

- (2)/(3) What if the reserve is depleted and a new entrant comes into the market or an EITE looks to expand production?
- (3)(a) What is the rationale for assigning a facility restarting operations 50% of the ERUs that were allocated to the reserve during the calendar year prior to restart for curtailment?
 - Why not 100% coverage for the applicable compliance period prior to restart?
- (3) What are the parameters for transferring ERUs out of the reserve, and how will it be done?
- (4) How will Ecology decide who will get the ERUs (e.g., will they be auctioned)?
- (4) What is the rationale for limiting eligibility for the use of reserve ERUs just to the entities and activities identified in the subsection?

250 – Compliance

- 250, Table 5, shows for 2017-2019, we have to file a report to Ecology by July 28, 2021.
 - Does that mean we can lump 2017, 18, and 19 together for compliance?
 - Can we borrow within the compliance period, as well as bank? That is, it is clear we can use an ERU created in 2017 for 2019. Can we use an ERU from 2019 to meet requirements for 2017?

Miscellaneous Questions/Clarification

- Technical correction – In the amendatory section for **WAC 173-441-120 (GHG reporting rule - not the CAR)** Page 20 Part NN for supplier of natural gas and natural gas liquids, the exception columns references 173-441-03 subsection (1). This subsection pertains to facilities reporting requirements – not suppliers. Subsection (2) of this Section is the applicable subsection for suppliers.
 - Is that the subsection that should be referenced in this table on line NN?
- What are the estimated economic impacts to low income households resulting from the Clean Air Rule? How does Ecology intend to mitigate the increased energy burden of the State’s most economically vulnerable households that results from the CAR?
- How is “least burdensome” being defined in the context of the Clean Air Rule?



Association
of Washington
Business

Washington State's Chamber of Commerce

July 22, 2016

VIA U.S. MAIL & EMAIL

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
AQComments@ecy.wa.gov

Re: AWB Comments on the Proposed Clean Air Rule

Dear Mr. Wilson:

The Association of Washington Business appreciates the opportunity to provide the attached comments on the Washington Department of Ecology's proposed Clean Air Rule, published as a proposed rule on May 31, 2016.

Very truly yours,

A handwritten signature in black ink that reads "Gary Chandler".

Gary Chandler
Vice President, Government Affairs

cc: Sarah Rees
Maia Bellon
Chris Davis
Stu Clark

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I. Introduction

For many years the Ecology Air Program has developed major new rules in close consultation with the regulated community, with local air authorities and with other stakeholders. Ecology typically shares drafts, meets with stakeholders, and often forms advisory committees to ensure that the complex requirements of the Clean Air Act are imposed in the most efficient and transparent way, and that policy decisions are adopted only after interested parties receive fair notice and the opportunity to comment.

Ecology departed from all of these time-honored policies in developing the proposed Clean Air Rule (“CAR”). On August 13, 2015 the Governor directed Ecology Director Maia Bellon to develop a Washington Clean Air Act rule to cap “carbon pollution emissions.”¹ From that moment until Ecology formally published a proposed rule for comment on January 5, 2016, Ecology declined to share a draft of the rule, despite frequent requests from AWB and its members to do so.² Shortly after releasing the proposed rule for comment, Ecology discovered that the rule and its supporting studies contained multiple errors, of such gravity that Ecology was forced to withdraw the rule.³

Ecology announced that it would file a new proposed rule in the spring of 2016, including changes that would “substantially alter the initial proposed rule.”⁴ Once again, the regulated community requested an opportunity to review drafts and provide input.⁵ Once again, Ecology denied these requests.⁶

¹ Letter of August 13, 2015 from Gov. Inslee to Director Bellon, Attachment A to these comments.

² *See, e.g.*, Letter of November 19, 2015 from Brandon Houskeeper to Sarah Rees, and reply of December 2, 2015 from Sarah Rees to Brandon Houskeeper, Attachments B and C to these comments.

³ Letter of February 26, 2016 from Polly Zehm to “Whom It May Concern,” Attachment D to these comments.

⁴ *Id.*

⁵ Letter of April 29, 2016 from AWB’s Gary Chandler to the Hon. Jay Inslee, Attachment E to these comments.

⁶ Letter of May 12, 2016 from Gov. Inslee to Gary Chandler, Attachment F to these comments.

On May 31 Ecology published proposed CAR 2.0. It is replete with undefined terms, opaque policy statements and provisions that vest Ecology with unchecked discretion.⁷ On June 17 AWB shared with Ecology a 16-page list of confusing provisions in the proposed rule, in support of a request to extend the public comment period.⁸ Ecology proved willing to meet with AWB members in an effort to explain the proposed rule, but Ecology declined to answer any questions about it in writing. Ecology refused all requests to extend the comment deadline,⁹ even though the Administrative Procedure Act (“APA”) gives Ecology until December 12 to adopt a final rule without re-proposal.¹⁰

The result is a gravely flawed proposal that the regulated community does not fully understand, but which raises a host of obvious legal issues and compliance challenges. No statutory or other deadline compels Ecology to adopt the most ambitious regulatory measure in the history of the state Air Act without any meaningful input from affected interests, without a careful SEPA review, and without consideration of ways to achieve the goals of the program with less burden on the Washington economy. For reasons set forth in these comments, AWB urges Ecology to withdraw the proposed rule and to pursue a consensus approach to the development of a regulatory initiative that respects the limits on Ecology’s authority and that incorporates the guidance of the regulated community and other interested parties.

II. Ecology lacks statutory authority to adopt the CAR.

A. Ecology requires legal authority from the legislature for everything it does.

Washington State agencies have only the authority granted to them by the legislature. *See* RCW 43.17.010 (“There shall be departments of the state government . . . which shall be charged with the execution, enforcement, and administration of such laws, and invested with such powers and required to perform such duties, as the legislature may provide.”); *Fahn v. Cowlitz Cty.*, 93 Wn.2d 368, 374, 610 P.2d 857 (1980) (“[A]n administrative agency is limited to the powers and authority granted to it by the legislature.”). For Ecology, the legislature made it explicit that the director may not adopt rules “that are based solely on a section of law stating a statute’s intent or purpose, on the enabling provisions of the statute establishing the agency, or any combination of such provisions, for statutory authority to adopt the rule.” RCW

⁷ *See, e.g.*, proposed WAC 173-441-086(1)(d)(ii) (“‘Omissions’ means any covered emissions or covered product data ecology concludes must be part of the annual GHG report, but were not included by the reporting entity in the annual GHG report.”).

⁸ Letter of June 17, 2016 from Brandon Houskeeper to Sarah Rees, Attachment G to these comments.

⁹ Letter of July 1, 2016 from Sarah Rees to Brandon Houskeeper, Attachment H to these comments.

¹⁰ *Id.*

43.21A.080.¹¹ Under the APA a rule is invalid if it “exceeds the statutory authority of the agency.”¹²

Ecology cites RCW chapters 70.235 and 70.94 as authority for the CAR.¹³ Neither statute authorizes Ecology to establish a new GHG regulatory program.

B. RCW Ch. 70.235 contains no new authority for Ecology to adopt a GHG reduction program.

The 2008 Washington legislature enacted RCW Ch. 70.235. RCW 70.235.020(1)(a) declares that “The state shall limit emissions of greenhouse gases” to achieve specified GHG reduction milestones for the state. The next subsection describes how the legislature intended Ecology to achieve these milestones:

By December 1, 2008, the department shall submit a greenhouse gas reduction plan for review and approval to the legislature, describing those actions necessary to achieve the emission reductions in (a) of this subsection by using existing statutory authority and any additional authority granted by the legislature. Actions taken using existing statutory authority may proceed prior to approval of the greenhouse gas reduction plan.

RCW 70.235.020(1)(b).

The bill that became RCW Ch. 70.235 was introduced as governor-request legislation. As introduced H.B. 2815 would have granted Ecology the authority to “develop and implement a program” to limit statewide greenhouse gas emissions.¹⁴ The legislature deleted this phrase from the final version of the law. Instead of providing Ecology with new authority to adopt rules to reduce GHG emissions, the legislature instead directed Ecology to submit a plan by December 1,

¹¹ The bigger the impact of a program, the more it requires specific authority. *See Utility Air Regulatory Group v. EPA*, 134 S.Ct. 2427, 2444 (2014) (“When an agency claims to discover in a long-extant statute an unheralded power to regulate a significant portion of the American economy, we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast economic and political significance.”).

¹² RCW 34.05.570(2)(c).

¹³ CR-102, WSR 16-12-098 (May 31, 2016).

¹⁴ H.B. 2815, 60th Legislature § 3(1)(a) (2008) (“The department shall develop and implement a program to limit greenhouse gases emissions to achieve the following emissions reductions for Washington state”), *available at* <http://lawfilesexxt.leg.wa.gov/biennium/2007-08/Pdf/Bills/House%20Bills/2815.pdf>.

2008 for review and approval by the legislature describing the actions necessary to achieve the emission reduction goals.¹⁵

The bill as passed allowed Ecology to proceed with any actions that it could take using “existing statutory authority” but the same section of the bill that specified state-wide GHG reduction targets called for Ecology to submit a plan to the legislature to achieve those targets.¹⁶ No part of RCW Ch. 70.235 gives Ecology any new authority to establish a GHG reduction program.

In December 2008, as required under RCW 70.235.020(1)(b), Ecology returned to the legislature with a proposal recommending that Washington state participate in a regional cap-and-trade program as part of the Western Climate Initiative.¹⁷ The 2009 legislature debated but did not enact any part of this proposal.

In early 2015 Governor Inslee proposed the “Carbon Pollution Accountability Act.”¹⁸ H.B. 1314 would have, among other things, charged for carbon emissions and created a centralized market for trading emissions credits. That legislation failed in the 2015 legislature.

After the legislature declined to enact Governor Inslee’s carbon trading program he announced that he would adopt a program “by executive action.”¹⁹

¹⁵ RCW 70.235.020(1)(b).

¹⁶ ESSHB 2815, 60th Legislature, 2008 Regular Session, §3(1)(b), codified at RCW 70.235.020(1)(b).

¹⁷ Ecology and CTED, *Growing Washington’s Economy in a Carbon-Constrained World: A Comprehensive Plan to Address the Challenges and Opportunities of Climate Change* (Dec. 2008), *available at* <http://www.ecy.wa.gov/climatechange/2008CompPlan.htm>. Governor Gregoire’s cap-and-trade legislation was introduced in the 2009 legislature as H.B. 1819 and S.B. 5735.

¹⁸ H.B. 1314, 64th Legislature, 2015 Regular Session, § 30, *available at* <http://lawfilesexternal.wa.gov/biennium/2015-16/Pdf/Bills/Senate%20Bills/5283.pdf>.

¹⁹ *See* E-mail of September 23, 2015 from Gov. Jay Inslee to undisclosed recipients, (“Republicans in our state refused to act, so now I’m taking executive action.”), Attachment I to these comments; Comments of Gov. Jay Inslee to the Association of Washington Business (August 26, 2015), *available at* <https://vimeo.com/138155240>, Tr. 9:35; Second Declaration of Sarah Rees, ¶ 11 (April 20, 2016), (“Given that the 2015 Legislature did not pass cap and trade legislation to address greenhouse gas emissions, the Governor and Ecology decided to work within existing state authority to adopt a rule to get emissions reductions now.”), Attachment J to these comments.

C. Ecology’s authority to adopt “emission standards” under RCW Ch. 70.94 reaches only emissions sources, not petroleum product producers/importers or natural gas distributors.

The CR-102 for the CAR states that “under RCW 70.94.331 Ecology may adopt rules establishing emission standards . . .” and that “Chapter 173-442 WAC is intended to establish emission standards for greenhouse gas emissions” The CAR regulates three categories of operations: stationary sources, petroleum product producers and importers and natural gas distributors. WAC 173-442-010. Two of these categories have *no emissions*. Petroleum product producers and importers and natural gas distributors sell commodities into the economy. Ecology cannot regulate the distribution of commodities under a rule described as an “emission standard.”

The state Air Act vests Ecology with authority to “[a]dopt by rule air quality standards and emission standards for the control or prohibition of emissions to the outdoor atmosphere”²⁰ An “emission standard” is a limitation on “emissions,” defined in RCW 70.94.030(11) as “a release of air contaminants into the ambient air.” The statutory definition of “emission standard” tracks the common sense meaning of the term:

a requirement established under the federal clean air act or this chapter that limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction, and any design, equipment, or work practice, or operational standard adopted under the federal clean air act or this chapter.²¹

In *Train v. NRDC*, 421 U.S. 60 (1975), the Supreme Court described “emission limitations” as “regulations of the composition of substances emitted into the ambient air from such sources as power plants, service stations, and the like. They are the specific rules to which operators of pollution sources are subject, and which if enforced should result in ambient air which meets the national standards.” *Id.* at 78 (emphasis added).

The proposed CAR would require covered fuel suppliers and natural gas distributors to reduce emissions from the products they sell. For these covered parties, reducing the emission rate from fuel combustion is not an option.²² The only ways to comply are by selling less fuel,²³ or by purchasing emission reduction units (“ERUs”) to offset the emissions from fuel

²⁰ RCW 70.94.331(2)(c).

²¹ RCW 70.94.030(12)

²² WAC 173-441-130 fixes by rule the CO₂ emission factors from combustion of fuels.

²³ Selling less is not an option for natural gas distributors. *See* Section V below.

combustion by their customers and attributed to them by the proposed CAR.²⁴ Neither compliance strategy involves limitations on emissions into the ambient air.

The state and federal Clean Air Acts contain many programs that indirectly regulate emissions through means other than emission standards. Some of those programs, like the CAR, regulate the sale of commodities. But every one of those programs is authorized by a specific statutory grant (*e.g.*, 70.94.460 – ban on sale of dirty woodstoves; 70.94.980 – ban on sale of certain ozone depleting substances; 70.94.531 – commute trip reduction plans). The only current Ecology rule that demands offsets for GHG emissions does so pursuant to a statutory mandate.²⁵ Two Washington governors requested statutory authority to reduce GHG emissions from existing sources through carbon trading, but the legislature refused to provide that authority. Ecology cannot circumvent the decisions of the 2008, 2009 and 2015 legislatures by branding a carbon trading program as an “emission standard.”

In summary, Ecology cites no statutory authority for the CAR other than RCW Ch. 70.235 and the power to issue emission standards under RCW 70.94.331.²⁶ For the reasons cited above these provisions do not authorize the CAR.²⁷ Ecology should withdraw the proposed rule

²⁴ See Ecology, Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis: Chapter 173-442 Clean Air Rule and Chapter 173-441 Reporting of Emissions of Greenhouse Gases, at 24, 50 (June 2016) [hereafter CAR Cost-Benefit Study].

²⁵ WAC Ch. 173-407 requires owners of new thermal power plants to mitigate their GHG emissions, pursuant to RCW 70.94.892.

²⁶ The CR-102 for the first version of the CAR suggested that Ecology might look to RCW 70.94.395 as authority for the CAR. WSR 16-02-101 (January 5, 2016). The current CR-102 does not mention RCW 70.94.395, and for good reason. That section was enacted in 1967 to give Ecology exclusive regulatory authority over complex sources that local air authorities lacked the sophistication to regulate. RCW 70.94.395 adds nothing to the scope of Ecology’s substantive rulemaking authority.

²⁷ Not only does Ecology lack statutory authority to promulgate the CAR, but specific provisions of the CAR conflict with or exceed Ecology’s authority under state law. For instance, Ecology’s proposal in WAC 173-441-090 and WAC 173-442-340 to define “each metric ton” and “each day” that a covered party exceeds a CAR compliance obligation as a separate violation exceeds Ecology’s authority under RCW 70.94.431. The proposal in WAC 173-442-070(3)(b)(iv) to sanction an EITE covered party for failure to submit “sufficient information” about the energy efficiency of all firms in its “sector” to complete a benchmarking analysis exceeds Ecology’s authority under RCW ch. 70.94. Sections III, VI and XII of these comments document other features of the proposed rules that exceed Ecology’s statutory authority.

and work with the legislature to develop a GHG management program based upon a statutory framework.²⁸

III. The Washington Clean Air Act does not authorize Ecology to accept emission credits, a.k.a. “emission reduction units,” to reduce GHG emissions from existing sources.

The proposed CAR recognizes two methods for covered parties to satisfy their emission reduction requirements—reducing on-site emissions or purchasing ERUs. WAC 173-442-100. Because fuel producers, importers and natural gas distributors have no on-site emissions, ERUs are the only compliance mechanism available to those covered parties. Ecology cites no statute, however, that would allow covered parties to meet their CAR emission reduction requirements by tendering credits or offsets from GHG control projects at some off-site location. The Washington legislature has authorized the use of emission credits to meet emission control requirements in *two specific programs*—the credit banking program in RCW 70.94.850 and the power plant carbon dioxide mitigation program in RCW Ch. 80.70. In each case the legislature narrowly defined the functions that credits can perform.

The 1984 legislature created emission credits in RCW 70.94.850 as an element of Washington’s major new source review program implementing Title I of the federal Clean Air Act. Credits can be used “to allow new sources to locate in a given air shed without contributing to the overall deterioration of air quality” by ensuring “that any new air pollution would be offset by a reduction in emissions by another source in the air shed.”²⁹ During public hearings on the bill the Supervisor of the Air Resources Division for the Department of Ecology, Hank Droege, explained that the emission reduction credit “can be used as part of the approval of a new source or modified source.”³⁰ Mr. Droege also testified that the “concept of the emission reduction credit is essentially . . . an EPA creation” and “does not affect any provisions of the state Clean Air Act for . . . notices of approval for new construction, but it does apply to PSD and bubble

²⁸ Ecology has not cited the “public trust doctrine” as authority for the CAR. AWB agrees that the public trust doctrine does not authorize the proposed rule, for multiple reasons including those presented by Ecology in its April 6, 2015 response brief filed in *Foster et al v. Washington Dept. of Ecology*, No. 14-2-25295-1 (King County Superior Court).

²⁹ House Bill Report on ESSB 3616, 48th Legislature, 1983 Regular Session, House Committee on Environmental Affairs at 1 (Apr. 13, 1983), Attachment K to these comments.

³⁰ Hearing before the House Environmental Affairs Committee on ESSB 3616, 48th Leg., at minute 7 (Feb. 8, 1984) (statement of Hank Droege, Supervisor of the Air Resources Division, Department of Ecology), *available at* <http://www.digitalarchives.wa.gov/Record/View/195C27530FCCBB65D9EAD48695C35288>.

concepts.”³¹ RCW 70.94.850 does not authorize emissions credit banking for an existing source GHG cap and credit program like the CAR.

The 2004 legislature authorized use of “carbon credits” to meet CO₂ offset requirements, but only for emissions from new power plants. Carbon credits are a specialized form of emission credit authorized by RCW Ch. 80.70.³² That chapter requires owners of new thermal power plants to mitigate some of the CO₂ emissions from the new plant. RCW 80.70.020(3) offers carbon credits as an approved option to meet the CO₂ mitigation requirements of the program.

The Washington legislature has authorized the use of emission credits to meet emission control requirements in two specific circumstances -- the credit banking program in RCW 70.94.850 and the power plant CO₂ mitigation program in RCW Ch. 80.70. In each case the legislature narrowly defined the functions that credits can perform.

In the proposed CAR Ecology refers to emission credits as ERUs, but the rules describing how ERUs may be applied to satisfy a compliance obligation confirm that ERUs perform the same function in the CAR that “*emission credits*,” “*emission reduction credits*” and “*carbon credits*” perform under the state Air Act. ERUs, like credits, are verified reductions in a pollutant that can be offered to satisfy a covered party’s emission reduction obligations. ERUs, like credits, can be sold and traded. ERUs, like credits, must be documented in a regulatory order. The only meaningful difference between ERUs and credits is that the legislature authorized use of credits for the purposes described in RCW 70.94.850 and RCW 80.70.020, whereas Ecology invented ERUs out of whole cloth.

A long standing principle of statutory interpretation, recognized by Washington courts, provides: “Where a statute specifically designates the things or classes of things upon which it operates, an inference arises in law that all things or classes of things omitted from it were intentionally omitted by the legislature under the maxim *expressio unius est exclusio alterius*—specific inclusions exclude implication.”³³ Ecology now proposes to establish by rule a new use for emission credits, but the two statutes that authorize use of emission credits limit their use to transactions other than reducing GHG emissions from existing sources. Ecology cannot evade the obligation to show statutory authority for its GHG trading program by labeling credits as

³¹ *Id.*

³² RCW 80.70.010 defines a carbon credit as “a verified reduction in carbon dioxide or carbon dioxide equivalents that is registered with a state, national or international trading authority or exchange that has been recognized by the council.”

³³ *Ellensburg Cement Production v. Kittitas Cnty.*, 179 Wn.2d 737, 750 (2014) (holding that Kittitas County lacked authority to create its own type of SEPA hearing where the statutory scheme specified two other types of proceedings).

“emission reduction units.”³⁴ Ecology’s attempt to include credits as a compliance mechanism in the CAR is *ultra vires*.

IV. The CAR violates the Dormant Commerce Clause of the United States Constitution.

The requirements in WAC 173-442-100 that ERUs must originate from GHG emission reductions in Washington, the prohibition in WAC 173-442-140 against “third party” ownership of ERUs and the phase-out in WAC 173-442-170 of allowances from other states discriminate against suppliers from other states, in violation of Article 1 of the U.S. Constitution.³⁵ Puget Sound Energy’s comments document the ways in which the CAR violates the Dormant Commerce Clause, and AWB incorporates those comments by reference.

V. The CAR conflicts with the statutory obligations of LDCs to meet the loads of their customers.

The proposed CAR would hold four natural gas distribution companies (LDCs) responsible for reducing the GHG emissions of their customers. Proposed WAC 173-442-050 designates four LDCs as Category 1 covered parties, and assigns to them a GHG reduction pathway beginning in 2017. Unlike some covered parties, however, LDCs have no option to meet their compliance obligation through process changes, production curtailment or even facility closure. RCW Ch. 80.28 imposes on LDCs a legal obligation to provide safe and reliable service to every customer that requests service. RCW 80.28.110 states:

Service to be furnished on reasonable notice.

Every gas company, electrical company, wastewater company, or water company, engaged in the sale and distribution of gas, electricity or water or the provision of wastewater company services, shall, upon reasonable notice, furnish to all persons and corporations who may apply therefor and be reasonably entitled thereto, suitable facilities

³⁴ "The administrative agency's own label is indicative but not dispositive '[I]t is the substance of what the (agency) has purported to do and has done which is decisive.'" *Chamber of Commerce of United States v. Occupational Safety & Health Admin.*, 636 F.2d 464, 468 (D.C. Cir. 1980), *quoting Columbia Broad. Sys. v. United States*, 316 U.S. 407, 416, 62 S. Ct. 1194 (1942). *See also Dep't of Ecology v. City of Kirkland*, 84 Wn.2d 25, 29-30, 523 P.2d 1181 (1974) ("whether or not the statutory requirements of finality are satisfied . . . depends not upon the label affixed to its action by the administrative agency"); *McGee Guest Home, Inc. v. Dep't of Soc. & Health Servs.*, 142 Wn.2d 316, 322-23, 12 P.3d 144 (2000).

³⁵ The Eighth Circuit recently struck down on Commerce Clause grounds a Minnesota statute that barred importation of power from new out-of-state coal plants. *See North Dakota v. Heydinger*, ___ F.3d ___ (8th Cir. 2016), 2016 WL 3343639.

for furnishing and furnish all available gas, electricity, wastewater company services, and water as demanded . . .³⁶

The importance of natural gas service finds expression in other sections of the statute. For example, RCW 80.28.074 states:

Legislative declaration.

The legislature declares it is the policy of the state to:

- (1) Preserve affordable natural gas and electric services to the residents of the state;
- (2) Maintain and advance the efficiency and availability of natural gas and electric services to the residents of the state of Washington;
- (3) Ensure that customers pay only reasonable charges for natural gas and electric service;
- (4) Permit flexible pricing of natural gas and electric services.

The obligation to meet load gives LDCs only one compliance option. The proposed CAR would force LDCs to meet their emission reduction obligations by purchasing ERUs.³⁷ In other words, the proposed rule would require a non-source to address emissions from sources (its customers) primarily by paying for emission reductions at *some other sources* altogether, including sources outside the state of Washington.

Section II of these comments shows that Ecology’s authority to adopt “emission standards” does not include the power to hold fuel sellers responsible for emissions generated by their customers. Section III of these comments shows that the state Air Act does not authorize Ecology to employ ERUs (a form of emission credit) as part of an existing source GHG control program. The final infirmity in the rule as applied to LDCs is that natural gas is the most energy efficient and cost-effective fuel available for residential and commercial space heating applications. The cost of purchasing ERUs would cause rate increases for LDC customers, and shift part of the residential and commercial demand for natural gas to fuels with higher carbon footprints.³⁸

VI. The CAR will impair the ability of EITE industries to compete in the world economy.

Energy Intensive, Trade Exposed (EITE) industries should be better protected from economic disruption under the proposed Clean Air Rule (CAR). Many of the GHG control

³⁶ This obligation to serve is reinforced by restrictions imposed upon a “gas company” for refusing or discontinuing service. *See* WAC 480-90-123 and 480-90-128, and RCW 80.28.010, which limits a utility’s ability to cease service to customers for any reason.

³⁷ *See* Ecology, CAR Cost-Benefit Study, *supra* note 24, at 24.

³⁸ *See* Section VIII of these comments (SEPA impacts).

programs to date recognize the inherent risk to sectors of the economy that are EITE. Washington’s “energy intensive” industries will face exaggerated increases in the cost of production when energy prices increase due to energy providers’ obligations under the CAR. Washington’s “trade exposed” industries are those that compete with out of state entities that will not be not subject to CAR or feel its impacts on energy prices. The risks to entities that are both energy intensive and trade exposed are most acute – especially where these entities are CAR covered parties saddled with compliance obligations. Perhaps most important, these costs to Washington’s economy will likely be accompanied by *increases* in global GHG emissions from EITE industries. Washington State’s electricity supply is among the lowest greenhouse gas equivalent in the nation, and natural gas (the cleanest combustion fuel) is relatively abundant. As the CAR rule forces EITE production out of the state, to areas without these advantages, global emissions of GHG from EITEs will increase.

Given these risks to EITE entities and the economy of Washington from the proposed CAR, and the rampant opportunities for unintended consequences imbedded Ecology’s proposed EITE provisions which, while theoretically intriguing, would be very difficult (if not impossible) to apply in practice for all but the simplest facilities. The best thing for Ecology to do would be to delay the rule and take sufficient time to develop the concepts and corresponding regulatory language with covered parties. The risks to Washington’s economy far outweighs any expected environmental benefits to Washington from the regulation of covered parties under the rule.

A. The determination and treatment of EITE Industries is flawed.

Ecology’s NAICS code listing approach to defining EITEs is too rigid and narrow. Other established carbon cap programs better define EITE through definitions built on the notion that EITEs are vulnerable to disruption in their operating economics. Disruption to EITE industries is manifested in a variety of ways, including diminished production, employment and tax revenue, arising from the inability to pass on costs of compliance, increased energy costs, and the displacement of, and increase in, emissions as production shifts to areas with no or less stringent control programs. The cumulative impact or effect of these disruptions is commonly referred to as “leakage.”

WAC 173-442-020(1)(l) of the proposed CAR defines EITE industries only as “a covered party with a primary North American Industry Classification System (NAICS) code included in the following list” There is no additional definitional explanation or standard accompanying the listing of NAICS codes, which appears to be vague, arbitrary and capricious.

In the first release of the Clean Air Rule in January of 2016, the same definition section did not include three additional NAICS codes added to revised proposed CAR on June 1, 2016, including:

- “WAC 173-442-020(1)(l):
- (xvi) 327992: Ultra high purity silicon manufacturing;
- (xx) 331419: Primary smelting and refining of nonferrous metal (except copper and aluminum);

(xxi) 334413: Semiconductor and related device manufacturing...”

Defining EITEs through only the use of NAICS codes risks rendering some truly energy intensive and trade exposed industries ineligible for any relief for EITEs provided in the final rule. Covered parties with demonstrable economic vulnerability to external competition, particularly those with energy intensive operations, should be protected from harm under this rule.

B. A hardship threshold must be defined leading to designating a facility or sector as EITE.

Ecology has provided no mechanism for other individual businesses or industry sectors to receive EITE treatment, or rationale for what hardship threshold defines an EITE using the inherent risks of leakage. The California carbon program, AB-32, required development of regulatory methods to measure risk of leakage that included, but were not limited to:

- Defining of industrial sectors by activity;
- Evaluating metrics:
 - Exposure to trade;
 - Emission intensity of production;
- Stakeholder input, and data collection; and
- NAICS codes.³⁹

The lack of a similar threshold process in the CAR will likely exclude companies, facilities, and sectors that should be considered as part of the EITE covered party list, like the three sectors added in the latest proposed rule. The current process for designating EITE industries is subjective, and vulnerable to political gaming. Ecology should define a hardship threshold for designation of an EITE industry, as in other carbon programs, so that additional businesses and/or industry sectors can be added as necessary to protect Washington’s economy and environment from the effects of leakage.

C. The provisions of WAC 173-442-070 do not work for all EITEs.

Even for those industries defined as EITEs, the proposed CAR provides inadequate protection. GHG emissions reduction pathways and emission reduction requirements for EITE covered parties are established pursuant to WAC 173-442-070. EITE stakeholders recognize Ecology’s inclusion in the proposed CAR provisions that attempt to address the need for EITE

³⁹ See Cal. Health & Safety Code § 38562(b)(8), available at <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=38001-39000&file=38560-38565>; California Air Resources Board (CARB), Proposed Regulation to Implement the California Cap-and-Trade Program, Staff Report: Initial Statement of Reasons, Appendix K – Leakage Analysis (Oct. 28, 2010), available at <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appk.pdf>.

compliance pathways to reduce emission leakage and associated risks to the development of a carbon cap program. However, while the proposed EITE emission reduction pathway and emission reduction requirement provides some helpful discretion and flexibility, it cannot be practically applied for all EITE covered facilities.

The proposed path to EITE compliance with the CAR is a one-size fits all approach that ignores other alternative approaches required for evaluation under the state APA.⁴⁰ The emission reduction pathway in -070(4) still limits the mass of GHG emitted, but adjusts according to the facility's output, while decreasing the allowed emissions per unit of output over time until 2035.

This output based approach in the proposed CAR is theoretically attractive in some respects, but will likely not work in practice for many EITEs. Covered parties with unavoidable process emissions, complex and variable products/product mixes/ production operations, and/or those with relatively large "fixed" (as compared to variable production output) energy requirements such as weather variable space heating requirements (including such requirements associated with co-located administrative operations) could find their compliance obligations more unpredictable and more stringent than had they not been designated as EITE. These factors, which also highlight the illusory homogeneity within a "sector," along with individual facilities' product changes over time will skew the outcome of Ecology's approach. The resulting compliance obligations could exceed those of a non-EITE facility with similar emissions – an absurd outcome.

As discussed below, the one-size fits all approach leaves too many unknown applicability and implementation questions, and places too many critical determinations, with potentially punitive consequences, in the hands of Ecology without any criteria bounding Ecology's discretion. Attachment L to these comments provides a list of alternative compliance options provided to Ecology by EITE stakeholders in advance of the proposed CAR release. Our suggestion then was, and now is, that Ecology include a suite of options for EITE covered parties to choose from as permissible compliance pathways. Ecology failed to adequately consider these options as to their feasibility to generally achieve the stated goals and objectives of the proposed rule with a lesser burden than the proposed EITE provisions.⁴¹

D. The production data sought by Ecology is unclear and likely unobtainable and should be protected from disclosure.

WAC 173-442-070(1) establishes a requirement for EITEs to report production data concurrently with GHG emissions reporting under WAC 173-441. This data is to be used by Ecology to establish a facility's baseline emissions per "unit of production" and establish the facility's efficiency reduction rate by comparison with the emissions per unit of production of other facilities in the sector, potentially subjecting the EITE facility to more stringent

⁴⁰ RCW 34.05.328(1)(e). See sections X and XI of these comments for additional discussion of APA issues.

⁴¹ *Id.*

requirements than a non-EITE facility with similar emissions. Ecology has not defined “unit of production,” raising the following questions:

- How can an EITE assure that the “unit of production” established for their facility or sector is appropriate and acceptable? For example, how will sufficient homogeneity among facilities in a sector be assured such that an efficiency reduction rate penalty for a source in the upper quartile in emissions per unit of production for its sector will not be arbitrary and capricious?
- How will Ecology protect EITE production information? Presumably, production information will need to be treated as confidential business information (CBI), and indexed to the base year.
- What is the unit of measurement for production? Each EITE is different and will need to measure production using different units. Establishing a rational “unit of production” for facilities/sectors with complex and variable products/product mixes and/or production operations, and/or those with relatively large “fixed” (as compared to variable) energy requirements might not be practically possible. In other sectors there are many different types of product, like cement, where the product (or production) is not directly comparable with a standardized metric.
- How does Ecology propose to compare disparate units of measurement? Even among homogenous facilities, one facility may measure its output in tons and another facility’s unit of output could be square or cubic feet.

Production information will need to be treated as confidential business information (CBI), and indexed to the base year.

- How will Ecology protect EITE production information?

The mechanism for determining facilities’ “units of production” needs to be clarified. EITE covered parties must be assured of an opportunity to be involved in defining production measures for their facilities/sectors, as well as protection of confidential information related to production.

E. The output-based baselines, and baselines for non-EITE parties, should provide for adjustment in recognition for early action and energy efficiency.

The proposed timeframe for establishing baseline emissions, between 2012 through 2016, limits the opportunity for a covered facility to take credit for early actions that pre-date the baseline years proposed. Failure to recognize early action penalizes those firms that invested in emission reductions before the proposed rule baseline.

The level of output from an EITE and energy producers fluctuates over time based on the health of the economy, changing operational profile or product mix, industry-specific economic cycles, etc.

For non-EITE parties, there are similar issues where operations fluctuate over time based on the health of the economy changing operations profile or product mix, industry-specific economic cycles, etc. The program should allow changes in the baseline where these factors can be demonstrated. Initially, the baseline for non-EITE parties should be equivalent to the highest annual emissions for a single year for the 2010-2016 period.

Whether EITE or non-EITE, Ecology should allow for greater flexibility in the baseline years, and even borrow from the PSD rules to allow a facility to set a baseline at the highest realized output level over a greater period of time preceding the start date of the rule. As with the PSD rules, Ecology could place the burden of documenting emissions on the source. Subject to this demonstration, the source should then be allowed to choose the average emissions and production from any consecutive 24-month period in the prior 10 years for purposes of establishing its output-based baseline or its conventional baseline (if EITEs are granted the option of complying under the -060 pathway).

F. The provisions for defining the “sector” and calculation efficiency intensity distribution are unclear and subjective.

The determination of a covered party’s compliance pathway is determined in part on how that party compares to other companies in their “sector.” Yet “sector” is an undefined term, yielding no clear or predictable means of assessing relative performance and thereby guiding the determination of the compliance pathway. At some level all manufacturing is similar, and at another every source is unique. Without explicit language to clarify how the comparison is to be accomplished, Ecology will be forced to make a subjective (and arbitrary) determination with significant repercussions to the covered party. Depending on the peer group chosen, a covered party could end up in either the top quartile with an easier compliance path, or in the bottom quartile with a punitive compliance obligation beyond what a non-EITE would face.

Absent an equitable way to compare EITE sources considering products, processes, technology, geography, size and markets, the proposed ranking of sources within “sectors” should be abandoned.

- What is a sector? Are sectors established using comparisons of:
 - Like processes?
 - Like technology uses?
 - NAICS codes?
- What is the spatial scale of distribution?
 - Washington?
 - U.S.?
 - Global?
- How will homogeneity be assured?
 - For affected covered parties that do not have like products, processes, technology, geography, size and markets, how will efficiency reduction rate be set if there can be no rational efficiency intensity distribution? Will each facility be its own sector?

- Do all facilities used to determine a sector efficiency intensity distribution include only covered facilities? Or does the efficiency intensity distribution include non-covered facilities, less than the baseline threshold?
- What happens when a facility changes its product mix (with or without a resulting change in its primary NAICS code)?

G. How will efficiency benchmarks be determined for sites that produce multiple products, add new products or eliminate products?

Not all facilities are covered by a single NAICS code, and not all activities are clearly defined for a covered party. This raises questions such as to how Ecology will treat an EITE facility that is also generating electricity for use at the facility and also sold to the grid? Some, but not all, EITE facilities produce multiple interconnected products whose output can vary tremendously from year to year. Trying to develop plant wide efficiency benchmarks for these facilities will prove extremely difficult to impossible. This underscores why it is critical that EITE sources have more than one compliance pathway. Providing alternative compliance pathways would allow a covered party that cannot otherwise develop a benchmark to still attain compliance in a manner appropriate for EITEs and reflective of the additional challenges faced by EITE sources (i.e., extreme risk of leakage).

H. The data collected by Ecology for determination of the efficiency reduction rate will be insufficient to make a defensible determination.

WAC 173-442-070(3)(a)(i)(A) and -070(3)(a)(i)(B) allow Ecology to calculate an efficiency reduction rate for a “sector” based on data collected from several GHG emissions and production reporting programs. Ecology supposes the outlined sources are sufficient to make such a determination. However, depending on how a particular “sector” is defined, this information may be insufficient to calculate an efficiency reduction rate.

Additional sources of information, beyond what is recognized in the CAR, may assist in determining both GHG emissions and production, and Ecology should consider adding sources that would include:

- Data obtained from Trade Associations including information from international sources in that sector.⁴²
- Data based on major production segments, process lines, or emission units of a given facility, as to ensure the best comparison and exclusion of non-comparable activities. The rule should clarify that EITEs will be compared to like technologies within a subsector of the NAICS category.

⁴² Does Ecology plan to include global competitors in its energy efficiency comparisons, or just national peers?

- Data on indirect emissions from the power generation supply system and facility mix, as well as transportation supply chain. Ecology should consider the complete portfolio of emissions.

The reliance of Ecology on the availability of data outside of the state’s purview in establishing the efficiency intensity distribution is concerning. For instance, Ecology has conveyed a belief that much of the data will be available for the efficiency reduction rate calculation from EPA’s reporting programs. It is our understanding, however, that mandatory GHG reporting information under regulation in 40 C.F.R. Part 98 is provided to EPA through a third-party in aggregate form, to adhere to CBI requirements. As a result, production data are not available to EPA, let alone a third party or state agency seeking to access those data.

- How will Ecology access production data from EPA’s GHG reporting program when EPA has determined that production levels are confidential business information?⁴³
- What is the particular source for production data from the DOE energy information agency?⁴⁴

Absent a reliable, objective data source to compare EITE sources, the proposed ranking of sources within “sectors” should be abandoned. Otherwise, our ability to provide meaningful comment on the CAR is severely constrained.

I. What are the parameters for establishing an efficiency intensity distribution when no production or emissions data is available? Do benchmarking provisions conflict?

WAC 173-442-070(3)(a)(i)(C) allows Ecology to use “existing benchmarking information” for a sector where no production or emission data is available to establish an efficiency intensity distribution for a sector. In such circumstances, the standard for use of existing benchmarking information to establish the efficiency data distribution is that the information must be:

- (3)(a)(i)(C)(I) Reasonably current; and
- (3)(a)(i)(C)(II) Detailed enough to determine the efficiency intensity distribution.

⁴³ 76 Fed. Reg. 30738 (May 26, 2011); 78 Fed. Reg. 71904 (November 29, 2013); 79 Fed. Reg. 63750 (Oct. 24, 2014).

⁴⁴ Neither EIA form 1605(b) nor EIA form 846 appears to include the data on production.
http://www.eia.gov/survey/form/eia_1605/form.pdf
http://www.eia.gov/survey/form/eia_846/proposed/form.pdf

Contrast the EITE benchmarking process with the establishment of the Category 2 baseline benchmarking process in WAC 173-442-050(5)(b)(ii)(A) to “use data from similar or identical existing parties and sources.”

The difference in standard exacerbates the lack of clarity or vagueness for use of terms throughout the proposed rule.

- What year does “reasonably current” refer to?
- What is the threshold for determination of “detailed enough to determine the efficiency intensity distribution”?
- How will Ecology establish homogeneity between the facilities reflected in the existing benchmarking information and the covered facility question?

J. The determination of the efficiency reduction rate should be adjustable to reflect market changes or production technology and therefore in carbon reduction opportunities.

The proposed rule indicates the efficiency reduction rate will be calculated once, and remain constant. Increases in efficiency are possible through a variety of means, including but not limited to technological advances, process efficiencies and enhanced maintenance, but these efficiency gains are limited as well. At the most efficient facilities there will be little or no opportunity for improvement. The CAR should contain a re-opener provision to allow a covered party to apply for an adjustment to its efficiency reduction rate as the opportunities to continuously increase efficiency diminish and become unachievable.

To pile additional reduction requirements beyond what the available technology can provide is unsustainable and ignores the essence of the purpose behind providing EITEs with an alternative option for compliance.

Similarly, the CAR should contain a re-opener to allow a non-EITE to apply for an adjustment to its baseline as the opportunities to continuously increase efficiency diminish and emissions reductions become unachievable.

K. The Clean Air Rule should not allow Ecology to assign punitive efficiency reduction rates.

The proposed rule fails to provide a specific and absolute efficiency reduction rate or defined criteria or a predictable method for establishing the efficiency reduction rate for EITE facilities that may be in one of two categories of -070(3)(b). “If an EITE’s output-based baseline is less than or equal to the twenty-fifth percentile value of a sector’s efficiency intensity distribution,” then Ecology must set an efficiency reduction rate that would reduce emissions at a rate less than would otherwise be required under the on-EITE provisions of the rule.

However, “If an EITE’s output-based baseline is greater than or equal to the seventy-fifth percentile value of the sector’s efficiency intensity distribution,” then Ecology must set an

efficiency reduction rate that would reduce emissions at a faster rate than would be required by the non-EITE provisions of the rule.

This rule both establishes a penalty, and a reward, for certain EITE facilities depending on where they fit in a sector's efficiency intensity distribution without an established process or criteria for determining and defining the appropriate "sector" or "units of production" -- ultimately limiting a facility's ability to assess the expected costs of compliance with the proposed rule. Even where a facility's percentile ranking can be fairly determined, a facility has no way of knowing from the rule what the magnitude of its reward or penalty will be.

Substantively, the penalty established in -070(3)(b)(i) creates an additional burden on EITE facilities – greater than non-EITE covered entities – ignoring the purpose of providing an alternative compliance path for EITE facilities facing the inherent risks discussed previously. In no case should an EITE's obligations under the rule be greater than for a non-EITE facility with comparable emissions.

- How will the Ecology determine the efficiency reduction rate to set for an EITE facility in the bottom or top quartiles of a sector?
- What authority does Ecology rely on to penalize EITEs based on the assumption that other facilities may have different intensities?
- What are the minimum/maximum efficiency reduction rates for a facility in the top/bottom quartiles?
- Is an entire sector required to average an emission reduction of 1.7%?

WAC 173-442-070(3)(b)(iv) also sets a penalty for facilities that fail to provide "sufficient information" under -070(3) -- they too will have an efficiency reduction rate more stringent than the emissions reduction rate for non-EITE facilities. Again, in no case should an EITE's obligations under the rule be greater than for a non-EITE facility with comparable emissions.

- What criteria will be used to determine if a facility has "supplied sufficient information" under -070(3)?
- How are situations in which no sufficient information "is available" (-070(3)(a)(i)(C)) distinguished from situations in which the EITE covered party "has not supplied sufficient information" (-070(3)(a)(i)(D)(iv))?
- What specific information does Ecology require a facility provide? WAC 173-442-070(1) and -070(2) states "each covered party must report..." the data needed for determinations, but -070(3) suggest Ecology will use other sources (see -070(3)(a)(i)) to make determinations.

With respect to Equation 1 in WAC 173-442-070(4)(b), it appears there is an unintended consequence that imposes a greater compliance burden for an EITE covered source that is in a declining production mode as compared to the compliance burden it would have under WAC 173-442-060 as it relates to the need to purchase ERUs. It also appears that this unintended

consequence would impact sources that have cyclical production levels. This situation is particularly acute for a covered source where a significant percentage of their emissions are process related.

We do not believe that this outcome was recognized or intended by Ecology as it runs completely contrary to everything the agency has indicated about wanting to provide relief to EITE covered parties. AWB has some members that believe that Ecology should withdraw this portion of the rule and convene a work group with Ecology to assess this (and other) compliance pathways appropriate for EITEs to ensure that those EITE facilities do not face an enhanced compliance burden under WAC 173-442-070.

Ecology should not penalize EITE facilities. If the final rule continues to cover EITEs, then the rule must include provisions allowing EITE facilities to opt out of the EITE provisions and proceed under the provisions for non-EITE facilities. Instead of seeking opportunities to penalize EITE facilities, Ecology should instead focus on providing a reward for more efficient facilities. Keeping the methodology in -070(3)(b)(ii) while eliminating both -070(3)(b)(i) and (3)(b)(iv) would reduce the punitive nature of this section.

Other options for better protecting EITE and non-EITE facilities include:

1. Completely exempting EITE facilities;
2. Providing a more meaningful delay in implementation – perhaps an initial compliance period no sooner than 2023-2025 and an even later initial compliance period for facilities that meet criteria outlined in -070(3)(b)(ii);
3. Increasing the compliance thresholds in Table 1 for EITEs (such that, for example, EITE's with baseline emissions below 140,000 MT/yr CO₂e would have no compliance obligations).
4. Providing a reliable safety valve/cost containment mechanism to assure, at least, that the costs of the rule to any EITE covered-party do not exceed the benefits from that party's emission reductions;
5. Exempting EITEs from the provisions of 173-442-170, Limitations on the use of allowances, Table 3, which limits the use of out of state allowances to meet compliance obligations; and
6. Exempting EITEs from the provisions of 173-442-170, Limitations on the use of allowances, Table 4 which restrict the vintage years of allowances that may be used to satisfy a compliance obligation.

Similar cost containment mechanisms, including the limitations on the use of allowances by non-EITE parties should be eliminated.

L. Equation 1 should be simplified to provide clarity on how a GHG emission reduction pathway is determined.

Previous comments have discussed the need to provide additional clarity, and address the concerns regarding the various data Ecology is seeking to collect. Ecology's belief that it can get

sector data from EPA, or other sources, without any specific references to support the claim, as well as lack of clarity as to what “other sources” of data may provide, calls into question the feasibility of the EITE alternative compliance scheme.

Notwithstanding the grave concerns and requests for clarification expressed in these comments, there is a streamlined equation that Ecology should consider for use in WAC 173-442-070(4)(b), in place of Equation 1. Ecology should consider using:

$$RP = (AP \times OB) \times [1 - RR \times (Y_x - 1)]$$

This doesn't solve the concerns raised, but is a simplification of the equation.

M. Facilities should be allowed to opt out of the EITE treatment.

While the introduction of the alternative compliance measures in -070 for EITE covered facilities is appreciated, and seeks to reduce to some extent the inherent risks to an EITE facility, it is not clear whether Ecology intended for this compliance pathway to be voluntary or mandated. Given the unknown variables and requirements of this section, and the provisions actually allowing Ecology to impose greater compliance burden on EITE facilities than on non-EITE facilities, it is essential that EITE facilities have the ability to opt out of EITE treatment, and instead proceed under the CAR's provisions for non-EITE facilities.

Ecology should make -070 optional. EITE facilities should be able to choose the best compliance path, including opting out of the EITE provisions all together. Ecology should provide several points for an EITE to opt in to or out of -070, including after a proposed emissions reduction pathway has been developed for the facility under -070(4). If -070 is truly meant to be an alternative compliance pathway, then it makes sense to allow the covered facility the option to choose the path of compliance.

N. Applicability of compliance obligations per WAC 173-442-070 should be delayed beyond 2020.

Facilities covered under -070 begin their compliance obligations in 2020 with the establishment of the output-based baseline, efficiency reduction rate and GHG emission reduction pathway. If EITEs are not outright exempted from the obligation to reduce emissions under CAR, Ecology should provide an additional delay of implementation, while allowing EITE sources who feel that they are ready to enter into the program to opt-in early as voluntary sources.

We do not believe that this outcome was recognized or intended by Ecology as it runs completely contrary to everything the agency has indicated about wanting to provide relief to EITE covered parties. AWB has some members that believe that Ecology should withdraw this portion of the rule and convene a work group with Ecology to assess this (and other) compliance pathways appropriate for EITEs to ensure that those EITE facilities do not face an enhanced compliance burden under WAC 173-442-070.

O. The CAR must provide a safety valve or other cost containment mechanisms to assure covered parties can remain viable.

Other carbon reduction programs provide essential safety valves to assure covered parties can remain viable. In California, for instance, AB-32⁴⁵ provides free allowances to covered EITE facilities, and allows for the reevaluation of facilities to qualify for EITE treatment. (*see previous discussion on hardship threshold utilized to designate a facility as EITE.*) Such sideboards in other programs help to prevent catastrophic economic disruption and carbon leakage. The failure to provide a reliable cost containment mechanism in the CAR opens the real possibility that an EITE's cost of compliance will be greater than even the *global* social cost of carbon, rendering the CAR arbitrary, capricious and an abuse of discretion.

Limitations on the sources of ERUs further exacerbate the potential for economic hardship under the Clean Air Rule. See Section XI of these comments for a discussion of the ways in which Ecology could make the rule less burdensome by removing barriers to the use of offsets and allowances generated outside of Washington.

P. Ecology should consider alternative compliance opportunities for EITEs and non-EITEs.

As previously noted, the one-size fits all approach of the proposed rule's provisions in WAC 173-442-070 is not supported by a complete analysis of alternatives required under the APA to identify and evaluate least burdensome alternatives. Ecology failed to consider other programs and approaches that could allow for emission reductions without undue economic hardship. Such approaches could consider facility specific reviews aimed at maximizing technology opportunities and avoid punitive outcomes resulting from inappropriately defining the relevant sector.

The attachment, Alternative Compliance Pathway Concepts,⁴⁶ highlights several examples of alternatives Ecology can consider to meet both its APA requirements and provide greater incentive through compliance options. Highlights include:

- Ecology should address the real and irreducible emissions from process emissions. This can be done, as has been done in other carbon cap programs by focusing on a specific

⁴⁵ CARB, Proposed Regulation to Implement the California Cap-and-Trade Program, Staff Report: Initial Statement of Reasons, Appendix J - Allowance Allocation, at J-25 (Oct. 28, 2010) ("This section focuses on the details of how the free allocation methods will function within a given use of allowance value. The emissions intensity benchmarking approach—which forms the basis of free allocation used to minimize leakage risk . . ."), *available at* <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appj.pdf>.

⁴⁶ See Attachment L to these comments.

evaluation of process emissions. Where the laws of chemistry and physics dictate that a certain amount of GHG will be emitted from a production process, and no lower-emitting alternative process is available, no further emissions reductions/efficiency improvements should be required. Ecology should exempt process emissions from the rule. For a covered party, the coverage of process emissions is a direct path to leakage. The covered party will necessarily lose the ability to compete because the cost of purchasing ERUs for its unavoidable process emissions will drive it out of the marketplace. A foreign competitor unshackled by CAR (or other environmental standards) will take the place of the Washington facility in the market with a resulting increase in GHG emissions and harm to Washington's economy.

The rule could include a new provision to address process emissions specifically.

Unavoidable process emissions should be exempted from CAR compliance, and reductions should be limited to combustion emissions and process emissions amenable to reduction as only these emissions can be impacted by future efficiency gains.

- Other Clean Air standards require the use of Best Available Control Technology or Reasonably Available Control Technology, including Washington regulations, which recognize the limits of emission reductions that technology can achieve.

Utilizing a site specific efficiency compliance alternative is an example of how to implement a technology based assessment to evaluate opportunities to reduce GHG emissions through efficiency. At the same time, the review would be limited by technological opportunities. Programs like the state's Emission Performance Standards for electric generation and the GHG RACT rules for refineries are examples of achievable technology-based standards.⁴⁷

- Non-woody biomass, or expanded exemptions for the use of biomass would allow for a zero emission fuel compliance pathway.

It is not too late for Ecology to consider these and other compliance opportunities.

VII. Petroleum refineries should be included in the list of EITEs.

The CAR includes no objective criteria for determining EITE status. WAC 173-442-020 simply lists industries (by NAICS code) whose members would be considered EITE covered parties under the rule.⁴⁸ While the AWB supports the inclusion of all currently listed industries, Ecology has provided no explanation as to why Ecology selected these industries, and not others,

⁴⁷ See WAC ch. 173-485 (GHG RACT standards for petroleum refineries).

⁴⁸ See proposed WAC 173-442-020(l).

for EITE status. Based on criteria listed by Ecology in the SEPA checklist for the CAR, petroleum refineries should be included.

The SEPA checklist describes EITE industries as industries that:

- Use a lot of energy in manufacturing their products
- Manufacture commodities that are traded globally, in very tight markets so they are vulnerable to competition.⁴⁹

These criteria are consistent with criteria used to determine EITE status in other jurisdictions, including the European Union, Australia, and California. In addition, objective criteria were considered in the development of a 2009 U.S. congressional bill (H.R. 2454), commonly referred to as “Waxman-Markey.”⁵⁰ These criteria measure the energy intensity and trade exposure for industries, which in turn help determine the risk of “leakage” of emissions associated with these industries. Applying these criteria to petroleum refineries in Washington demonstrates that these refineries are EITEs.

Energy intensity. Other jurisdictions measure energy intensity as the amount of CO₂ emitted by an industry, divided by the value added of goods produced. The following is a summary of these criteria, translated to common units of tons CO₂e/million USD.

Jurisdiction	Currency conversion (to USD)	High Intensity	Medium/Moderate Intensity	Only a single emissions intensity classification
California	na	5000	1000	
Australia	0.75	4500	1500	
United States ⁵¹	na			2500
European Union	1.11			1850
New Zealand	0.72			1150

The energy intensity of the Washington petroleum refining industry can be estimated according to these criteria based on public information. Washington’s five refineries

⁴⁹ Ecology, SEPA Environmental Checklist – Clean Air Rule, at 5 (May 24, 2016) [hereafter SEPA Checklist].

⁵⁰ H.R. 2454, 111th Cong., 1st Sess. (2009).

⁵¹ *Id.*

generate approximately 6.6 million tons CO₂/yr.⁵² With respect to value added, these refineries have the capacity to produce approximately 632,000 bbl/day of product. Based on reasonable assumptions of 85% utilization and a historical product uplift of \$10/bbl of production, this yields an added value of approximately \$2 billion.⁵³

The resulting energy intensity factor for Washington's petroleum refining industry is **3300**.⁵⁴ This is significantly higher than California's calculated value of **2720** for its refining industry.⁵⁵ Applying this criterion California designated refineries as "Medium Intensity" EITEs.⁵⁶ Washington's petroleum refining industry is clearly energy intensive according to objective criteria used in other jurisdictions.⁵⁷

Trade exposure. EITE criteria used in other jurisdictions typically measure trade exposure via the following equation: (Imports + Exports) / (Imports + Shipments). "Shipments" refers to domestic production. Under the CAR and Ecology's proposed amendments to WAC 173-441-120, "exports" refers to products transferred from Washington to locations outside the state. Based on 2013 data from the Washington Research Council,⁵⁸ and estimates of approximately 40,000 barrels per day of imports,⁵⁹ Washington's petroleum products industries are "trade exposed" under these criteria.

⁵² See Ecology, Washington Mandatory Greenhouse Gas Reporting Program – Reported Emissions for 2012 – 2014, *available at* http://www.ecy.wa.gov/programs/air/permit_register/ghg/PDFs/WA_GHG_Reporting_Data_2012-2014.pdf

⁵³ Calculated as follows: (632,000 bbl/day) * (365 days/yr) * (0.85 utilization) * (\$10/bbl) = \$1,960,780,000.

⁵⁴ Calculated as follows: (6,600,000 tons CO₂) / (2000 \$mln value added) = 3300.

⁵⁵ CARB, Proposed Regulation to Implement the California Cap-and-Trade Program, Staff Report: Initial Statement of Reasons, Appendix K: Leakage Analysis, at K-15 (Oct. 28, 2010), *available at* <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appk.pdf>.

⁵⁶ *Id.*

⁵⁷ Other industries with much lower energy intensity figures are listed in proposed WAC 173-442-020 as "EITE Covered Parties."

⁵⁸ Washington Research Council (WRC), The Economic Contribution of Washington State's Petroleum Refining Industry in 2013, at 19 (2014) [hereafter Economic Contribution of Washington's Refining Industry], Attachment M to these comments.

⁵⁹ U.S. Energy Information Administration, PADD 5 Transportation Fuels Markets, at 35 (2014) (noting imports as well as "inter-PADD pipeline movements," which are also imports), *available at* https://www.eia.gov/analysis/transportationfuels/padd5/pdf/transportation_fuels.pdf.

	Production that is consumed in <u>Washington</u>	Production exported to <u>other US states</u>	Production exported to <u>foreign countries</u>	Total production
Gasoline	118.7	116.6	21.8	257.1
Diesel	77.2	57.8	21.8	156.8
Jet Fuel	47.6	15.4	20.8	83.8
TOTAL	243.5	189.8	64.4	497.7

All figures in kbd

Applying this data to the criteria above yields a trade exposure intensity of 55% for Washington's refineries.⁶⁰ This figure indicates a trade-exposed industry under the criteria used in other jurisdictions.⁶¹ This is not surprising given that Washington produces 3.4% of the nation's fuel while comprising only 2.1% of U.S. population.⁶²

The incremental costs imposed by the CAR expose Washington refineries to increased competition from fuel providers in other states as well as foreign countries that impose no obligation on carbon emissions from their refineries. This creates a significant leakage risk.

Even if only exports to foreign countries were considered, Washington's refineries still would designate as trade exposed. In this case, the calculated intensity would be 19%.⁶³

⁶⁰ Calculated as follows: $(40+254)/(40+498) = .546$ (55%). Although jet fuel is an exempted product under the CAR, refineries generate CO₂ emissions in its production. As one of the three major products of a refinery, it is important to include jet fuel in the trade exposure calculation for refineries as stationary sources.

⁶¹ Centre for European Policy Studies, Carbon Leakage (CEPC): Options for the EU, at 6 (2014), available at <https://www.ceps.eu/system/files/CEPS%20Special%20Report%20No%2083%20Carbon%20Leakage%20Options.pdf> [hereafter Options for the EU].

⁶² WRC, Economic Contribution of Washington's Refining Industry, *supra* note 58, at 4, Attachment M to these comments; U.S. Census Bureau, Quick Facts, <http://www.census.gov/quickfacts/table/PST045215/53>, <https://www.census.gov/quickfacts/table/PST045215/00>.

⁶³ Calculated using Washington Research Council data as follows: $(40+64)/(40+498) = .193$ (19%). See also CEPC, Options for the EU, *supra* note 61, at 42, 44.

This meets criteria for being “trade exposed” in all jurisdictions, including the “High” criteria designation in the state of California.⁶⁴

The trade exposure intensity for Washington refineries is likely to increase in future years. Foreign exports from Washington refineries doubled from 2005 to 2010, and tripled from 2005 to 2015. Refined products are the second largest non-agricultural export from Washington after aircraft, with a total annual value of about \$2.5 billion.⁶⁵ For the refining industry to remain competitive and remain a robust source of fuel for Washington’s economy, the industry’s level of exports and trade exposure must increase if consumption of motor vehicle fuels declines in Washington.⁶⁶

The lack of objective criteria to determine EITE status for industries impacted by the CAR is not only a significant gap in the rule, it is arbitrary and capricious. Applying objective criteria used in other jurisdictions shows that Washington’s petroleum products industries are both energy intensive and trade exposed, and should be granted EITE status under the CAR. Otherwise, the CAR would cause leakage that would simply shift emissions to other jurisdictions and put an industry at risk that provides family-wage jobs to Washington families and a secure energy supply that is the basis for any vibrant economy.

VIII. The CAR will have significant environmental impacts, and Ecology violated SEPA by failing to prepare an EIS to analyze the environmental impacts of the rule.

Although the goal of WAC Ch. 173-442 is to mitigate climate change impacts, the rule will reconfigure the Washington economy to such an extent that it will have significant environmental impacts, including unintended significant adverse environmental impacts that require analysis under the State Environmental Policy Act (“SEPA”), Ch. 43.21C RCW, through the preparation of an environmental impact statement (“EIS”).

AWB notified Ecology early in the development of the CAR that the rule would have adverse environmental impacts.⁶⁷ AWB’s October 30, 2015 letter summarized the predictable

⁶⁴ CEPC, Options for the EU, *supra* note 61, at 6.

⁶⁵ U.S. Census Bureau, State Exports from Washington, (annual value provided above reflects 2012-2015 average), *available at* <http://www.census.gov/foreign-trade/statistics/state/data/wa.html>.

⁶⁶ WAC 173-442-040(2)(b) would exempt exported fuels from a fuel supplier’s covered GHG emissions. But that exemption does not apply to the stationary source emissions of a refinery. The refinery’s cost of production affects the cost of every barrel of product that the refinery sells, even if fuel sales outside of Washington do not trigger CAR emission reduction obligations.

⁶⁷ Letter of October 30, 2015 from Gary Chandler to Sarah Rees, Attachment N to these comments.

impacts, and urged Ecology to analyze them in an EIS.⁶⁸ For instance, AWB pointed out that natural gas distributors would be forced to increase their rates to cover the cost of purchasing offsets (now ERUs), that those increases would drive fuel substitution by residential and small commercial customers, including increased reliance on woodstoves and electric power to heat homes and businesses, and that both responses will increase emissions of conventional and toxic pollutants, as well as GHGs.⁶⁹

Ecology ignored this guidance in preparing its Environmental Checklist on the CAR. The Supplemental Sheet for Non-Project Actions acknowledges that projects to reduce GHG emissions may increase emissions of conventional pollutants, while claiming that any such effects will be subject to SEPA review later in connection with permitting “projects.”⁷⁰ The Checklist ignores the fuel substitution effects outlined in AWB’s letter, which involve decisions by individual consumers that are not subject to permitting or “later” review. Only by ignoring the predictable impacts of the proposed rule was Ecology able to conclude that “Ecology does not have any information that would suggest there will be significant adverse environmental impacts as a result of the proposed rule.”⁷¹ The DNS on the proposed rule was issued in reliance on a SEPA Checklist that overlooked substantial impacts of the rule.

A. Compliance with the CAR will result in significant environmental impacts.

The impacts associated with the CAR, described in more detail below, include: impacts from Washington citizens switching from natural gas to electricity or wood due to higher natural gas prices, impacts of shifting electric production from Washington gas-fired turbines to out-of-state generating resources with higher carbon footprints, and “leakage” impacts resulting from the displacement of in-state commodity production with imports from foreign sources that produce the same products with more intensive environmental impacts.

1. Fuel substitution impacts from displacement of gas-fired electric generating resources. Ecology’s list of “Potentially Eligible Parties” that will assume compliance burdens under the CAR includes eleven natural gas-fired turbine generating plants.⁷² Most of them are efficient combined-cycle turbines with very low emission rates of GHGs and other air pollutants. Utilities in fourteen western states and two Canadian provinces coordinate the dispatching of

⁶⁸ *Id.* at 3.

⁶⁹ *Id.* at 2.

⁷⁰ Ecology, SEPA Checklist, *supra* note 49, Supplemental Sheet For Non-Project Actions, at 10.

⁷¹ *Id.*

⁷² Ecology, Clean Air Rule: Potentially Eligible Parties (May 2016), Attachment O to these comments.

their generating resources to provide the least costly electricity to their customers.⁷³ By forcing utilities to purchase ERUs for the most efficient resources in the region the CAR would shift electric power production to less efficient resources in other states that emit higher rates of pollutants -- GHGs and criteria pollutants -- than Washington's turbine fleet. By shifting generation to less efficient resources the CAR likely would prolong the life of coal-fired generating units in states like Montana and Wyoming.⁷⁴ The environmental impacts of this shift include not only higher GHG emissions but higher emission rates of criteria and toxic pollutants. On this point AWB incorporates by reference the comments of Puget Sound Energy, which document the adverse environmental impacts resulting from the CAR's impacts on the dispatching of thermal resources in the Western Interconnection.⁷⁵

2. Fuel substitution impacts from higher natural gas rates. The proposed CAR would require reductions in GHG emissions from the combustion by retail purchasers of natural gas sold by four local distribution companies (LDCs) in Washington, beginning in 2018. LDCs are forbidden by state law to achieve reductions by limiting sales,⁷⁶ and the demand in Washington for clean burning natural gas is growing steadily.⁷⁷ Ecology concedes that the only way for LDCs to meet their CAR compliance burdens will be by purchasing increasing quantities of ERUs.⁷⁸ To meet these obligations LDCs would need to raise their rates to residential and commercial customers.⁷⁹ Natural gas competes with wood and electricity as options to heat homes and businesses in Washington. Unfortunately, both alternative fuels emit higher levels of fine particulates and toxics.⁸⁰ Further, the adverse impacts of increased wood combustion are highest in the winter, when several Washington communities teeter on the edge of exceeding

⁷³ Western Electric Coordinating Council, 2016 State of the Interconnection, at ii, available at <https://www.wecc.biz/Reliability/2016%20SOTI%20Final.pdf>.

⁷⁴ See PSE Comments at 11.

⁷⁵ See PSE Comments at 21-22.

⁷⁶ See comments in Section V above.

⁷⁷ Ecology, Cost-Benefit Study, *supra* note 24, at 16.

⁷⁸ *Id.* at 24 ("Some covered parties - such as natural gas distributors - may have little or no options for on-site compliance . . .").

⁷⁹ See PSE Comments at 11, 30-31.

⁸⁰ See Ecology, How Wood Smoke Harms Your Health, Pub. No. 91-br-123 (Revised July 2012), available at <https://fortress.wa.gov/ecy/publications/documents/91br023.pdf>; EPA, Wood Smoke and Your Health, available at <https://www.epa.gov/burnwise/wood-smoke-and-your-health> (last updated Feb. 2, 2016).

National Ambient Air Quality Standards for fine particulate matter.⁸¹ The CAR would cause increased emissions from consumers responding to higher natural gas prices by switching back to wood or electricity to heat their homes and businesses.⁸² These increases would not be analyzed later in the course of project permitting, as Ecology predicts, because they would result from decisions made by thousands of consumers. Since Ecology proposes to impose CAR compliance costs on LDC customers, it must analyze the environmental impacts of fuel substitution by those customers.

3. Leakage impacts from higher commodity prices. Washington supports a number of trade-sensitive industries that face stiff competition from imported commodities. The Washington companies typically achieve better energy efficiency and lower GHG emission rates per unit of output than their foreign competitors,⁸³ but commodity businesses operate on extremely low margins. By increasing the cost of production in Washington, the proposed CAR would enable foreign commodities to displace local production.⁸⁴ The environmental effects would include more GHG emissions to produce the commodities currently made in Washington and environmental impacts associated with the delivery of those commodities to the United States.

Ecology acknowledged in the Small Business Economic Impact Statement that the “proposed rule may result in reduced sales for some covered parties,”⁸⁵ but the SEPA Checklist entirely ignores the phenomenon of leakage. This is a profound omission. Nucor Steel, the owner of the only steel plant in Washington, submitted a study showing that Nucor’s least cost compliance strategy would cost the Seattle plant five percent of its sales, and increase global

⁸¹ In 2011 Ecology reported that Yakima violates the PM2.5 NAAQS and that Darrington, Yakima, Clarkston, Marysville and Wenatchee are close to a violation. Ecology Air Program, Focus on Nonattainment, Pub. No. 11-02-035, at 3 (Sept. 2011), Attachment P to these comments.

⁸² See PSE Comments at 11, 42.

⁸³ Ecology, SEPA Checklist, *supra* note 49, at 6; Non-Project Review Form, at 13 (“The Pacific Northwest has some of the nation’s most efficient manufacturers and some have taken recent steps to reduce their carbon pollution.”).

⁸⁴ Resources for the Future, Employment and Output Leakage Under California’s Cap-and-Trade Program; Final Report to the California Air Resources Board, RFF DP 16-17 (May 2016), available at <http://www.rff.org/files/document/file/RFF-DP-16-17.pdf>.

⁸⁵ Ecology, Small Business Economic Impact Statement, Chapter 173-442 WAC Clean Air Rule Chapter 173-441 WAC Reporting of Emissions of Greenhouse Gases, Publication No. 16-02-009, at 7 (June 2016) [hereafter SBEIS].

GHG emissions by 1.2 million metric tons over a twenty year period.⁸⁶ Northwest Pulp & Paper Association commissioned a study showing that Washington mills run in part on purchased electricity with a very low carbon footprint. For this reason, displacement of even a small percentage of Washington’s pulp and paper production by foreign competition would substantially increase global GHG emissions.⁸⁷

Ecology included in the proposed CAR special rules for EITEs in an effort to shield those industries from losing market share to unregulated competitors. Unfortunately, Ecology excluded from its proposal the largest EITEs (by emissions) in the state.⁸⁸ In addition, the proposed WAC 173-442-070 still would require annual reductions in GHG emissions from EITEs, and the burden of compliance compounds over time. Finally, WAC 173-442-070 does not specify the “efficiency reduction rate” for EITE covered parties, and Ecology’s process to derive those rates relies on data that neither Ecology nor the covered sources possess.⁸⁹ As a result, EITEs applying the 070 rules still anticipate significant losses of market share, and significant increases in global GHG emissions from the displacement of their products by foreign competition. Ecology’s SEPA Checklist entirely overlooks these impacts.

Ecology’s proposed rule will affect every segment of the Washington economy. Individuals and companies will respond to rising prices and supply constraints in ways that cause collateral environmental impacts. SEPA requires that Ecology identify and disclose those impacts, the aggregate effects of which are far from trivial.

B. The environmental impacts of the CAR must be analyzed in an EIS.

SEPA requires that state agencies prepare an EIS for “major actions having a probable significant, adverse environmental impact.”⁹⁰ The purpose of SEPA review is to ensure that agencies fully disclose and carefully consider a proposal’s environmental impacts *before*

⁸⁶ See ERM, Steel Industry Emissions Leakage Risk From the Proposed Washington Clean Air Rule dated May 31, 2016, at 2 (July 2016), attached to Nucor Steel Comments [hereafter Steel Industry Leakage Report].

⁸⁷ See Northwest Pulp & Paper Association Comments; NCASI Memo of December 11, 2015, Potential Leakage Effects Caused By Washington Carbon Policy, Attachment Q to these comments.

⁸⁸ See Section VII above, on the exclusion from EITE coverage of petroleum refineries.

⁸⁹ Nucor Steel’s Comments (at page 9) and AWB’s comments in Section VI above document these problems.

⁹⁰ RCW 43.21C.031.

adopting it and “at the earliest possible stage.”⁹¹ In deciding whether a proposed action requires an EIS, the agency “shall not balance whether the beneficial aspects of a proposal outweigh its adverse impacts [P]roposals designed to improve the environment, such as . . . pollution control requirements, may also have significant adverse environmental impacts.”⁹² Even assuming the CAR will result in benefits to the environment, Ecology still must prepare an EIS if the adverse impacts standing alone are significant.

The CAR proposes to restructure Washington’s economy to reduce carbon emissions. Ecology’s lofty goals in proposing the rule do not excuse Ecology from the SEPA obligation to analyze its collateral environmental impacts, and to explore whether alternative approaches may achieve the same overall climate change objectives, but at a lower cost to the environment and economy.

Ecology’s approach in the SEPA Checklist to analyzing the environmental impacts of the CAR is to (1) ignore them, (2) dismiss the impacts as “speculative”⁹³ or “not reasonably foreseeable at this time,”⁹⁴ or (3) to contend that impacts will be addressed in SEPA review of “projects” undertaken to comply with the rule.⁹⁵

Ecology’s assumption that actions taken by covered entities to comply with the CAR will be subject to later SEPA review is largely false. The importation of foreign products is not subject to SEPA review. Dispatching decisions by electric utilities are not subject to SEPA review. Decisions by consumers to fire up woodstoves are not subject to SEPA review. Implementation of the CAR will result in significant environmental impacts that are not subject to future SEPA review. Ecology cannot postpone environmental analysis to a later implementation stage since the CAR will affect the environment without subsequent implementing action.⁹⁶

Although the environmental impacts that will likely result from implementation of the CAR take some amount of forecasting, SEPA requires that an EIS should be prepared when significant adverse impacts on the environment are “probable,” not only when they are

⁹¹ *King County v. Wash. State Boundary Review Bd.*, 122 Wn.2d 648, 663-64, 666, 860 P.2d 1024 (1993); *see also* WAC 197-11-060(4)(c)-(d).

⁹² WAC 197-11-330(5); *Seeds, Inc. v. State of Washington Dept. of Ecology*, 98 Wn.App. 1022 at *5 (1999).

⁹³ Ecology, SEPA Checklist, *supra* note 49, Non-Project Review Form at 18.

⁹⁴ Ecology, SEPA Checklist, *supra* note 49, at 9.

⁹⁵ *Id.*, Non-Project Review Form at 9-10.

⁹⁶ *See Spokane County v. Eastern Wash. Growth Mgmt. Hearings Bd.*, 176 Wn.App. 555, 309 P.3d 673 (2013); WAC 197-11-060(5)(c)(i), (d).

inevitable. In *King County v. Washington State Boundary Review Board*, the Washington Supreme Court specifically addressed whether a city must review effects of potential development from a nonproject action, an annexation of property, when no official proposal has been submitted to the city for the development of the property subject to the nonproject action. The court ruled that SEPA required such review:

[T]he fact that a proposed action will not cause an immediate land use change or that there is no specific proposal for development does not vitiate the need for an EIS. Instead, an EIS is required if, based on the totality of the circumstances, future development is probable following the action and if that development will have a significant adverse effect upon the environment.⁹⁷

In explaining its conclusion that the annexation required preparation of an EIS, the court noted that an approach that required a specific development proposal to be before the agency can lead to results contrary to SEPA's purpose of considering environmental factors at the earliest possible stage to allow decisions to be based on complete disclosure of environmental consequences:

Decision making based on complete disclosure would be thwarted if full environmental review could be evaded simply because no land use changes would occur as a direct result of a proposed government action. Even a boundary change, like the one in this case, may begin a process of government action which can "snowball" and acquire virtually unstoppable administrative inertia. *See Rodgers, The Washington Environmental Policy Act*, 60 Wash. L. Rev. 33, 54 (1984) (the risk of postponing environmental review is "a dangerous incrementalism where the obligation to decide is postponed successively while project momentum builds").⁹⁸

Ecology erred by issuing a SEPA DNS for the CAR. It is not too late to correct that error. Ecology should prepare an EIS on the proposed rule, and to include in it alternative strategies to achieve the goals of the rule at lower cost.⁹⁹

IX. Ecology's Small Business Economic Impact Statement does not analyze the cost to Washington businesses of complying with the rule.

The Regulatory Fairness Act, RCW Ch. 19.85, requires preparation of a small business economic impact statement ("SBEIS") for any significant legislative rule that imposes "more

⁹⁷ *King County*, 122 Wn.2d at 663.

⁹⁸ *Id.* at 664.

⁹⁹ *See* Section XI below, which enumerates ways in which Ecology could revise the rule to reduce the compliance burden on the regulated community.

than minor costs on business in an industry.”¹⁰⁰ This obligation applies to any significant legislative rule,¹⁰¹ not just rules that disproportionately impact small business. The threshold task is to estimate the cost of complying with the proposed rule, including out of pocket costs and “whether compliance with the rule will cause businesses to lose sales or revenue.”¹⁰²

Ecology prepared an SBEIS on the CAR, but it devotes one half of one page to potential lost sales or revenue.¹⁰³ Ecology notes that the proposed rule “may result in reduced sales for some covered parties,” that the rule “could result in changes to energy prices,” and that it could change fuel prices. Ecology concludes, however, that uncertainties about the compliance strategies covered parties will follow make it impossible to quantify “the degree to which sales quantities would be impacted” by the rule.¹⁰⁴ Notwithstanding these uncertainties, Ecology concludes that the rule does not impose costs on small business.¹⁰⁵

Ecology’s claim that it “could not quantify the degree to which sales quantities would be impacted” is incorrect. Ecology used the Washington State Office of Financial Management’s 2007 Washington Input-Output (I-O) Model (OFM I-O) to estimate job impacts of the rule.¹⁰⁶ The OFM I-O model reports a variety of economic metrics to measure the economic impacts of the proposed regulation including estimates of changes in sales transactions (output), gross state product, total compensation, and jobs.¹⁰⁷ Use of the OFM I-O model makes it feasible for Ecology to report the rule’s impact on sales and revenues in different sectors of the Washington State economy, but Ecology omitted that information from the SBEIS.

AWB agrees that some business impacts of the CAR depend on a party’s compliance strategies, but one important cost of the rule, the loss of market share from businesses facing

¹⁰⁰ RCW 19.85.030(1).

¹⁰¹ The Regulatory Fairness Act exempts the same categories of rules that are exempt from the APA cost-benefit analysis. *See* RCW 19.85.025(3).

¹⁰² RCW 19.85.040.

¹⁰³ Ecology, SBEIS, *supra* note 85, at 7.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 9.

¹⁰⁶ *Id.* at 15.

¹⁰⁷ Energy Strategies LLC, Critique of Washington Department of Ecology’s Small Business Economic Impact Statement at 9, Attachment R to these comments [hereafter SBEIS Critique].

increased compliance costs, can be and for a few sources has been estimated.¹⁰⁸ The impact of the rule on fuel costs also can be estimated.¹⁰⁹ Fuel cost impacts are especially important to the purposes of the Regulatory Fairness Act, because fossil fuel costs are a major operating cost for many categories of small businesses, such as farmers, truckers, and taxis.

AWB retained Energy Strategies to model the economic impacts of the CAR on covered firms and the Washington economy. Energy Strategies used the 2014 Washington State IMPLAN and Price model and the results indicate the economic impacts of the proposed rule on the Washington economy and small businesses would be substantial.¹¹⁰ The economic effects of the rule will cost Washington State over 34,000 jobs, and \$7.3 billion in sales by year 2035.¹¹¹ Moreover, small businesses will be severely impacted by the policy, since they constitute nearly 50% of Washington State's employment.¹¹² Energy Strategies estimated the CAR will cost small businesses in Washington State nearly 16,000 jobs by 2035, or 46% of total jobs lost in the entire economy, and reduce sales (outputs) by \$3.1 billion.¹¹³

The flaws in the SBEIS include some gross omissions. The SBEIS borrows the cost of compliance analysis from Ecology's Cost-Benefit Study.¹¹⁴ The latter study assumes no new reporting costs for entities that currently report GHG emissions to Ecology under WAC Ch. 173-441.¹¹⁵ That assumption is ridiculous, because the proposed amendments to Ch. 173-441 would impose a new reporting scheme for fuel producers, importers and exporters on top of the

¹⁰⁸ ERM, Steel Industry Leakage Report, filed with Nucor Steel Comments.

¹⁰⁹ Increased costs of producing energy are passed through to consumers, either formally through mechanisms like utility fuel cost adjustment surcharges, or informally through market price increases. *See* Ecology, CAR Cost-Benefit Study, *supra* note 24, at 30. PSE estimates that if PSE needs to pay the full cost of generating RECs to comply with the CAR, PSE's natural gas customers will experience a 12 percent rate increase in 2017, and larger increases over time. *See* PSE Comments at 30-31.

¹¹⁰ Energy Strategies, SBEIS Critique, *supra* note 107, Appendix 1 Economic Impact Analysis of the Clean Air Rule at 9, Attachment R to these comments.

¹¹¹ Energy Strategies, SBEIS Critique, *supra* note 107, at 5, Attachment R to these comments.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ Ecology, SBEIS, *supra* note 85, at 6.

¹¹⁵ Ecology, CAR Cost-Benefit Study, *supra* note 24, at 25.

reporting those entities currently perform.¹¹⁶ Section XII of these comments outlines the incremental burdens imposed on the fuels industry by the proposed amendments. Some of these costs will be passed on to fuel purchasers, including small business fuel purchasers.

The SBEIS does not reflect a serious effort to comply with the Regulatory Fairness Act. Until Ecology provides a realistic estimate of the cost of compliance, per RCW 19.85.140, Ecology has no basis to support its conclusion that the proposed Ch. 173-442 and the amendments to WAC Ch. 173-441 “do not impose costs on small businesses.”¹¹⁷

X. Ecology cannot meet its APA burden of showing that the benefits of the CAR exceed its costs.

The Regulatory Reform Act of 1995 amended the state Administrative Procedure Act to require that Ecology, before adopting the CAR, prepare a preliminary cost-benefit analysis.¹¹⁸ Based on that analysis Ecology must determine before adopting the CAR that the probable benefits of the rule exceed its probable costs.¹¹⁹

The CAR Preliminary Cost-Benefit Study projects benefits of \$14.5 billion and costs of between \$1.5 billion and \$2.8 billion over twenty years.¹²⁰ It achieves this lopsided result by (1) comparing local costs with global benefits, (2) severely understating the costs of the rule and (3) misapplying the EPA “social cost of carbon” metric. A cost-benefit analysis that meets the requirements of RCW 34.05.328(1)(d) will show that probable costs exceed probable benefits, and that Ecology cannot make the determination required by the APA.

A. The Cost-Benefit Study violates RCW 34.05.328(1)(d) by comparing local costs with global benefits.

¹¹⁶ See proposed WAC 173-441-120 (new reporting rules for fuel producers, importers and exporters).

¹¹⁷ Ecology, SBEIS, *supra* note 85, at 9.

¹¹⁸ RCW 34.05.328(1)(c).

¹¹⁹ RCW 34.05.328(1)(d). *AWB v. State of Washington*, 2001 WL 1022097, *13 (Shoreline Hearings Board 2001) (“The fact that the guidelines are significant legislative rules requires that Ecology prepare and include in the rule-making file a determination that the ‘probable benefits of the rule are greater than its probable costs’”); *see also* William R. Andersen, *Of Babies and Bathwater—Washington’s Experiment with Regulatory Reform*, ADMIN. & REG. L. NEWS, Fall 1996, at 15 (The Washington Regulatory Reform Act “[r]equir[es] (for major agencies) cost/benefit analysis before rules can be written, *including record proof that benefits exceed costs.*”) (emphasis added).

¹²⁰ Ecology, CAR Cost-Benefit Study, *supra* note 24, at vi.

Ecology cost-benefit studies routinely compare the costs borne by Washington citizens and businesses from a proposed rule to the benefits accruing to Washington state.¹²¹ The CAR Cost-Benefit Study deviates from this longstanding precedent by relying on a federal metric known as the “social cost of carbon” (SCC) to estimate the benefits of the rule.

The Interagency Working Group on the Social Cost of Carbon (IWG) has defined the SCC as “an estimate of the monetized damages associated with an incremental increase in carbon emissions in a given year.”¹²² The SCC is used by federal agencies in cost-benefit analysis to estimate the avoided damages (“social benefits”) that result from regulatory actions that lead to an incremental reduction in cumulative global CO₂ emissions.¹²³ The SCC is intended to be comprehensive and presumes to account for the economic impacts of future global damages occurring from increasing the atmospheric concentrations of greenhouse gases between 2010 and 2300.¹²⁴ The SCC was derived by the Interagency Working Group using three integrated assessment models (namely PAGE, DICE and FUND). These models use simplifying assumptions about the interactions and relationships between atmospheric concentrations of CO₂, climate processes, and the global economy to calculate the dollar value of the marginal damages caused by emitting an additional metric ton of CO₂ in a given year.¹²⁵ That monetary value of damages is then discounted back to the present to derive the SCC.^{126/ 127}

¹²¹ *Id.* at 36.

¹²² Interagency Working Group on Social Cost of Carbon, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, at 2 (February 2010), *available at* <https://www3.epa.gov/otaq/climate/regulations/scc-tsd.pdf> [hereafter SCC Technical Support Document].

¹²³ *See, e.g.*, U.S. EPA, Regulatory Impact Analysis for the Clean Power Plan Final Rule, at 4-3 (October 2015), *available at* <https://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf>.

¹²⁴ U.S. EPA, Fact Sheet: Social Cost of Carbon, at 1 (December 2015) , Attachment S to these comments.

¹²⁵ SCC Technical Support Document, *supra* note 122, at 5.

¹²⁶ U.S. EPA, Fact Sheet: Social Cost of Carbon, at 1 (December 2015) , Attachment S to these comments.

¹²⁷ The SCC is not without controversy as an economic measure of benefits. While acknowledging the uncertainties of accurately estimating the SCC, the IWG cites a 2009 report from the National Academy of Sciences stating that “any effort to quantify and monetize the harm associated with climate change will raise serious questions of science, economics, and ethics and should be viewed as provisional.” SCC Technical Support Document, *supra* note 122, at 2. The Institute for Energy Research has commented that the costs and benefits of proposed regulations cannot be “usefully estimated” using the SCC and characterizes the SCC as “an

Ecology justifies the deviation from its normal approach to cost-benefit analysis on grounds that it is “not possible to specify the local benefits to climate change resulting from control of local emissions”¹²⁸ Ecology shifted to a global measure of benefits on grounds that “it is appropriate to acknowledge that local emissions contribute to the global pool of GHGs that cause global impacts including local impacts.”¹²⁹

In deciding to compare local costs with global benefits, Ecology rewrote the test the legislature directed agencies considering a significant legislative rule to apply. The legislature wanted to ensure that “substantial policy decisions affecting the public be made by those directly accountable to the public, namely the legislature, and that state agencies not use their administrative authority to create or amend regulatory programs.”¹³⁰ The legislature wanted to ensure that “Washington’s regulatory system must not impose excessive, unreasonable or unnecessary obligations” that could detrimentally affect “the economy of the state”¹³¹ Toward these ends, the legislature imposed a series of tests on agencies proposing rules that establish new substantive obligations, i.e. “significant legislative rules.”¹³² One of those tests is codified in RCW 34.05.328(1)(d):

(1) Before adopting a [significant legislative rule] an agency must:

(d) Determine, that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented;

Although the text of RCW 34.05.328(1)(d) does not expressly limit Ecology to considering only in-state costs and benefits when determining whether a proposed rule will provide a probable net benefit, the findings of the legislature supporting the Regulatory Reform

arbitrary output from very speculative computer models” and “is completely arbitrary and without theoretical or experimental merit.” Institute for Energy Research, Comment on Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866, at 2 (February 24, 2014), *available at* <http://www.instituteforenergyresearch.org/wp-content/uploads/2014/02/IER-Comment-on-SCC.pdf>.

¹²⁸ Ecology, CAR Cost-Benefit Study, *supra* note 24, at 36.

¹²⁹ *Id.*

¹³⁰ Laws of 1995, ch. 403, Findings, codified following RCW 34.05.328.

¹³¹ *Id.*

¹³² RCW 34.05.328(5)(c)(iii).

Act make clear that only the benefits to be enjoyed by, and burdens to be imposed on, the “citizens of the state” may be considered. Those findings state, in relevant part:

(1) The legislature finds that:

(a) One of its fundamental responsibilities, to the *benefit of all the citizens of the state*, is the protection of public health and safety, including health and safety in the workplace, and the *preservation of the extraordinary natural environment with which Washington is endowed*;

(b) Essential to this mission is the delegation of authority to state agencies to *implement the policies established by the legislature*; and that the adoption of administrative rules by these agencies helps assure that these policies are clearly understood, fairly applied, and uniformly enforced;

(c) Despite its importance, Washington's regulatory system must not impose excessive, unreasonable, or unnecessary obligations; to do so serves only to discredit government, makes enforcement of essential regulations more difficult, and *detrimentally affects the economy of the state and the well-being of our citizens*.

(2) The legislature therefore enacts chapter 403, Laws of 1995, to be known as the regulatory reform act of 1995, to ensure that *the citizens and environment of this state* receive the highest level of protection, in an effective and efficient manner, without stifling legitimate activities and responsible economic growth. To that end, it is the intent of the legislature, in the adoption of chapter 403, Laws of 1995, that:

(a) Unless otherwise authorized, substantial policy decisions affecting the public be made by those directly accountable to the public, namely the legislature, and that *state agencies not use their administrative authority to create or amend regulatory programs*;

(b) When an agency is authorized to adopt rules imposing obligations on the public, that it do so responsibly: The rules it adopts should be justified and reasonable, with the agency having determined, based on common sense criteria *established by the legislature*, that the obligations imposed are truly in *the public interest*;¹³³

Finding 1(a) plainly indicates the Legislature’s intent to ensure that agencies considering proposed policy initiatives must estimate the benefits they confer on the *citizens of the state* and *Washington’s* environment. In discussing the burdens of regulations, Finding 1(c) focuses solely on detrimental effects on *the economy of the state and the well-being of our citizens*.

These statements confirm the common sense conclusion that the legislature intended agencies to consider only in-state costs and in-state benefits in determining whether a proposed regulation meets the net benefit test. An agency may not rely on benefits to out-of-state persons or the global environment in making a net benefit determination.

¹³³ Laws of 1995, ch. 403, Findings, codified following RCW 34.05.328 (emphasis added).

In applying the cost-benefit test RCW 34.05.328(1)(d) directs agencies to consider “the specific directives of the statute being implemented; . . .” In this case, there is no “specific directive” in RCW 70.94.331 -- the sole statutory authority specifically cited for the CAR in the CR-102 – that would require or allow Ecology to establish emissions standards to protect the planet from climate change at the expense of Washington’s citizens. RCW 70.94.331 is part of the state Clean Air Act. It was last amended in 1991 as part of a major update to the state Act. The declaration of public policies and purpose for the state Air Act, codified in RCW 70.94.011, states in relevant part:

It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, *to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.*

The findings supporting the 1991 Air Act amendments reinforce the priorities expressed in the 1995 Regulatory Reform Act. The 1991 legislature was concerned with the costs of air pollution and the benefits of clean air to Washington citizens:

The legislature finds that ambient air pollution is the most serious environmental threat in *Washington state*. Air pollution causes significant harm to human health; damages the environment, including trees, crops, and animals; causes deterioration of equipment and materials; contributes to water pollution; and degrades the quality of life.

Over three million *residents of Washington state* live where air pollution levels are considered unhealthy. Of all toxic chemicals released into the environment more than half enter our breathing air. *Citizens of Washington state* spend hundreds of millions of dollars annually to offset health, environmental, and material damage caused by air pollution. The legislature considers such air pollution levels, costs, and damages to be unacceptable.¹³⁴

A future legislature could, of course, alter its calculus of what benefits count in measuring the costs and benefits of a rule. It could decide that Washington citizens should accept higher fuel prices and other burdens to support the global campaign to manage climate change. That power, however, is reserved to the legislature, not Ecology. RCW 35.04.328 requires Ecology to find that the local benefits of the CAR outweigh its local costs. Ecology’s determination that it is “not possible to specify the local benefits” of the rule¹³⁵ prohibits Ecology from adopting it.

¹³⁴ Note accompanying RCW 70.94.011 (declaration of public policy and purpose) (emphasis added).

¹³⁵ Ecology, CAR Cost-Benefit Analysis, *supra* note 24, at 36.

B. Ecology misapplied the federal social cost of carbon metric to grossly overstate the benefits of the CAR.

Even if RCW 70.94.328 allowed Ecology to estimate the benefits of the CAR using a global measure of benefits, and even if the social cost of carbon was a reasonable metric to estimate those benefits, Ecology misapplied federal guidance on application of the social cost of carbon metric to grossly overstate the benefits of the rule.

The standards for conducting economic impact and cost-benefit analysis of public programs, regulatory policies, and rules have been established in federal guidelines by the Office of Management and Budget.¹³⁶ The IWG has applied these guidelines to the economic analysis of environmental issues, including the use of the social cost of carbon for regulatory impact analysis.¹³⁷ Although Ecology claims that it “is not possible to specify the local benefits to climate change”¹³⁸ the IWG provides a methodology to narrow the benefits from global to domestic. The IWG stated the U.S. benefit of the social cost of carbon “is about 7-10 percent of the global benefit.”¹³⁹ It also found that domestic benefits could be estimated on the basis of the U.S. portion of global GDP, estimated to be 23 percent. Accordingly, the IWG determined:

On the basis of this evidence a range of values from 7 to 23 percent should be used to adjust the global SCC to calculate domestic effects. Reported domestic values should use this range.¹⁴⁰

Ecology estimated that the global benefit of GHG emissions reductions from the CAR over a twenty year period has a present value of \$14.5 billion using a 2.5 percent discount rate.¹⁴¹ However, estimating benefits in a manner consistent with the methodology developed by the IWG results in U.S. domestic benefits from the CAR of \$1.0 billion if the 7 percent “domestic” adjustment is used and \$3.3 billion if the higher 23 percent number is applied to Ecology’s \$14.5

¹³⁶ OMB Circular A-94 Revised, Guidelines and Discount Rates for Cost Benefit Analysis (Oct. 29, 1992), *available at* https://www.whitehouse.gov/omb/circulars_a094/ and OMB Circular A-4, Regulatory Impact Analysis: A Primer (September 2003), *available at* https://www.whitehouse.gov/sites/default/files/omb/assets/regulatory_matters_pdf/a-4.pdf

¹³⁷ SCC Technical Support Document, *supra* note 122; U.S. EPA, Guidelines for Preparing Economic Analyses (May 2014), *available at* [https://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/\\$file/EE-0568-50.pdf](https://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/$file/EE-0568-50.pdf).

¹³⁸ Ecology, CAR Cost-Benefit Study, *supra* note 24, at 36.

¹³⁹ SCC Technical Support Document, *supra* note 122, at 11.

¹⁴⁰ *Id.*

¹⁴¹ Ecology, CAR Cost-Benefit Study, *supra* note 24, at 39.

billion global benefit estimate.¹⁴² An even smaller portion of these estimated “domestic” benefits are attributable to Washington State if Ecology’s estimate of global benefits is adjusted to account for Washington’s state GDP as a percent of U.S GDP.

Ecology did not follow the IWG guidance on adjustment of the global SCC to determine domestic effects. By ignoring the relevant federal guidance as well as the intent of RCW 24.05.328(1)(d) Ecology inflated the benefits of the CAR to \$14.5 billion. Washington state’s share of those benefits totals not more than \$83 million.¹⁴³ These *upper bound* Washington-only benefits of \$83 million are dwarfed by Ecology’s *lowest* estimate of the costs of this rule to Washington of over \$1.3 billion.

C. Ecology’s estimate of benefits is overstated because its method to estimate the net present value of benefits is incorrect.

The IWG’s guidance on estimating the dollar value of CO₂ emission reductions states:

[T]he benefits from reduced (or costs from increased) emissions in any future year can be estimated by multiplying the *change* in emissions in that year by the SCC value appropriate for that year. The net present value of the benefits can then be calculated by multiplying each of these future benefits by an appropriate discount factor and summing across all affected years.¹⁴⁴

Ecology’s net present value calculation of benefits is incorrect and overstates the benefits because it did not appropriately calculate the present value of benefits. The method Ecology employed to estimate the present value of benefits included multiplying the SCC (adjusted to 2015 \$) for each year by the annual change in emissions for the same year, and summing the resulting values for the years 2017-2036.¹⁴⁵ In this way the present value benefits of CAR was reported to be \$14.5 billion.¹⁴⁶

In spite of stating that the “Present value calculations convert a stream of future impacts to current values using a 2.5 percent discount rate”¹⁴⁷ Ecology failed to follow its own

¹⁴² Energy Strategies, Critique of the Washington Department of Ecology’s Preliminary Cost-Benefit Analysis – June 2016 Publication no. 16-02-008 at 16 (July 2016) [hereafter Cost-Benefit Study Critique], Attachment T to these comments.

¹⁴³ *Id.*

¹⁴⁴ SCC Technical Support Document, *supra* note 122, at 2.

¹⁴⁵ Ecology, CAR Cost-Benefit Study, *supra* note 24, at 39.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

instructions and the guidance of the IWG when it did not apply a discount rate to the annual stream of benefits for the affected years in its present value analysis. Had Ecology correctly calculated the present value of benefits using its own recommended discount rate of 2.5%, Ecology's reported net present value of benefits would have been \$ 9.95 billion, not \$14.5 billion. Had the agency used the range of discounts recommended by the IWG and the OMB, the present value benefits of CAR would have been reduced further to \$9.25 billion using a 3% rate; \$6.89 billion with a 5% discount rate and \$5.34 billion if a 7% discount rate was used.¹⁴⁸

As a result of Ecology's failure to correctly discount benefits to the present the reported present value benefits of the CAR rule are incorrect and undermine the accuracy of Ecology's cost-benefit analysis.

D. Ecology severely understated the costs of the CAR.

In developing its preliminary CAR Cost-Benefit Study, Ecology assumed a significant portion of the compliance obligation for the rule would be met through ERUs (as opposed to covered parties reducing their GHG emissions). Ecology provides no analysis that ERUs will be available in a sufficient quantity to meet the compliance obligation. Furthermore, the CAR Cost-Benefit Study implies nearly limitless supply. Ecology uses unchanging prices for reductions and ERUs over the twenty-year period, despite demand that increases every year.¹⁴⁹ The proposed rule's compliance obligation increases over time, which means demand for ERUs will rise. At a high level, ignoring growth and the unique treatment of EITEs, the 1.7% reduction-from-baseline compliance obligation required in year 2 grows to a 32.3% reduction 19 years later. This is a significant change in demand that is not reflected in the unchanging prices used in the preliminary CAR Cost-Benefit Study. The most basic analysis of costs would consider the balance of supply and demand and its impact on prices.

Ecology also used inappropriately low proxy prices for ERUs. The preliminary CAR Cost-Benefit Study uses three proxy prices for ERUs: renewable energy credits (RECs), voluntary carbon offsets, and allowances from the California/Quebec market.¹⁵⁰ There are significant issues with each of these choices.

Ecology used historical prices from the national, voluntary REC market as one proxy. Ecology cites a U.S. Department of Energy website for its REC prices, and used the voluntary numbers, when this rule will clearly create a compliance (mandatory) market with a geographic restriction. ERUs may only be sourced from renewable energy physically located in Washington. The website that Ecology cites explicitly states that the use of a REC for a

¹⁴⁸ Energy Strategies, Cost-Benefit Study Critique, *supra* note 142, at Appendix 2 (Table 6A), Attachment T to these comments.

¹⁴⁹ Energy Strategies, Cost-Benefit Study Critique, *supra* note 142, at 13 (Table 2), Attachment T to these comments.

¹⁵⁰ Ecology, CAR Cost-Benefit Study, *supra* note 24, at 13-15.

compliance obligation is a factor in REC prices, yet Ecology chose the lower voluntary numbers.¹⁵¹

Ecology used national, voluntary carbon offsets as a proxy for ERUs sourced from in-state projects. As with RECs, the use of carbon offsets for a compliance obligation is a factor in price. ERUs may only be sourced from projects that are in Washington, a significant geographic restriction compared to national markets. National, voluntary carbon offsets include a wide variety of project types, notably forestry/sequestration, which are not allowable project types for ERUs. The geographic and project-type restrictions on ERUs make national, voluntary carbon offset prices a very poor and artificially low proxy for ERU prices.

Ecology should not rely on California or Quebec allowance prices to estimate the cost of purchasing allowances from external market programs. California currently does not allow participants in external GHG programs to purchase and retire California compliance instruments. CARB recently circulated a proposed rule that would authorize “linkage” between the CARB allowance system and other state programs. The proposed rule states in part that only after CARB has approved an access agreement with an external GHG program may entities registered in that program retire California allowances to meet obligations of their program.¹⁵² Before Washington covered parties could access CARB allowances the CARB Board would need to adopt the proposed rules and the CARB Board would need to approve a “Retirement-Only Agreement” with Washington.¹⁵³ Both steps would be controversial in California. In considering such an agreement, the CARB Board could limit access by Washington sources to California compliance instruments.¹⁵⁴ Ecology would need legislative approval to enter into such an agreement. For all of these reasons, Ecology has no basis to assume that CARB allowances will be available to Washington covered parties. Moreover, CARB’s restrictions will limit covered parties’ access to compliance instruments from linked programs like the Quebec program.

Even if covered parties could purchase California allowances, Ecology’s cost benefit study erred by using an unchanging allowance price as a proxy for allowance-derived ERUs sourced from multi-sector greenhouse gas programs. The joint California/Quebec allowance auction has a floor price, called the Auction Reserve Price, which requires an escalation of auction allowance prices at 5% plus inflation per year. This means that allowance prices will increase in real terms 5% per year. Ecology disregarded this requirement and did not increase its

¹⁵¹ U.S. Dept. of Energy, Green Power Markets, REC Prices, *available at* <http://apps3.eere.energy.gov/greenpower/markets/certificates.shtml?page=5>

¹⁵² See Proposed amendments to California Health & Safety Code § 95943 (excerpts), Attachment U to these comments.

¹⁵³ See Proposed amendments to California Health & Safety Code § 95945 (excerpts), Attachment U to these comments.

¹⁵⁴ *Id.* § 95945(a)(3) , Attachment U to these comments.

chosen price over the twenty years, nor did Ecology use a high value that reflects the 2036 minimum price.¹⁵⁵

Ecology also used an inappropriate source for estimating the costs of on-site reductions. Ecology cites an Intergovernmental Panel on Climate Change report from 2007 for its two on-site reductions prices. This report is inappropriate as it reflects a roll-up of global studies all older than 2007. The report was intended to provide a global, high-level mitigation quantity and cost estimate for the industrial sector. It is an unreliable proxy for the costs Washington businesses would face to reduce emissions from industrial processes.

These factors lead to a severe understatement of the probable costs of the proposed CAR, and provide no identification of the risks faced by businesses if ERUs are simply unavailable at any price in the quantities needed in later years (a scenario made inevitable by the CAR's lack of a reliable cost-containment mechanism).¹⁵⁶

XI. Specific provisions of the proposed rules should be revised to comply with the APA “least burdensome alternative” requirement.

The 1995 Regulatory Reform Act requires Ecology not only to determine that the benefits of the CAR exceed its costs, but also to determine that “the rule being adopted is the least burdensome alternative for those required to comply that will achieve the general goals and the specific directives of the statute that the rule implements.”¹⁵⁷ The legislature directed Ecology to make this determination after considering alternative versions of the rule that will achieve the general goals and specific objectives of the rulemaking, as presented in the CR-102.¹⁵⁸

Ecology prepared a four page “Least Burdensome Alternative Analysis” to satisfy these requirements.¹⁵⁹ It flouts the goals of the Regulatory Reform Act by floating conceptual alternatives that might reduce the burdens of the CAR, then rejecting each with a cursory statement that it would “limit the ability to achieve the goals and objectives of the authorizing

¹⁵⁵ California Cap-and-Trade Program and Québec Cap-and-Trade System, 2016 Annual Auction Reserve Price Notice (December 1, 2015), *available at* <http://www.mddelcc.gouv.qc.ca/changements/carbone/ventes-encheres/budget-unites-emissions2016-en.pdf>.

¹⁵⁶ Energy Strategies, Cost-Benefit Study Critique, *supra* note 142, at 13, Attachment T to these comments.

¹⁵⁷ RCW 34.05.328(1)(e).

¹⁵⁸ *Id.*

¹⁵⁹ Ecology, CAR Cost-Benefit Report, *supra* note 24, Chapter 6.

statutes.”¹⁶⁰ By posing and rejecting these straw man “alternatives,” Ecology lost an opportunity to consider changes to the implementation rules for the CAR that would reduce the burden of compliance without compromising the goals of the rule.

Fortunately, Ecology still has the chance to consider revisions to the proposal that would reduce its burdens. The following changes would meet these criteria:

- **Amend WAC 173-442-140 to eliminate the prohibition against acquisition of ERUs from “third parties.”** The feasibility of complying with the CAR depends in part on the prompt development of a robust market for ERUs. By preventing “third parties” (an undefined term) from owning ERUs Ecology would restrict the availability of offsets and credits, many of which are purchased by intermediaries from project developers. This restriction is not necessary. Its deletion would increase the supply of ERUs and reduce the burden of compliance without reducing the environmental benefits of the rule.
- **Amend WAC 173-442-170 to eliminate the phase-out of allowances from “external GHG emission reduction programs.”** WAC 173-442-170 phases out allowances from external trading programs over time. By definition this provision increases the burden of compliance by restricting the availability of ERUs. This restriction is not necessary to or authorized by the state Air Act or RCW Ch. 70.235. It would not enhance the reduction of GHG emissions because the qualifying criteria in WAC 173-442-170 for use of external allowances ensure that every allowance represents a real reduction in GHG emissions. The phase out provision also increases the legal vulnerability of the CAR by discriminating against out of state sources of creditable emission reductions, in violation of the dormant Commerce Clause to the U.S. Constitution.¹⁶¹
- **Amend WAC 173-442-170 to eliminate the limits on use of allowances based on the vintage year of the allowance.** Subsection (2)(b) limits the use within a compliance period of allowances generated during specific years within that compliance period. This restriction increases the burden of compliance by restricting the availability of ERUs from out of state programs. It would not increase the enforceability of the CAR, or otherwise contribute to the goals of the state Air Act or RCW Ch. 70.235.
- **Amend WAC 173-442-070 to specify objective standards for derivation of an EITE covered party’s efficiency reduction rate.** WAC 173-442-070 would increase or reduce the efficiency reduction rate of an EITE based on its relative efficiency within a “sector.” The rule does not specify, in quantitative terms, the benefit or burden of being efficient or inefficient. Nor does it define the key terms required to derive an EITE covered party’s emission reduction pathway -- e.g., “sector,” “sample facilities,” and “efficiency reduction rate.” These omissions unnecessarily increase the burden of compliance by denying EITE

¹⁶⁰ *Id.* at 50-51.

¹⁶¹ *See* Section IV above and the comments filed on the CAR by Puget Sound Energy.

covered parties the ability to predict and plan for ways to meet their compliance obligations.¹⁶² The ambiguity does not promote any objective of the state Air Act or RCW Ch. 70.235.

- **Amend WAC 173-442-070 to exempt process emissions from EITE covered parties from regulation under the CAR.** Certain GHG emissions associated with chemical processes cannot be reduced or avoided. For EITE covered parties, that means imposing GHG reduction obligations will cause leakage, harm to the Washington economy and higher global GHG emissions.¹⁶³
- **Amend WAC 173-441-120 to prevent the adoption of two duplicative and conflicting GHG reporting schemes for petroleum fuel suppliers.** WAC 173-441-130 incorporates the GHG reporting system for fuel suppliers that the legislature directed Ecology to use.¹⁶⁴ WAC 173-442-120 imposes a second, poorly defined and extremely burdensome reporting system that Ecology adapted from an EPA reporting rule, in conflict with RCW 70.94.151(5)(a)(iii). For reasons described in Section XII below, the reporting scheme in WAC 173-442-120 reduces the accuracy of the GHG emissions data reported by fuel suppliers and importers, while significantly increasing the burden of compliance for those covered parties. It directly conflicts with a requirement of the state Air Act. Ecology should delete from the proposed amendments to WAC 173-441-120 the reference in Table 120-1 to 40 C.F.R. Part 98, Subpart MM, and the proposed subsection (2)(h).
- **Amend WAC 173-442-050(3) to normalize short term variations in fuel supplier market share.** The proposed WAC 173-442-050(3) would set each existing fuel supplier's baseline on average volumes sold between 2012 and 2016. The use of a historical baseline for fuel suppliers does not account for sharp variations in any supplier's sales from year to year. Suppliers deliver fuel to Washington consumers through a complex network of refineries, pipelines, storage terminals, barges, rail cars, and trucks. Disruptions in supply channels occur due to unplanned downtime in refineries, logistical problems impeding truck, rail, or barge traffic, and numerous other factors. To address these disruptions, certain suppliers increase production for a period, to fill the gap and continue meeting the demand of Washington consumers. When measured against a historical baseline, the entirety of this additional supply yields an increased compliance obligation. The supplier will most likely have to acquire ERUs to account for emissions from all of the additional fuel sold to fill the gap. The supplier that acts to fill the gap to meet consumer demand assumes additional burdens under the CAR. Instead of using a historical baseline, Ecology should calculate a fuel supplier's compliance obligation each year based on actual volumes sold at the

¹⁶² See AWB comments in Section VI above and comments of Nucor Steel.

¹⁶³ See the comments in Sections VI and VII above, and the comments filed by the Boeing Company, Nucor Steel, Northwest Pulp & Paper Association and Ash Grove Cement.

¹⁶⁴ See Section XII below.

rack. Ecology should apply its annual decrease factor (1.7%) to emissions associated with these actual fuels sold.¹⁶⁵

XII. Ecology’s proposed new emissions reporting requirements for suppliers of petroleum products are unlawful, burdensome and would result in inaccurate reporting.

In 2010 the legislature directed Ecology to adopt rules that require fuel suppliers to report CO₂ emissions from the combustion of certain liquid fuels using fuel sales data already reported to the Department of Licensing (DOL) under a state tax reporting program. The legislature also prohibited Ecology from requiring fuel suppliers to use any data other than the data they report to DOL to calculate greenhouse gas emissions. Ecology adopted WAC 173-441-130 to implement this legislative mandate.

The proposed CAR would leave the existing WAC 173-441-130 in place, and establish a second, conflicting fuel reporting system based on Ecology’s re-invention of an EPA reporting rule. Petroleum refiners and importers would need to report CO₂ emissions from the combustion of the fuels they sell under both systems,¹⁶⁶ but Ecology would use only the data from its new reporting rule to calculate GHG reduction obligations under Ch. 173-442. The existing WAC 173-441-130 would become an orphan reporting scheme, yielding data that has no relevance despite being a superior data source.

The proposed amendments governing reporting by fuel suppliers violate RCW 70.94.151(5) by requiring fuel suppliers to report CO₂ emissions based on data other than DOL fuel sales reports. In addition, Ecology’s new reporting scheme would double-count some emissions and pick up emissions that are exempt under the rule. The rules would exempt fuel exported from the state of Washington, but require information to claim the exemption that fuel suppliers often cannot obtain. Finally, the new reporting scheme would impose onerous new data gathering and reporting burdens on petroleum companies -- precisely the burdens the legislature sought to avoid by directing Ecology to use the existing DOL reporting scheme.

A. The 2010 legislature directed Ecology to base GHG emissions reporting by fuel suppliers exclusively on data reported to the DOL.

The 2008 legislature amended RCW 70.94.151 to create a GHG emission reporting

¹⁶⁵ See WSPA comments at 16 for additional information.

¹⁶⁶ Proposed WAC 173-441-020 defines “supplier” to include “distributor,” but Ecology’s modified EPA reporting system does not reach distributors, and Ecology proposes no rules for reporting by distributors (other than the DOL reporting rules adopted in WAC 173-441-130). AWB assumes that distributors have no reporting obligations under WAC 173-441-120.

program.¹⁶⁷ The 2008 law did not regulate fuel suppliers or importers. It included some mobile source emissions by requiring operators of vehicle fleets to report emissions. This approach proved unwieldy. The 2010 legislature revisited the problem of how to gather data on GHG emissions from mobile sources. A 2010 amendment replaced the vehicle fleet reporting requirement with a reporting program for fuel suppliers.¹⁶⁸ The legislature built the new reporting program on an existing tax reporting system. Under RCW Ch. 82.38 “fuel suppliers” report sales of gasoline, diesel and some aircraft fuel to DOL. Those reports form the basis for the state’s assessment of excise tax on those fuels. The 2010 legislature decreed that each person who files periodic tax reports of sales of certain fuels must “report to the department [of ecology] the annual emissions of carbon dioxide from the complete combustion or oxidation of the fuels listed in those reports as sold in the state of Washington.”¹⁶⁹ According to proponents of the legislation, “It makes a lot more sense for fuel suppliers to report rather than the various fleets. The numbers are already generated through the Department of Licensing and therefore there should be no additional costs associated with the reporting requirements of fuel.”¹⁷⁰

By the time the 2010 legislature changed the rules for mobile source GHG emissions reporting, EPA had promulgated a federal GHG emissions reporting rule.¹⁷¹ The legislature was well aware of this development. For sources other than fuel suppliers, the 2010 law required Ecology to follow the new EPA reporting rules.¹⁷² For fuel suppliers, however, the legislature directed Ecology to utilize the existing DOL reporting scheme. The 2010 law states that Ecology “shall not require suppliers to use additional data to calculate greenhouse gas emissions other than the data the suppliers report to the department of licensing.”¹⁷³ This language was added in the House for the purpose of restricting Ecology “from requiring suppliers to use data other than the data supplied to the DOL to calculate their greenhouse gas emissions.”¹⁷⁴ Another section of the 2010 law directed Ecology to update its GHG reporting rules whenever EPA updates 40 C.F.R. Part 98. Once again, however, the legislature was careful to exclude from this

¹⁶⁷ Laws of 2008, Ch. 14, §5.

¹⁶⁸ Laws of 2010, Ch. 146, §2.

¹⁶⁹ RCW 70.94.151(5)(a)(iii).

¹⁷⁰ Senate Bill Report on S.B. 6373, Senate Committee on Environment and Water & Energy, at 3 (Jan. 19, 2010), Attachment V to these comments.

¹⁷¹ 40 C.F.R. Part 98, as adopted at 74 Fed. Reg. 56260 (Oct. 30, 2009).

¹⁷² RCW 70.94.151(5)(b)(i).

¹⁷³ Laws of 2010, Ch. 146, § 2(5)(a)(iii), codified at RCW 70.94.151(5)(a)(iii).

¹⁷⁴ S.B. 6373, House Committee on Ecology and Parks, Committee Materials (Feb. 19, 2010), Attachment W to these comments.

consistency requirement the fuel supplier reporting rules. RCW 70.94.151(5)(c) states:

The department shall review and if necessary update its rules whenever the United States environmental protection agency adopts final amendments to 40 C.F.R. Part 98 to ensure consistency with federal reporting requirements for emissions of greenhouse gases. However, the department shall not amend its rules in a manner that conflicts with (a) of this subsection.¹⁷⁵

Ecology was aware of this limit when it proposed rules to implement the 2010 legislation. The Pre-proposal Statement of Inquiry for the rulemaking to establish WAC Ch. 173-441 states that “SSB 6373 directs Ecology to maintain consistency with the EPA [reporting] program to the extent possible under state law.”¹⁷⁶ Ecology recognized that full consistency with EPA’s reporting program was impermissible under state law, and wrote WAC 173-441-130 to base fuel supplier reporting on the excise tax reports filed with DOL.

B. The proposed amendments to WAC Ch. 173-441 violate RCW 70.94.151 by requiring fuel suppliers to report GHG emissions using data beyond that reported to the DOL.

Ecology’s proposed amendments to WAC 173-441-120 would create a new reporting system for fuel suppliers. First, Ecology proposes to add “suppliers of petroleum products” to a table of “facilities” that report under Part 98.¹⁷⁷ This change would bring suppliers within the scope of existing language in the first paragraph of WAC 173-441-120 that requires “facilities” to report under EPA’s reporting rules. Under EPA’s rules, “suppliers of petroleum products” are refiners, importers and exporters.¹⁷⁸ Second, Ecology proposes to revamp EPA’s reporting rules to require reporting on fuels “imported” into Washington, rather than the United States, and to exempt fuels “exported” from Washington, rather than the United States.¹⁷⁹ Ecology proposes to adopt the new reporting scheme without amending the rules that implement the statutory reporting scheme in WAC 173-441-130. Ecology would accomplish this result by defining a new set of definitions for fuel suppliers, importers and exporters that conflict with those

¹⁷⁵ RCW 70.94.151, as amended by Laws of 2010, ch. 146, §2 (emphasis added)

¹⁷⁶ Ecology, Preproposal Statement of Inquiry for rulemaking to establish Chapter 173-441 WAC, WSR 10-11-098 (filed May 18, 2010).

¹⁷⁷ EPA does not classify fuel suppliers as “facilities,” and they would not meet the 40 C.F.R. 98.6 definition of a “facility.”

¹⁷⁸ 40 C.F.R. § 98.390 and Part 98, Subpart A, Table A-5.

¹⁷⁹ Proposed WAC 173-441-120, Table 120-1 and subsection (h).

mandated by the legislature in RCW 70.94.151.¹⁸⁰ Ecology's new reporting scheme for fuel suppliers conflicts with RCW 70.94.151(5) in at least the following ways:

- It ignores the statutory mandate described above to base reporting for fuel suppliers on the DOL reporting system;
- It defines terms in ways that deviate from the RCW 70.94.151 definitions of those terms;
- It moves reporting upstream from the fuel distributors who report most fuel sales under the DOL system to refiners and importers, who engage in frequent wholesale transactions that are not reported to DOL;
- It requires reporting on products that are not subject to reporting under the DOL system.¹⁸¹

C. Ecology's proposed new reporting scheme would result in inaccurate and burdensome reporting.

In addition to being unlawful, Ecology's proposed new reporting rules add enormous complexity to the reporting system and would yield less accurate data on fuels combusted in Washington than the statutory system embedded in WAC 173-442-130. The key difference is that the statutory system tracks volumes of fuels distributed at the loading rack. The rack is the appropriate point of obligation. The statutory system simplifies accounting for export and import volumes. It also ensures program equity between producers and importers. Reporting at the refinery gate causes a host of accounting problems, including double counting, assessment of emission reduction obligations against fuels that the CAR exempts from the definition of covered emissions, and misallocation of compliance obligations. The best way to understand these problems is to consider some examples.

Traceability. The proposed WAC 173-441-120 would require suppliers of petroleum products seeking to claim the exports exemption to trace the product to a point of final distribution outside of Washington State.¹⁸² This can be difficult. Washington suppliers of

¹⁸⁰ Compare the statutory definition of "supplier" in RCW 70.94.151(5)(h)(2) with proposed WAC 173-441-120 (incorporating and modifying EPA's definition of "supplier" from 40 C.F.R. § 98.390). Compare the definition of "importer" in RCW 82.38.020, incorporated by reference in RCW 70.94.151(5)(h), with the definition Ecology invented in proposed WAC 173-441-120(2)(h)(ii). Compare the definition of "exporter" in RCW 82.38.020 with the definition Ecology invented in proposed WAC 173-441-120(2)(h)(ii).

¹⁸¹ The excise tax reporting rules apply to motor vehicle fuel sales, special fuel sales and distributors of aircraft fuel. RCW 70.94.151(5)(a)(iii) bars Ecology from requiring any additional information from fuel suppliers.

¹⁸² See proposed WAC 173-441-120(h)(ii)(B). "Final distribution" is not defined in the proposed rules and its meaning is unclear.

petroleum products (including refineries) often sell finished products, either in bulk volumes through pipelines or water or by truck, to other companies that distribute petroleum products. In these transactions, the refinery is unlikely to know what the purchaser will do with the fuel. The purchaser may be a competitor, and the final disposition of the fuel may be confidential information. The purchaser may export the fuel to Alaska, distribute the fuel within Washington, or sell the fuel to another supplier in Washington (who in turn might export it or distribute it within Washington). Without knowing the point of final distribution, the refinery cannot claim the export exemption. The net result is overstatement of volumes sold in Washington and an increase in the fuel supplier's GHG emission reduction obligation. If the accounting was properly based on rack volumes, as required by RCW 70.94.151(5), tracking export volumes from the terminal would not be burdensome.

Washington refiners also buy and sell intermediates and blend stocks.¹⁸³ A different traceability problem arises when one Washington refinery sells an intermediate such as VGO (vacuum gas oil or "Heavy Gas Oils" according to table MM-1) to another Washington refinery that is processed into an exempt product -- e.g. jet fuel.¹⁸⁴ Refinery A bears the burden of reporting the CO₂ emissions from sale of the VGO to Refinery B, and those emissions contribute to Refinery A's emissions reduction obligation. Refinery A cannot claim the jet fuel exemption because A does not know what B will do with the intermediate. CAR emission reduction obligations would apply to CO₂ emissions from a fuel that Ecology purports to exempt from the program.

Misallocation. Refinery A might sell alkylate (a blend stock) to another Washington refinery (Refinery B). Refinery B blends the alkylate into CARBOB and exports it to California. Under WAC 173-441-120 Refinery A would have to report the CO₂ emissions from the alkylate sold to Refinery B. Refinery B would deduct from its emissions report the CO₂ from combustion of the exported CARBOB and from combustion of the purchased alkylate.¹⁸⁵ Refinery A would report 100 percent of the emissions from combustion of the alkylate, even though Refinery B obtained the principal economic benefit from the marketing of the fuel.

Even if Refinery B sells the products containing the purchased alkylate in Washington, WAC 173-441-120 misallocates the obligation for the carbon in these fuels. Refinery A would bear 100 percent of the emissions reduction burden, even though it did not derive the principal

¹⁸³ An intermediate is a refinery product that requires further refining or processing before it can be used for commercial or general use. A blendstock is a refinery product that is used for direct blending into finished motor fuel. *See* 40 C.F.R. § 98.6 (definition of "blend stock").

¹⁸⁴ Proposed WAC 173-442-040(2)(a) exempts jet fuel from a petroleum product producer's covered emissions.

¹⁸⁵ Under Subpart MM, Refinery B may deduct from its GHG reports carbon contained in purchased intermediates. *See* 40 C.F.R. § 98.393(d).

benefit of producing a fuel consumed by the public, and was not involved in the transaction closest to the point of final distribution and combustion.

Another example of a misapplied obligation occurs when Refinery A sells VGO to Refinery B, and Refinery B uses the VGO as feed to a hydrocracker/fluidized catalytic cracking unit (FCCU). The hydrocracker/FCCU processes the VGO into fuels, but some of it converts to fuel gas combusted in the refinery, and reported under Subpart CC of Part 98. Under the proposed WAC 173-441-120, Refinery A would report the CO₂ emissions from combustion of the VGO it sells to Refinery B. Under Subpart MM Refinery B could deduct the CO₂ emissions from the VGO imported as a non-crude feedstock.¹⁸⁶ Refinery A would be wholly responsible for the emissions under the CAR, even though Refinery B markets the products refined from the VGO and burns the fuel gas derived from the cracking of the VGO.

Fuel suppliers also conduct trading transactions with each other. For instance, Company A that owns a refinery in Washington distributes gasoline to a Washington terminal owned or leased by Company B. Company B owns no production facilities in Washington, but B owns a refinery in California. Company B distributes the same quantity of gasoline received from Company A in Washington to a Company A terminal in California. The trade saves money and energy by reducing transportation costs for both companies. Under the DOL reporting rules Company B would report and pay tax on the gasoline it sells in Washington as a distributor. WAC 173-441-130 would require Company B to report the GHG emissions from those sales. But Ecology would not use that information to set Company B's CAR compliance obligation, because Ecology proposes to base CAR emission reduction obligations solely on information reported under WAC 173-441-120, i.e. sales, including wholesale transfers at the refinery gate. Ecology's new reporting scheme would assign the entire burden to the company that produces the fuel, and none to the company that distributes it in Washington and derives the principal benefit.

Double Counting. Ecology's new reporting scheme also would double-count emissions. For example, Refinery A produces calcined coke. Consider a case where Refinery A sells coke to an aluminum smelter in Washington where the coke is used for primary aluminum production. Refinery A would report the GHG emissions from the carbon in the coke as a supplier under Subpart MM and the smelter would report GHG emissions from the same carbon molecules under 40 C.F.R. Part 98 Subpart F for primary aluminum smelters.

In summary, Ecology's proposed amendments to WAC 173-441-120 would result in inaccurate reporting and assessment of compliance obligations, through double-counting emissions, misallocation of the emissions reduction obligation and the inability of fuel suppliers to trace fuels sold to another company that are exempt or exported.

Unnecessary Reporting Burdens. Ecology's new reporting system would not only yield inaccurate results, it also would add burdensome new data gathering and reporting

¹⁸⁶ See 40 C.F.R. § 98.393(b) (definition of "feedstock").

obligations. The existing system for reporting emissions, based on data provided to the DOL, is relatively straightforward. Reporting parties track emissions based on fuel sales at the rack, which is downstream in the distribution network, closer to where emissions actually occur and where it is easier to know whether fuels are finally distributed beyond Washington. The existing system mitigates burdens on reporting entities by utilizing an existing, audited system overseen by the DOL. This simplifies reporting for both Ecology and regulated entities. Data reported to the DOL already account for production, imports, and exports by accounting for fuels sold and consumed in the state, consistent with Ecology's intent for its proposed new scheme. DOL data is submitted with confidentiality provisions, to help protect competitively sensitive data.

Ecology has questioned the accuracy of the DOL fuel reporting system. Discrepancies between Subpart MM reports and DOL data are partly attributable to the fact that Subpart MM data fails to account for exports from Washington State and is otherwise prone to the double-counting and over-reporting problems described above, while at-the-rack DOL data is not. These flaws would lead to an over-estimate of carbon emissions in Subpart MM data relative to DOL data.¹⁸⁷

The proposed reporting rules in WAC 173-441-120 add enormous complexity to the reporting system, in an effort to trace fuel sales reported at the refinery gate to the point of distribution in Washington. Once again, a real world example best illustrates the data gathering and reporting morass that would result from Ecology's new reporting system. Refinery A transfers gasoline on the Olympic Pipeline from western Washington to a distribution terminal in Portland, Oregon. From this terminal, some of the gasoline travels by barge to a terminal in Pasco. From Pasco, some of the gasoline travels via pipeline to Spokane, where it is placed in tanks along with gasoline from other sources. The Spokane terminal sells some gasoline for distribution in Washington, and some for distribution in Idaho.

Under WAC 173-441-120 Refinery A would deduct the gasoline exported to the Portland terminal from its fuel sales. The owner of the Pasco terminal would report the gasoline arriving by barge as imported fuel. The terminal in Spokane might be required to report under WAC 173-441-130 as a distributor, but not under WAC 173-441-120. If the owner of the Pasco terminal (reporting as an importer) could obtain information from the Spokane terminal about the how much of the fuel that it shipped to Spokane by pipeline was distributed in Idaho, the owner of the Pasco terminal could deduct the out of state sales from its covered emissions.

¹⁸⁷ Ecology has pointed out that Subpart MM prescribes multiple emission factors for gasoline based on its octane rating. The purported accuracy benefits of these different emission factors do not justify use of Subpart MM. The accuracy "benefit" of reporting fuels by octane rating is dwarfed by the inaccuracies (described above) inherent in Ecology's modification of the Subpart MM reporting rules. Washington petroleum producers and importers would prefer to over-report in this area by using the most conservative emissions factor – i.e., adding extra MT CO₂ to their emissions – in order to utilize the simpler DOL-based reporting system.

In this example, the Ecology proposal to report fuel sales at the refinery gate yields a bookkeeping nightmare. By contrast, the statutory reporting scheme would measure CO₂ from fuel distributed at the rack of the Spokane terminal. Each molecule would be counted only once.

All of these examples reflect situations that can and do occur in the fuel supply business. The problems outlined in each example could be avoided by keeping the reporting obligation at the rack, as required by law.

Another source of unnecessary complexity in WAC 173-441-120 is the Subpart MM obligation to report sales of up to 69 separate products,¹⁸⁸ most of which contribute little to the state's GHG emissions inventory. Under Ecology's proposal, each of these products must be tracked separately for production, imports, and exports. This is relatively easy to do when exports and imports are defined as EPA defines them (in and out of the U.S.), but much more difficult if the supplier must research whether its products crossed a state line. In the event that Ecology proceeds with its problematic new reporting system, it should at least exempt more petroleum products to avoid some of the problems described above. The examples cited above demonstrate the complexity and sometimes impossibility of tracking these products.

AWB strongly recommends that Ecology limit the scope of the reporting obligation to the fuels that suppliers report to DOL. The existing DOL-based system already captures gasoline, diesel (on-road/off-road), and aviation gasoline. If Ecology believes it needs to track additional fuels, such as home heating oil or liquefied petroleum gases, there is no need to track 69 products at three different locations in the supply chain (production, imports, and exports) to capture these additional fuels. It would be much simpler and far less burdensome to create a reporting program for these specific fuels not captured in the DOL reports. The use of Subpart MM reporting by Ecology exposes a large amount of proprietary and confidential data with a high degree of granularity (tracked by production, imports, and exports). This is a substantial burden on petroleum product producers and importers in Washington, and a burden contrary to the intent of the legislature when it amended RCW 70.94.151 in 2010 to afford protection to confidential data provided to DOL and to prohibit Ecology from requiring any additional data.

The examples described above highlight the problems that result from requiring fuel suppliers to report based on products transferred at the refinery gate. To avoid these problems, Ecology should stick with the statutory fuels reporting system that focuses on fuels sold at the rack for distribution in Washington.

XIII. The surcharge levied against covered parties to fund the reserve account constitutes an invalid tax under the Washington Constitution.

The proposed WAC 173-442-240 would create an account of "reserve ERUs," funded in part by allocating to the reserve account two percent of the annual decrease in each covered party's emission reduction pathway. WAC 173-442-060(1)(b) would increase each covered party's emission reduction requirement by two percent to cover the reserve allocation. Ecology

¹⁸⁸ 40 C.F.R. Part 98, Subpart MM, Table MM-1.

describes the reserve account as a “bank” and a public “savings account” of ERUs.¹⁸⁹ Ecology would decide how to allocate ERUs in the reserve. WAC 173-442-240(2) through (4) describe a list of projects to which Ecology “may” allocate reserve ERUs. Eligible projects include grants to an Environmental Justice Advisory Committee to implement emission reduction projects or programs by covered parties that are “consistent with the priorities and environmental justice criteria determined by the committee.” Rather than granting ERUs to any project, Ecology may instead retire ERUs in the reserve account “to promote the viability of voluntary renewable energy programs in Washington,” “to ensure consistency with an aggregate emission reduction limit for the program” or “for purposes consistent with this rule.”¹⁹⁰ WAC 173-442-240(4) lists priorities to guide Ecology’s allocation of reserve ERUs, but it does so in language so broad and vague as to impose no meaningful limits on Ecology’s discretion. No covered party has a right to use any ERUs in the reserve account, including the reserves that covered party contributes to the account.

WAC 173-442-240 violates Article VII, § 5 of the Washington Constitution by assessing a tax on covered parties to fund a laundry list of green projects selected by Ecology or by the Environmental Justice Advisory Committee.¹⁹¹ Under Washington law, a charge is a tax when its “primary purpose . . . is to accomplish desired public benefits which cost money.”¹⁹² Forcing regulated entities to do things that cost money to achieve public benefits can constitute “a tax in kind,” even in the absence of a “direct payment of money” to the government.¹⁹³ Under Article VII, § 5 of the Washington Constitution, “a new tax burden can be created only by law that states such a purpose.”¹⁹⁴ The government cannot “shift” the social costs of desired public benefits onto a subset of the population “under the guise of a regulation.”¹⁹⁵ This cost-shifting “is a tax, and absent specific legislative pronouncement, the tax is impermissible and invalid.”¹⁹⁶

¹⁸⁹ Ecology, Clean Air Rule: Reserve, Attachment X to these comments.

¹⁹⁰ Proposed WAC 173-442-240(2)(c).

¹⁹¹ In addition to offending Article VII § 5, the allocation of ERUs to an advisory committee comprised of “persons who are well-informed on the principles of environmental justice” is an unlawful delegation of Ecology’s statutory authority to protect air quality.

¹⁹² *Covell v. City of Seattle*, 127 Wn.2d 874, 879 (1995).

¹⁹³ *San Telmo Associates v. City of Seattle*, 108 Wn.2d 20, 24 (1987).

¹⁹⁴ *Estate of Hemphill v. State Dep’t of Revenue (Estate Tax)*, 153 Wn.2d 544, 551 (2005).

¹⁹⁵ *San Telmo Associates v. City of Seattle*, 108 Wn.2d 20, 24 (1987).

¹⁹⁶ *Id.*

No statute authorizes Ecology to assess a surcharge against covered parties to fund a matrix of green programs or projects selected by Ecology or by an advisory committee. The provisions of the CAR that assess such a surcharge against all covered parties with an emission reduction obligation is an invalid tax under the Washington Constitution.

Looking beyond Ecology's statutory authority to establish the reserve, the proposed language governing its implementation is critically vague. In the June 23, 2016 slide presentation, Ecology explained that the reserve would be stocked with ERUs representing 2% of a company's emission reduction requirements and from companies that curtail operations. It was then stated that the reserve ERUs would be available to (1) companies that expand operations, (2) companies moving to Washington, (3) companies that have shut down but are restarting and (4) the Environmental Justice Advocacy Committee.

This approach is not captured in the rule language. The contribution portions of the rule are obtuse at best and WAC 173-442-240(1)(a)(B)(II) makes reference to retirements from the reserve in the section of the rule describing contributions to the reserve. WAC 173-442-240(2) addresses retirements within the reserve for sources without a baseline or that expand or physically modify their facilities, but there is no provision for assignment of those ERUs to an actual covered party. WAC 173-442-240(3) is the only provision addressing when Ecology may assign ERUs to a covered party and that only for assignment when a curtailed source restarts or for the Environmental Justice Advisory Committee.

Nor has Ecology provided adequate guidance on the application of ERUs in the reserve. WAC 173-442-240(4) states a priority for allocating reserve ERUs to sources experiencing changes in production,¹⁹⁷ but there is no indication of how this provision relates to the rest of WAC 173-442-240. EITE changes in production consistent with subsection (1)(a)(i)(B)(III) should not be subject to this section.

We have the following questions about the priorities for reserve use proposed in WAC 173-442-240(4):

- How will Ecology ensure there are reserve ERUs sufficient to meet the demands of growth in production from covered facilities?¹⁹⁸
- How will Ecology prioritize the allocation of ERUs for growth in production?
 - Is it first come, first to receive ERUs?

¹⁹⁷ This subsection contains an erroneous or incomplete cross reference to "subsection (1)(a)(i)(B)(III)."

¹⁹⁸ On page 6 of the SEPA Checklist, Ecology clearly lists the priorities for application of reserve ERUs. The intent expressed in the SEPA Checklist does not carry forward clearly to WAC 173-442-240. To the extent that the reserve is intended to accommodate growth and projects at existing and new facilities, WAC 173-442-240 must clearly confirm this priority.

- If demand for ERUs to cover growth from the reserve exceeds availability, will only a portion of the growth be covered?

This section of the rule needs to be clarified to explain how the provisions in this section function with respect to ERUs moving in or out of the reserve. Because there is such a broad discrepancy between what is in the proposed rule language and the stated intent, the amended language must be re-noticed so that stakeholders can adequately comment on it.



1411 East Mission Avenue
PO Box 3727
Spokane, WA 99220-3727

June 23, 2016

Delivered via email

Ms. Sarah L. Rees
Special Assistant, Climate Policy
Washington Dept. of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Ms. Rees:

We are writing to lend the support of Avista Corp. to the request made by the Association of Washington Business and the Northwest Gas Association to extend the comment period for the CR 102 of Department of Ecology's revised draft Clean Air Rule - Chapter 173-442 WAC and Chapter 173-441 WAC.

This rulemaking involves a major policy undertaking with many complex provisions. The withdrawal of the initial CR 102 was necessary because of the substantive changes made in the new draft rule. Our initial review of the newly-released draft and supporting documents has elicited a number of questions and necessitates an entirely new analysis of this rule as compared to the previous draft. It's worth noting that comments submitted under the withdrawn CR 102 are no longer part of the record for this current rulemaking.

The impact on regulated entities such as Avista, and the customers we serve, is likely to be significant. We believe stakeholders should have sufficient time to assess and comment on the new draft rule as was expected to be afforded them under the original CR 102, which had a scheduled comment period of over 90 days. Additional time is needed to gain clarity and to inform stakeholder comments that might improve the functionality of this rule.

Thank you for your consideration of this request. We look forward to providing additional input and working with you and the administration on this effort.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce Howard", is positioned below the "Sincerely," text.

Bruce Howard
Director of Environmental Affairs

cc: Chris Davis
Stu Clark



1411 East Mission Avenue
PO Box 3727
Spokane, WA 99220-3727

Delivered via email

July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Comments on proposed Clean Air Rule

Dear Mr. Wilson:

Founded in 1889, Avista generates and transmits electricity and distributes natural gas, while providing innovative energy solutions for our residential, commercial and industrial customers. The company has been providing clean, safe natural gas for 58 years and today serves over 330,000 customers in eastern Washington, northern Idaho and parts of southern and eastern Oregon with natural gas through 7,600 miles of natural gas distribution mains. Avista has been committed to offering natural gas conservation programs for over 30 years to residential, commercial and industrial customers in a cost-effective manner. These conservation projects saved 262 billion British Thermal Units (BTUs) in 2014.

Avista agrees that climate change is a challenge deserving of legislative and regulatory address. However, careful consideration needs to be given to the manner in which greenhouse gas emissions should be reduced within specific economic sectors, with proper analysis performed to evaluate a particular policy's efficacy and ramifications. The proposed Clean Air Rule (CAR), unfortunately, does not reflect such an approach in attempting to regulate natural gas local distribution companies (LDCs), and it is being adopted through a procedurally infirm process. The CAR is beyond the scope of Ecology's statutory authority. It is inconsistent with an LDC's obligation to serve its customers. The CAR fails to establish a reasonable regulatory scheme and offers no rational compliance path for LDCs. The possible negative environmental, as well as economic, impacts of the CAR have not been thoroughly analyzed or considered. While there may be approaches to reduce the harm that the CAR will cause, the appropriate correction in any final rule the Department of Ecology (Ecology) adopts is to remove LDCs from the CAR regulatory scheme.

Following are Avista's specific comments regarding the proposed CAR. Thank you for the opportunity to comment.

CAR exceeds Ecology's authority and is arbitrary and capricious.

Neither RCW chapters 70.94 or 70.235, Washington's Clean Air Act and Greenhouse Gas Emissions Act, respectively, provide Ecology the authority to impose emission standards on

natural gas distributors for greenhouse gas emissions associated with the fuel they deliver. The state Clean Air Act gives Ecology authority to regulate emitting sources within certain parameters. However, Ecology proposes to regulate LDCs based solely on the end-use of natural gas sold to customers. LDCs are not emitting sources, and the CAR attempts to impose standards on LDCs based on indirect emissions (those associated with our customers' use of natural gas). Furthermore, the CAR, as applied to LDCs, isn't a true emission standard. In effect, it attempts to condition, or regulate, the sale of a commodity. Ecology has no authority for this regulation. The lack of a legislative framework for the CAR is a fatal flaw in the proposed rule.

CAR interferes with, and is inconsistent with, an LDC's legal obligation to serve customers.

As noted above, natural gas distributors are not emitting sources. Emissions from the actual operations of natural gas distributors alone are a tiny fraction of the compliance thresholds under WAC 173-442-030(3). Avista has in place a rigorous program to detect and eliminate any inadvertent emissions from LDC operations. Natural gas distributors are distinctly different from the other covered parties, which are principally stationary sources in the conventional application of the State Clean Air Act.

Furthermore, natural gas distributors differ from the other covered parties in that they have a legal obligation to serve retail customers. Specifically, **RCW 80.28.110 states:**

Service to be furnished on reasonable notice.

Every gas company, electrical company, wastewater company, or water company, engaged in the sale and distribution of gas, electricity or water or the provision of wastewater company services, shall, upon reasonable notice, furnish to all persons and corporations who may apply therefor and be reasonably entitled thereto, suitable facilities for furnishing and furnish all available gas, electricity, wastewater company services, and water as demanded...

This obligation assumes even greater prominence in that LDCs must receive legal sanction in order to operate in the State. The Washington Utilities and Transportation Commission (WUTC), under RCW 80.28.190, has granted Avista a certificate of public convenience and necessity that enables the company to operate as a natural gas distributor. Avista's natural gas distribution business has had conferred upon it a rare privilege by the WUTC: to operate as a monopoly and with that privilege comes legal requirements that are administered and enforced by the WUTC. The law obligates us to sell natural gas. The CAR's requirements effectively conflict with this legal obligation.

Our "obligation to serve" legally prevents us from denying service to a customer who can be economically supplied or from curtailing service. Our discretion to terminate service is narrowly prescribed in law. We are even prohibited from terminating service to those who fail to pay their bills during the winter (see RCW 80.28.010), when consumption, and therefore emissions, are highest. Restricting or limiting service for the purpose of controlling their emissions is not permissible. Unlike other businesses, natural gas utilities like Avista have a legal obligation to provide safe and reliable service to every customer that requests service from the Company. **RCW 80.28.040** further delineates the responsibility of the

WUTC to ensure LDCs meet these obligations:

Commission may order improved service—Water companies, system of sewerage noncompliance, receivership.

(1) Whenever the commission finds, after hearing, that any rules, regulations, measurements or the standard thereof, practices, acts or services of any such gas company, electrical company, wastewater company, or water company are unjust, unreasonable, improper, insufficient, inefficient or inadequate, **or that any service which may be reasonably demanded is not furnished, the commission shall fix the reasonable rules, regulations, measurements or the standard thereof, practices, acts or service to be thereafter furnished, imposed, observed and followed, and shall fix the same by order or rule. (Emphasis added).**

The importance of natural gas service also finds expression in other sections of the statute. For example, **RCW 80.28.074 states:**

Legislative declaration.

The legislature declares it is the policy of the state to:

- (1) Preserve affordable natural gas and electric services to the residents of the state;
- (2) Maintain and advance the efficiency and availability of natural gas and electric services to the residents of the state of Washington;
- (3) Ensure that customers pay only reasonable charges for natural gas and electric service;
- (4) Permit flexible pricing of natural gas and electric services.

The Clean Air Rule, as proposed, runs directly counter to the policies expressed in existing state law. This illustrates the poor fit of this regulatory approach for LDCs.

CAR undermines the role of natural gas in improving air quality.

The Washington legislature has also recognized the role of natural gas in improving air quality in the state. Natural gas has long been an important alternative to dirtier fuels such as heating oil and wood. In addition, natural gas is recognized as an important fuel for cleaning up our transportation system's emissions. **RCW 80.28.280 states:**

Compressed natural gas—Motor vehicle refueling stations—Public interest.

(1) The legislature finds that compressed natural gas and liquefied natural gas offers [offer] significant potential to reduce vehicle and vessel emissions and to significantly decrease dependence on petroleum-based fuels. The legislature also finds that well-developed and convenient refueling systems are imperative if compressed natural gas and liquefied natural gas are to be widely used by the public. The legislature declares that the development of compressed natural gas and liquefied natural gas motor vehicle refueling stations and vessel refueling facilities are in the public interest...

CAR fails to reconcile with other specific requirements of LDC operations.

As proposed, the CAR goes beyond requiring natural gas distributors to “reduce” emissions associated with the sale and distribution of natural gas to make them responsible for emissions from entities which do not procure natural gas from a natural gas distributor. Natural gas distributors must also provide transportation service to customers who require a large supply of natural gas and who elect to purchase natural gas through other parties (i.e., marketers).

That means companies such as Avista merely transport natural gas through our system on behalf of an end-use purchaser. The rule would make Avista’s retail customers responsible for “reducing” the emissions from these “transport customers,” most of whom are not covered parties under the rule. Moreover, covered parties who are transport customers may be able to exit the CAR’s direct regulation through emission reductions. When covered parties are no longer regulated as such, their emissions become the obligation of the transporting natural gas distributor; this amounts to an additional and unpredictable burden that will be borne by a natural gas distributor.

If Avista has no control over the consumption behavior of customers who buy natural gas from the company, it clearly has no control over the behavior of its transport customers. We estimate that up to 40% of the cost of complying with the rule would be associated with shipping natural gas to transportation customers who are not also covered parties. Those transport customers could increase their emissions without regard to compliance costs unless they reach the regulatory thresholds under WAC 173-442-030. Our retail customers will bear the costs of Avista’s obligations under the rule to “reduce” transport customer emissions. This is clearly an unjust outcome.

The lack of a rational compliance pathway for LDCs illustrates that CAR is arbitrary and capricious.

Unlike other covered parties, natural gas distributors cannot control emissions associated with the distribution and sale of natural gas, nor can they directly control the consumption behavior of their customers. Our customers indirectly determine the amount of emissions for which the rule would make Avista responsible, and their consumption can be affected by many variables, weather being the overwhelmingly dominant variable.

Natural gas distributors lack a rational or viable means to meet the obligation of the greenhouse gas emission reduction pathway that will be assigned to them by Ecology other than by purchasing Emission Reduction Units (ERUs) or other instruments outside of their operations that can be used to generate ERUs. More specifically, LDCs would have to purchase allowances from external greenhouse gas emission reduction programs, assuming the natural gas distributor is able to acquire such allowances from the administrator of the program (i.e., State of California). However, in its final proposal, Ecology has severely limited this option, reducing the ability to rely on allowances over time. Alternatively, LDCs would have to purchase or generate renewable energy credits (RECs) from renewable energy resources, but these must be purchased from a geographically-limited market (from within the state of Washington). These are flaws in Ecology’s final proposal.

While WAC 173-442-160(5) acknowledges that a LDC may generate ERUs through energy

efficiency and demand side management measures (investments made to assist customers in conservation and efficiency), the rule only allows a natural gas distributor to generate ERUs from achieving energy efficiency that “exceeds” targets for natural gas conservation that are established by the WUTC. This option is not an economically viable one and, again, demonstrates the absurdity of the rule. The rule conflicts with long-standing economic regulatory principles and practices. WAC 173-442-150(1) requires that emission reduction activities/programs must be “additional” and may not result from “(another) legal requirement,” such as one establishing an energy efficiency target under an Order issued by the WUTC. It is essential to acknowledge that energy efficiency and demand side management programs administered by a natural gas distributor must meet the regulatory test of being technically feasible, technically achievable and economic. Therefore, investments made in energy efficiency and demand side management measures must be cost-effective. This means that in order to “exceed targets” established by WUTC Order, a natural gas distributor must, by definition, expend money on measures that are not cost-effective. Keep in mind that our existing programs, based on technically feasible, technically achievable and economic criteria, do not achieve emission reductions that are significant within the scale of what the CAR would require. Expenditures that are not cost-effective are not deemed prudent by the WUTC and, as such, could not be recovered in retail rates. To avail itself of the option under WAC 173-442-160(5), a natural gas distributor must jeopardize its own financial integrity. Thus, that option would yield an absurd result.

Furthermore, the magnitude of the emission “reductions” that the CAR requires are such that other compliance options set forth under WAC 173-442-160, separate from purchasing allowances and RECs, do not provide viable compliance options either. The rule will require Avista to reduce emissions approximately 25% or about 300,000 metric tons of CO₂e emissions from the LDC baseline as defined by the rule during this time period. If a 1% growth rate were incorporated into the baseline value, then a reduction of almost 40% or about 560,000 metric tons of CO₂e would be required. This extent of emissions reduction cannot be achieved from the “activities and programs recognized as generating emission reduction units” under WAC 713-442-160.

Avista has investigated many of the listed activities for generating emission reduction units. While many of these activities could likely result in a “real” reduction, they do not represent reduction on the same scale required by this rulemaking. For example, our existing Commute Trip Reduction (CTR) program achieves reductions that are roughly one pound of CO₂e per mile, equating to 100 tons CO₂e per year, yet this current effort would not qualify as a compliance measure since we do not exceed state goals. A greatly expanded program with incentives, pretax fuel payments and improved infrastructure may only yield a 300 ton emission reduction, which amounts to less than 2% of Avista’s annual reduction requirement under the rule for the initial compliance period, and even that reduction could not be counted toward CAR compliance, as Avista would still be below the existing CTR goal set by the state. Our Electric Vehicle (EV) program is based on an estimate that emissions associated with electric vehicles equated to 1.1 tons CO₂e, compared to 5 tons per year for a typical gasoline-fueled vehicle. Even achieving aggressive program goals of 500 EVs would yield less than 10% of Avista’s compliance requirement just for the initial compliance period. Even substantial achievements in these areas will not provide significant steps toward compliance under the CAR.

Ecology frequently referred to the compliance option of anaerobic digestion at dairy farms in public meetings on the CAR. However, Ecology has not evaluated the feasibility of this compliance route. There are a very limited number of dairies in our region; those with the best possible application for anaerobic digesters have installed them, frequently only due to grant funding. Our estimates indicate that developing a digester for a 2,000 cow herd would still not achieve compliance under the CAR for the initial compliance period, not to mention all the increased reductions required in the years following.

As another example, investing in “combined heat and power” (CHP) activities to reduce emissions may yield no net gain in emission reduction for a natural gas distributor. The rule does not precisely specify how emission reductions might be calculated, providing only that these projects must demonstrate “emission reductions through a methodology submitted to and approved by Ecology.” Combined heat and power systems typically rely on natural gas as the system’s fuel source and they function to displace electricity use. Any reduction in this context must come from the displacement of fossil-fueled electricity. Conceivably, emissions from combusting natural gas in a CHP application may not produce any reductions given the generation mix of the existing electricity supplier. Furthermore, by selling (or even transporting) natural gas to a new CHP facility, a natural gas distributor would increase its total emissions subject to regulation (unless the system’s host is a covered party). While the rule provides that CHP systems would generate ERUs, those ERUs could be needed by a natural gas distributor to cover the extra emissions the CHP system would accrue to the LDC’s regulated emissions total. If Ecology intends for a natural gas distributor to be able to exercise the option of investing in CHP systems to generate ERUs, then the rule should state that emissions produced by a CHP system are not subject to regulation and otherwise exempt from the rule.

Given that the only viable options for a natural gas distributor are to acquire ERUs, principally through the purchase of RECs and allowances, we modelled the economic implications of these compliance approaches. We believe that the lowest-cost and most viable option would be to acquire allowances to the full extent permitted under the rule (assuming we would be able to do so as a practical matter). Because WAC 173-442-170 imposes a steadily declining “upper limit” on the percentage of allowances that may be used for compliance, we believe that supplementing allowance purchases with the acquisition of RECs would, again, be the most cost-effective, predictable and viable compliance option. However, given the scope of CAR’s required reductions, and the general lack of reasonable compliance approaches, the rule will result in increased demand for RECs and therefore, increased prices. In order to ensure a stable supply of RECs and a predictable cost until and after 2035, it may be prudent (as to be determined by the WUTC) for our natural gas utility to develop wind generation. In doing so, we would need to sell the electric output of the facility (assuming there would be a positive power market to help defer some of the project’s costs) and retain the RECs. Acquiring our own wind generation might also be a more viable option due to increased demand for, and price of, RECs from renewable energy resources located within Washington. However, building an electric generation facility in order to comply with the CAR, regardless of the need for energy, makes little sense.

In the overall context of the options listed under WAC 173-442-160 that are theoretically permissible under the rule for generating ERUs, it is crucial to keep in mind that other covered

parties may be “in the market” for pursuing any and all economically viable options that may be available, especially RECs from renewable energy resources located in Washington. Other covered parties’ actions within a very restricted market may foreclose cost-effective options. Competition for these ERUs could drive up their costs.

Moreover, Ecology has produced no data or analysis demonstrating the availability of allowances or RECs or the potential for ERU generating activities as defined in the rule to ensure a viable compliance pathway for covered parties. The provisions requiring emission reduction projects and RECs to be located in Washington is, by Ecology’s own admission, an attempt to derive in-state economic benefits from the rule. Ecology may not have the authority under the Clean Air Act to limit compliance activity in state to effectuate an economic outcome, particularly since verifiable GHG emission reductions outside the state provide the same benefits as in-state emissions reductions in addressing climate change. This approach also appears to violate the dormant Commerce Clause of the U.S. Constitution.

CAR is procedurally flawed, and Ecology’s rule adoption fails to meet APA standards.

A number of stakeholders requested an extension of the CR 102 comment period for this rulemaking. A letter from the Department to the Association of Washington Business dated July 1, 2016, rejected the request noting that the agency needed sufficient time to “consider comments received, incorporate changes as necessary, update supporting documents, and finalize the rule by 180-day deadline.” Extending the deadline “likely would not allow adequate time to finalize the rule.” The 180-day deadline gives Ecology until mid-December to finalize the rule, and yet Ecology’s official timeline is to adopt a rule by mid-September. Rejecting the request for additional time to comment on this substantive rule out of the expressed need for 180 days to finalize the rule does not reconcile with the agency’s expedited timeline for adoption and has unnecessarily limited stakeholder input and engagement with Ecology staff to adequately develop a workable rule.

Ecology has not analyzed the environmental or economic impacts of CAR appropriately.

Ecology determined, in its analysis of the CAR under the State Environmental Policy Act (SEPA), that the proposed rule had no probable significant adverse environmental impacts. However, the agency did not consider (despite comments made on this topic at public meetings on the rule) that CAR encourages fuel-switching to wood or other non-natural gas fuels by LDC customers. This is particularly significant to Avista and our customers, with the longer heating season experienced in our service territory. In fact, Ecology and regional air authorities have made it a priority to reduce the use of wood stoves for many years. Spokane Regional Clean Air Agency incents citizens to change-out or eliminate wood stoves based on the proven negative health effects of wood burning (see http://www.sparetheair.org/~media/STA/Files/1/Particulate%20Matter/woodburning_health_effects.ashx). Ecology’s own website also details the negative health effects of wood smoke, and notes:

Wood smoke is one of the main sources of air pollution in Washington. Wood stoves, fireplaces, and other wood burning devices put out hundreds of times more air pollution than other sources of heat such as natural gas or electricity.

[see http://www.ecy.wa.gov/programs/air/indoor_woodsmoke/wood_smoke_page.htm and <https://fortress.wa.gov/ecy/publications/summarypages/92046.html>, the later link is Ecology's summary of the "Health Effects of Wood Smoke."]

Furthermore, Ecology's Wood Smoke Work Group Report, released in 2007 (see <https://fortress.wa.gov/ecy/publications/publications/0802002.pdf>), made the following recommendation for "long-term actions":

Reduce barriers to changing to gas stoves/inserts.

The work group strongly supports reducing barriers to changing from a wood burning device to a gas burning stove, insert, or fireplace. These barriers include high connection fees for extending gas to developments, and from streets to individual houses. Because natural gas utilities are complex, Ecology and the work group need to work with natural gas utilities to identify specific proposals.

Yet, despite the efforts of local, state, and federal agencies to reduce the use of wood for heating, Ecology ignores this potential impact in the current rulemaking. Ecology's own analysis indicates that compliance with the CAR will increase the cost of natural gas to the customers of LDCs. This increase will likely be significant enough to drive existing customers to substitute other sources of fuel than natural gas and prevent potential new customers from making the decision to move from burning wood to natural gas. Some customers will switch to or stay with electric heating as an alternative, with the resulting loss of efficiency in the use of fuels. Heating by burning natural gas at less than 50% efficiency via electricity generation is a poor substitute for the direct use of natural gas for heating, which exceeds 90% efficiency. The end result of customers' decisions not to use natural gas is increased greenhouse gas emissions and increased emissions of other air pollutants – impacts that Ecology has long worked to reduce through other regulations.

In addition, the CAR will impose new significant costs on electrical generation units that are captured as sources under the proposed rule. While none of Avista's generation plants fit this category, there will be impacts to the region as a whole. Utilities must dispatch generation resources economically; by increasing the cost of natural gas-fired units in the state, owners of those units will dispatch other facilities or purchase power from the regional market. The effect will be to prolong the life of less efficient and/or coal-burning generation facilities in the region, resulting in increased emissions and increased power costs for all. As Ecology has argued in recent settings that SEPA analyses should consider impacts out of state, Ecology itself should consider such impacts in this rulemaking, which it has failed to do.

As mentioned above, despite legislative endorsement for the proposition that natural gas should be used as a transportation fuel, Ecology has not analyzed the potential for the CAR to suppress the adoption of either natural gas or electricity as transportation fuels. The rule will only add costs to both options, prevent environmental gains and impact citizens' purchasing decisions accordingly.

Through the need to acquire allowances and RECs to satisfy compliance requirements, the CAR will increase costs to all LDC customers and shift wealth both out of state and from citizens to holders of RECs or other fungible ERUs. Ecology has not analyzed the potential of these impacts, nor any potential impact on the cost of RECs more broadly, which could impact the cost for electric customers as utilities meet their statutorily-mandated renewable portfolio standards.

Finally, as discussed above, natural gas distributors have few compliance options within the CAR. The CAR is likely to drive the development of new renewable generation projects beyond any need for energy, projects that can have their own impacts. In this case, for the reasons stated above, Ecology is required to analyze the potential negative environmental as well as economic impacts of the CAR under SEPA. By failing to do so, Ecology's analysis and threshold determination under SEPA is completely deficient.

CAR will harm Washington's economy with negligible environmental benefits.

Ecology has overestimated the benefits of the CAR and underestimated the cost. Using the federal social cost of carbon (SCC) as a means to estimate benefit is problematic, at best. The SCC is highly speculative, and was not developed with the rigor to be used for a rulemaking such as the CAR.

Ecology's estimate for compliance costs of \$3 to \$14/MTCO₂e is extremely optimistic. Based on current allowance markets, the declining availability of allowances under the CAR, and an increasing demand for RECs, our most optimistic estimate from 2017 to 2035 ranges from \$14 to \$85/MTCO₂e. Ecology's flawed assumptions demonstrate that the CAR has not been thoroughly analyzed.

Other practical considerations demonstrating the CAR's flaws.

As currently formulated, if a covered party reduces emissions to the point that it no longer has an independent compliance obligation, the party's emissions associated with natural gas combustion are then assigned to the natural gas distributor. However, CAR lacks any provision for an adjustment to the LDC's baseline, meaning a more difficult and likely unachievable compliance path for the LDC. Similarly, the CAR provides no allowance for growth in the LDC's operation – which by definition only grow with additional natural gas service provision. If reserve allowances are used to account for additional emissions for increased production or new covered parties entering the market, they should also be used to offset emissions associated with the addition of new LDC customers or increased natural gas consumption by non-covered parties.

The third-party verification requirements are unnecessarily burdensome and will add to the cost of compliance. In addition, proven protocols are lacking for many of the potential projects that would generate ERUs. A covered party would assume the risk of investing in projects without knowing whether they would qualify for generating ERUs until Ecology agreed to accept them.

Ecology should eliminate LDCs as a regulated source under the CAR.

Ecology's proposed regulatory scheme fails to acknowledge that natural gas LDCs are a part of solving issues associated with climate change. LDCs provide natural gas for customers' direct use in homes and business in a manner that is environmentally sound and energy efficient. As regulated utilities, LDCs already must employ all cost-effective conservation measures, and must follow a public process (Integrated Resource Planning) for evaluating and demonstrating that effort. Natural gas releases less greenhouse gas emissions, and far less other emissions, than other fossil fuels, whether used for generating electricity, heating or in transportation.

In sum, Ecology should be encouraging rather than discouraging the increased delivery of natural gas by LDCs, as the direct use of this fuel is most efficient for applications including heating buildings and water. While changes to the proposed final rule would reduce the economic and environmental harm the CAR will cause, the best remedy would be to eliminate natural gas distributors from this regulation. Again, while Avista supports the need to respond to the challenge of climate change, the proposed Clean Air Rule will create enormous burdens on the citizens of Washington while providing very few benefits. We urge Ecology to reconsider the rulemaking in its entirety.

Sincerely,



Bruce F. Howard
Director, Environmental Affairs



July 21, 2016

Submitted via email: AQComments@ecy.wa.gov

Washington Dept. of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Subject: Comments of Public Utility District No. 1 of Benton County on proposed Rule WAC 173-442 to establish emission standards for greenhouse gases

To Whom It May Concern:

Benton PUD appreciates the opportunity to comment on the Clean Air Rule (CAR). Our utility is located in Kennewick, WA serving electricity to over 50,000 customers.

The Washington PUD Association has submitted detailed comments regarding the CAR on behalf of Public Utility Districts in the state. Benton PUD concurs with the comments and is concerned with the cost implications to our utility and customers.

Through the implementation of the CAR, Benton PUD customers would be assessed over \$4 million in compliance fees from 2017 to 2022, starting at approximately \$500,000 in 2017 and escalating every year. This is due to Benton PUD's contract with the Frederickson Power LP generating facility.

Specifically we would like to emphasize the following:

Harmonization of the CAR and CPP

We request Ecology to combine the rulemaking and development of the proposed Clean Air Rule (CAR) and Clean Power Plan (CPP) into one forum. The CPP covers the exact same natural gas combined cycle (NGCC) facilities in the state as the CAR.

In addition, unlike the CPP, the CAR exempts the TransAlta coal fired generation unit.. Regardless of whether an NGCC has to curtail production or purchase offsets, the cost of electricity will increase against the cost of unregulated coal generation in this state and other states and against unregulated natural gas generation in other states. Ecology should include a State Environmental Policy Act (SEPA) analysis of the relative CO2 emissions from this unequal

regulatory treatment. This should be done both in time against the CPP differential regulatory timelines and in space against coal and gas fired generation in other states, unless and until the CPP applies a consistent regulatory treatment across all generation types.

The CPP provides the best mechanism for achieving a regional approach to carbon regulation for the electricity sector. As currently written, CAR reduction requirements appear incompatible with the design of the federal CPP. Before finalizing the rule, Ecology should clarify the regulatory transition to the CPP.

Arbitrary use of Emission Reduction Units (ERU)

The proposed rule limits “alternative generation technologies” to only those defined as “eligible renewable resources” in RCW Chapter 19.285.030. It further restricts ERU eligibility to those “eligible renewable resources” that generate a renewable energy credit (REC). These limitations arbitrarily select limited energy generation technologies that displace fossil fuel fired generation resources, thus displacing and reducing Green House Gas (GHG) emissions. Limiting generating technologies that are eligible for ERUs and excluding hydro and nuclear is arbitrary and discriminates against these technologies that directly reduce GHG emissions when operating and delivering electricity to the electric grid.

Transportation Electrification

The CAR should add language WAC 173-442-160(3) “Transportation measures” to provide that investment in the capitalization and operation of electric vehicle charging stations should generate ERUs based on the number of kilowatt-hours sold each year using standardized formulas.

We also agree with Pacific Generating Pool (PGP) that...

The transportation sector comprises nearly 50% of the emissions in the state of Washington and electrification of transportation is a key emission reduction strategy for that sector. Analysis conducted by the Northwest Power and Conservation Council shows that transportation electrification is a net economic benefit to the state as well as one of the cheapest means of reducing carbon. Specifically, their analysis indicates that transportation electrification, using the current power system resource portfolio, is a cheaper approach to carbon reduction than restricting existing natural gas production.

Also, the current CAR structure encourages utilities to spend money out-of-state to purchase power or allowances rather than incenting them to invest funds in-state on investments such as charging infrastructure or other electrification incentives.

We are also concerned how the CAR impacts Agrium which is one of Benton PUD's large customers. We appreciate the opportunity to comment. Feel free to contact us for further detail.

Respectfully,

A handwritten signature in black ink, appearing to read "Chad Bartram". The signature is written in a cursive style with a large initial "C".

Chad Bartram
General Manager



A Washington State Chapter of the National Audubon Society
P.O. Box 2524, Olympia, WA 98507
(360) 352-7299 www.blackhills-audubon.org

Black Hills Audubon Society is a volunteer, non-profit organization of more than 1,300 members in Thurston, Mason, and Lewis Counties whose goals are to promote environmental education and protect our ecosystems for future generations.

To: Department of Ecology
From: Sam Merrill, Conservation Chair, Black Hills Audubon Society
Re: DOE Clean Air (Carbon) Rules
Date: July 11, 2016

I am writing in support of the Clean Air (Carbon) rules released on June 1, 2016, by DOE. Although we strongly support the Governor's continued efforts to address climate change by systematically reducing carbon emissions (reducing 1.7% of emissions each year, reducing emissions by 30% by 2035 and 58% by 2050), we urge DOE and the Governor to make these rules even stronger. We owe it to our generations to come that we reverse the rapidly increasing greenhouse gas concentration in the atmosphere.

Thank you,

A handwritten signature in black ink that reads "Sam Merrill". The signature is written in a cursive, flowing style.

Sam Merrill



July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Electronic Comments filed via: AQComments@ecy.wa.gov

Reference: WSR 16-12-098 Proposed Rules Department of Ecology [Order 15-10—Filed May 31, 2016, 3:26 p.m.]

Dear Mr. Wilson

Thank you for the opportunity to comment on the proposed new 173-442 WAC – Clean Air Rule (and the accompanying proposed amendments to 173-441 WAC – Reporting Emissions of Greenhouse Gases). In addition to our specific comments, The Boeing Company supports and endorses the comments filed separately by the Association of Washington Business.¹ As discussed below, The Boeing Company has serious concerns about the direction and content of the proposed rule.

Boeing is committed to reducing greenhouse gas emissions. We believe the most effective way to achieve this goal is through technological advancement and energy efficiency. The proposed rule will not achieve that goal. Rather, it will disrupt existing programs, discourage investment in clean technology, and may ultimately drive manufacturing to other, higher carbon venues.

The global issue of increasing atmospheric greenhouse gas concentrations is most efficiently and effectively addressed at the international level and implemented through national law. The Boeing Company's long-held position is that an international solution is the best way to achieve meaningful GHG emissions reductions, and it would best serve Washington to support and align with the work already underway. The United States is developing and refining a national strategy in support of that international solution. Washington State's attempt to regulate over the top of a coordinated national plan confounds economy-wide solutions, inducing carbon leakage as production is encouraged to shift to out-of-state locations with no or less stringent control programs. This will undermine emission reduction progress while diminishing the productivity, employment and tax revenue of the state. Ecology should instead engage and support federal programs implementing international agreements and avoid destructive Washington-only efforts.

I. Boeing is an important participant in Washington State's economy.

Boeing is celebrating its Centennial in 2016. For 100 years, the company has been an important element of Washington's economy, community and culture. We are proud to be a part of the local community and look forward to the next 100 years. Boeing is the state's largest employer with half of the company's total worldwide workforce based in the state of Washington. The company invested \$13.1 Billion in Washington in 2015 alone. The company works with nearly 2,000 suppliers and vendors across the state, indirectly supporting tens of thousands of additional jobs.

¹ AWB's comments are incorporated herein by reference. We also incorporate by reference the June 29, 2016 e-mail from David Moore of Boeing to Sarah Rees of Ecology RE: Clean Air Rule Proposal.



II. Boeing has prioritized our efforts to maximize greenhouse gas emissions reduction world-wide.

A. Boeing played an integral role in the international aviation industry's commitment to combat CO2 emissions:

The aviation industry accounts for 2 percent of the world's carbon dioxide emissions, which could reach 3 percent by 2050. The industry and The Boeing Company have committed to improving fuel efficiency by an average of 1.5 percent per year from 2009 and achieving carbon neutral growth in air transport by 2020 and then to halve emissions by 2050 from a 2005 baseline through the production and use of advanced technology aircraft. Company resources are being poured into that effort to assure long-term sustainable air transport.

Our objective is to minimize greenhouse gas emissions world-wide. Boeing is intensely focused on advancing jet aircraft efficiency, thereby reducing global GHG emissions by millions of tons. Our resources are committed to that aim and the expanded Everett facility is central to that goal. Manufacturing, selling and placing into service the most advanced, fuel efficient aircraft possible provides "green jobs" and lowers our product GHG footprint world-wide. Absent a reliable regulatory environment, investment in the manufacturing infrastructure necessary to produce these aircraft and thereby reduce greenhouse gas emissions is discouraged.

B. Aircraft GHG Emissions:

Boeing Commercial Airplanes has designed new airplanes to reduce GHG emissions. Our new 777X airplane will be 20% more fuel efficient than the current 777 and 12% more fuel efficient than its closest competitor. Similarly: the 787 Dreamliner family improves fuel efficiency and reduces carbon dioxide emissions by 20 to 25% compared to airplanes it replaces; the 737 MAX will deliver unprecedented fuel efficiency in the single aisle market, reducing fuel use and carbon dioxide emissions by 20 percent compared to the original Next-Generation 737; and today's 747-8 provides 18 percent fuel efficiency improvements over the airplane it replaces.

C. Facility-level GHG Emissions:

Boeing's comprehensive energy management program remains focused on improving the environmental performance of its operations. The company has succeeded in significantly reducing GHG emissions from its facilities for the past decade and continues to make emissions reduction a top priority. From 2007 to 2012, the company reduced GHG emissions at its facilities by 9% while increasing production rates 50%. From 2012 to 2015, Boeing reduced greenhouse gas emissions at its facilities by an additional 7.8 percent. In Washington state, Boeing has reduced emissions while production has increased aircraft deliveries by 62.8% for the period 2007 through 2015. On an absolute basis, GHG emissions were 15.0% lower in 2015 than in 2007. When normalized to aircraft deliveries, GHG emission intensity was 47.8% lower in 2015 than in 2007.

D. Other GHG greenhouse gas emission reductions:

Boeing is the aviation industry leader in global efforts to develop and commercialize sustainable aviation biofuel. We partner globally to research, develop, and commercialize new sources of aviation biofuel on six continents. To encourage the production of sustainable biofuel, Boeing has collaborated with airlines, governments, and private entities to create regional biofuel roadmaps in the U.S., China, Brazil, Mexico, Europe, the Middle East, Australia, and South Africa.

In 2011, Boeing led the approval of the first alternative aviation fuel pathway for use in jet engines, which has been successfully flown on over 2,000 commercial flights. Boeing continues to work tirelessly within ASTM, the international standards body, to secure the approval of additional pathways. Boeing is currently partnering with the U.S. Federal Aviation Administration and other stakeholders to gain approval for "green diesel," a more affordable ground transportation fuel that is produced at commercial scale, to be used in aviation.

Boeing is also reducing GHG Emissions through air traffic control optimization. Boeing is working with key stakeholders using existing technologies to reduce fuel use and therefore GHG emissions during all phases of flight at airports around the world. For example, new arrival procedures at airports will reduce fuel use by 400 to 600 pounds for every arrival. This equates to cutting carbon dioxide emissions by up to 1,900 pounds per arrival, which adds up to thousands of tons of emissions reduction annually at each airport.



III. As a trade exposed industry, Boeing's aircraft manufacturing facilities must be protected from economic disruption.

Boeing is in a highly fluid global market with long lead times and aggressive competition. We are delivering planes at prices contracted years ago. Any disruption in our operating economics imposes great risk to our ability to sustain operations and employment at current levels in Washington. Increases in production costs cannot be passed on to our customers lest we lose market share and thereby reduce economic output and employment in Washington. More important, our more efficient products need to reach the market in order to contribute to the vastly more significant global aircraft emission reductions. The magnitude of those air transport emission reductions dwarf the emissions from the facilities where the aircraft are manufactured.

Trade exposed manufacturing like ours must be shielded from cost impacts if we are to assure continued operation in Washington. This rule imposes both the direct costs of compliance with an emissions cap on Boeing Everett, and the indirect costs passed-through by energy providers on - Boeing facilities and the facilities of our in-state suppliers.

While the proposed rule provides a marginal delay in compliance obligation for EITs, it provides no "safety valve" or cost containment provision to assure affected parties like Boeing can remain viable. Other carbon regulatory schemes provide these sideboards to prevent catastrophic economic disruption. Absent the ability to reliably predict future cost of operation, new capital investments in manufacturing capacity will be discouraged.

The proposed rule will impact Boeing simply because the company has chosen to locate production of our most technologically advanced and lowest emitting aircraft manufacturing here in Washington State. Our new 777X airplane will be 20% more fuel efficient than the current 777 and 12% more fuel efficient than its closest competitor. Washington should be encouraging rather than discouraging the production and sale of the 777X and the company's entire fleet of fuel efficient airplanes.

The new factory buildings for the 777X will be LEED certified and will employ the highest technology natural gas heating. However, the new building is projected to increase GHG emissions at the Everett site from the 2012-2016 CO₂e baseline of approximately 72,000 metric tons/year to as much as 110,000 metric tons/year; nearly 40,000 metric tons/year above the proposed carbon cap.

The fact that Boeing will be penalized under the proposed rule for manufacturing 777X wings in Washington is not only disappointing, but illogical. First, retroactively burdening a sought-after and successfully permitted factory expansion sends a chilling message to manufacturers considering locating facilities in Washington State. Second, providing disincentives to manufacturers' locating new or expanding existing facilities in Washington is environmentally counter-productive. Washington State's energy supply is among the lowest greenhouse gas equivalent in the nation, and natural gas (the cleanest combustion fuel) is relatively abundant. Third, building new airplanes like the 777X is an integral part of the aviation industry's plan to reduce GHG emissions globally; Ecology should be encouraging this activity in the state, not penalizing it. As the proposed rule forces production out of the state, to areas without these advantages, global emissions of GHG will increase.

IV. New regulation penalizing the use of previously permitted manufacturing capacity undermines the credibility of the state as a partner in economic growth.

Boeing, at the encouragement of the Governor and legislature, located the new 777X wing production and 777X final assembly in Everett. Now that construction of the Composite Wing Center is complete and long-term decisions have been made to base 777X production in the state, the proposed rule will penalize the company for having done so. In permitting these new operations with Ecology and the Puget Sound Clean Air Agency, their expected GHG emissions were subject to review. Penalizing the company for these expected emissions after the fact interferes with the investment-backed expectations of The Boeing Company and harms our relationship with the state.

The rule imposes real costs on Boeing relative to our market competitors. Both the cost of compliance for our Everett facility as well as the general increase in the cost of energy as upstream suppliers adapt to this rule, will



increase the cost of manufacturing aerospace products in Washington. Aerospace, including commercial aircraft production, is an increasingly competitive industry with new OEMs emerging around the world. Even as we advance aerospace technology Boeing is facing stiff price pressure from other companies not subject to the burdens of this rule.

Placing Boeing at a further disadvantage to our international competitors undermines our ability to focus investment in Washington. Failure to protect existing trade-exposed manufacturing, and retroactively burdening a sought-after and successfully permitted factory expansion sends a chilling message to manufacturers considering locating facilities in Washington State.

V. Any emission standard applicable to Boeing should be based on the technology available to limit greenhouse gas emissions.

Boeing uses the lowest emitting energy sources available in the highest efficiency equipment. Natural gas is the most efficient and environmentally preferred fuel available to us and protects ambient air quality and human health. This represents the highest level technology achievable.

With respect to 777X production in Everett, one of the more significant energy uses will be for the large autoclaves used to cure large wing parts made of lightweight carbon fiber composite material. Natural gas that will be used to heat the autoclaves is the environmentally preferred source of combustion heat energy with a net greenhouse gas content lower than available electricity. The marginal electricity resource – as recognized by Ecology - is new combined-cycle natural gas turbine generation emitting 970 pounds CO₂e/MWHR. Typically less than half of the energy in the fuel burned at a combined cycle gas turbine would be converted, transmitted and delivered to our heating equipment, whereas a higher fraction of the fuel energy will be utilized when the fuel is burned directly on site. Increasing the amount of regional greenhouse gas emissions in order to reduce facility-level greenhouse gas emissions to comply with the rule by switching from natural gas to electric heat sources would be a contrary outcome.

Achievable emission limits must be founded in available technology. EPA in its recent Boiler NESHAP rule and the Clean Power Plan recognized that natural gas is the lowest polluting combustion source available. Emission reduction targets should reflect the fact that our facility's emissions are already minimized by the application of this technology. To pile additional reduction requirements beyond those which the available technology can provide is unsustainable and encourages leakage of emissions and economic output out of state.

VI. If it is to be subject to this rule, Boeing must have a viable compliance pathway.

Unlike technology-based standards, the proposed rule provides no certain compliance pathways – only aspirations. Internal energy conservation measures or employee commuting programs cannot provide all of the required emission reductions. There are only four clear pathways for compliance in this rule:

- Reduce operations in Washington
- Switch energy sources (i.e., from natural gas to electric heat sources)
- Acquire in-state ERUs; or
- Access external allowances from existing markets

For Boeing all four of these avenues are restricted or foreclosed:

A. Reduce operations in Washington

Washington State's electricity supply is among the lowest greenhouse gas equivalent in the nation. Boeing intends to utilize this clean resource in conjunction with natural gas for heating to support expanded production of the highest efficiency aircraft. The production of lower emitting aircraft is essential to achieving the much larger global emission reductions in the air transport sector.

Where our combustion emissions are already as low as can be achieved with the technology available, there is little room to meet the limits through reducing carbon intensity. Curtailing operations, or relocating them out of



state, would not only strand an over \$1 billion investment and significantly reduce the state's economic output and employment, it would also increase overall greenhouse gas emissions. For example, Boeing has estimated that greenhouse gas emissions from similar autoclave operations at another Boeing facility would result in five times the net greenhouse gas emissions of the same production in Everett - not including emissions related to transporting the parts back to Everett. Thus, preferentially locating aerospace operations out of state could directly lead to significant increases in the greenhouse gas emissions the proposed rule was intended to reduce.

B. Switch fuels

Our natural gas combustion is the primary source of our GHG emissions. The only potentially available lower GHG fuel (biofuels) are not as clean burning and would significantly increase the emission of criteria air pollutants, potentially endangering local air quality. No commercially available lower GHG fuel burns as clean as natural gas.

Absent a viable alternative fuel, the only facility-level option would be to switch to electricity. As noted above for the Everett autoclaves, while among the lowest greenhouse gas equivalent in the nation, the electric energy delivered to the Boeing Everett facility represents a greenhouse gas impact that is greater than burning the natural gas directly at our factory (even assuming that the marginal electrical supply is from new combined cycle natural gas turbine generation – and not coal-fired EGUs supplying lower cost electricity from other states). Increasing the amount of regional greenhouse gas emissions in order to reduce facility-level greenhouse gas emissions to comply with this rule would be a contrary outcome.

C. Acquire in-state ERUs

The inventory of in-state emissions reductions potentially available is insufficient to supply the ERUs needed to comply with this rule. By the later years of the proposed program, available creditable emission reductions will have already been locked up by covered parties with earlier compliance obligations. Competition for what remains will surely drive prices higher. We concur with AWB comments noting that the maximum potential supply of emission reduction from all Washington sources is less than the covered parties' compliance requirements. There is no assurance or even reason to believe that over-compliance by covered sources together with voluntary reductions by non-covered sources will be sufficient to meet the demand for ERUs. Lacking a reliable market to support development of emission reduction projects and the ability of project developers to directly convert these projects to ERUs, the covered parties cannot be assured of an available supply to fulfill their compliance obligations.

Third party organized emission reduction projects will not move forward without a clearly defined market and established infrastructure (e.g., an ERU bank) enabling their direct contribution. In comparison, few of the voluntary emission reductions that provide the bulk of allowances in the California market would have occurred – or been creditable - under the stringent conditions required by the Washington rule (e.g., Ecology enforceability, permanence, additionally, etc.). The restrictions placed on creditable emission reductions under Washington's proposed rule exceed those under any other current market and there are no developing markets that suggest the level of restriction and rigor assumed under this rule.

D. Access existing external markets

The rule severely limits access to allowances from the only existing carbon markets available. Although these markets deal in real and well-documented emission reductions they are severely restricted under the Clean Air Rule. Access to external emission reductions is thereby practically foreclosed. An ongoing program that permits only 5% of the emission allowances to come from established markets is unsustainable.

VII. **Use of common efficiency measures within the “output-based” emissions limits is critical.**

If Ecology goes forward with this rule, the Department must accept appropriate output-based metrics to assure a viable compliance pathway. Because our emissions cannot be significantly reduced on site, switching to alternate fuels wouldn't reduce emissions, in-state credit markets don't yet exist and may not be adequately supplied going forward, and access to external emission reductions are essentially precluded, the only compliance pathway for Boeing under the rule would be within the “output-based” or carbon/unit of production



efficiency reduction pathway. That mechanism thus becomes the only means to assuring continuation of Washington's manufacturing base in the face of external economic realities. It could provide, absent other factors, some room for growth in absolute emissions. Yet for Boeing even maintaining the highest emission reductions available still leaves us vulnerable to events outside our ability to adapt – changing weather that increases heating load, fluctuations in output as product mix is adjusted, or shifting work into or out of the Boeing Everett facility. Without an assured compliance pathway and a reliable cost-containment mechanism our compliance is at risk and new investment is discouraged.

Aircraft manufacturing is an evolving industry striving to improve efficiency. The proposed output-based emission limits in -070(4) would only allow us to continue under two scenarios. First, if we continued to manufacture aircraft into the future unchanged from the way airplanes were built during the 2012-2016 baseline. However, this first scenario will not be the case. Instead, a second scenario (described below) could be viable if the "unit of production" accounted for evolving aircraft manufacturing.

The market for our products demands constant improvement; improving fuel efficiency and uncompromising safety and reliability compel ever-changing technologies, materials, and manufacturing processes. The recently permitted addition of the Composite Wing Center and 777X final assembly operation are exemplary of changing production dynamics as we strive to put more efficient and lower emitting aircraft into use. Advanced, fuel saving composite technology requires the new autoclaves for curing and significantly increasing the amount of natural gas consumed in the factory without regard to common measures of production.

Future model changes, production schedules / disruptions, weather and other factors will impose unpredictable demands on the amount of natural gas required, largely independent of the number of planes delivered or the revenue realized. None of these variables appear to be accounted for in the baseline established in this rule. And no baseline adjustment provision for expanded/changed operations at EITE facilities was proposed. Thus, there is no apparent way that the rule can accommodate these production evolutions.

The second scenario, the only potentially feasible pathway, would be if the "unit of production" accounted for the evolving aircraft manufacturing described above.

To accommodate unknowable energy demands other greenhouse gas rules impose limits that are normalized to the amount of energy required. In our case, the unit of production is the quantity of heat required by the autoclave operations, or paint cure operations, or other space heating load (including offices). These would be technology-based limits reflecting highest achievable reductions in greenhouse gas emissions for the amount of fuel consumed/heat delivered. Because they are normalized to energy required they are comparable within and to some extent across industry and economic sectors. They retard leakage because they can be and are adopted in other states and nationally. And as technology-based limits they provide a reliable regulatory target, a known requirement when making sourcing decisions. Finally, energy normalized limits would align with historical Ecology permitting structures which demand the best available control technology.

Boeing's 777X Composite Wing Center, which will produce 777X wing panels and wing spars, was recently approved by Ecology. It will make use of high-renewable-content electricity and highly efficient natural gas, minimizing the climate impact of the expansion. The expansion includes natural gas autoclaves contributing 53 tons of GHG for every 1000 MMBTU used. The first phase of the CWC will soon be operational and will increase emissions significantly over the 2012-2016 baseline. There is no technology available to capture or further reduce these CO2 emissions. The only way to assure compliance with the greenhouse gas limits is if they are normalized to the heat required by the facility to operate.

VIII. Conclusion:

Ecology's stated intent in the rule, to drive down the emissions of greenhouse gases and set an example for others to follow is laudable. Yet emissions will leak (along with economic output) and Washington's example will only inspire followers if it is very carefully and thoughtfully designed. The potential harm to Washington and its citizens is too great to permit expansive rulemaking without first understanding and addressing the unintended consequences. By Ecology's own admission this rule is intended to be iterative, building on lessons learned as we attempt to re-invent the state's economy. As such, a first foray into state-level carbon reduction must be narrow and targeted. Unfortunately, this effort is neither. It will consume scarce resources to repair and rework rule language, distracting rule writers and affected businesses from more productive



climate protection efforts. In the meantime the Washington's economy will face significant uncertainty and risk. Starting rulemaking from the premise it will be iterative until it is workable is misguided.

Ecology needs to assure the regulated community that the rule will be viable, or it should not be promulgated. If only a piece of the rule is ripe, only that piece should be put forward. This proposal is too complicated and the ultimate impacts too poorly understood to go forward as written, especially for EITEs as discussed below.

While addressing an important issue – carbon emission reduction - this rulemaking is fundamentally flawed, especially with respect to EITEs. In our view it will neither appreciably reduce global GHG concentrations, nor set an appealing example for others to follow. The rule imposes unwarranted costs on Boeing, ignores our accomplishments to date, and imposes regrettable impediments to the manufacture and placement into service of cutting-edge, greenhouse gas minimizing jet aircraft. The proposed rule would also interfere with national and international programs and obligations, discourage investment in Washington State and encourage carbon emission leakage (and, consequently, higher global emissions). For these reasons we urge Ecology to withdraw this rule and instead entertain a meaningful and productive dialog on how Washington State might best encourage greenhouse gas reduction efforts, including supporting highest technology manufacturing.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul J. Wright'.

Paul J. Wright for:

Steven L. Shestak
Director, Environment
Environment, Health & Safety

cc:

Maia Bellon, maib461@ecy.wa.gov
Stu Clark, scla461@ecy.wa.gov
Sarah Rees, sare461@ecy.wa.gov



BP Cherry Point Refinery
4519 Grandview Road
Blaine, Washington 98230
Telephone 360 371-1500

Date: July 21, 2016

Via Email

Sarah Rees
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504

Subject: BP America, Inc. Comments on the June 1, 2016 Draft Clean Air Rule

Dear Sarah:

BP America Inc. respectfully submits the following comments regarding the Draft Clean Air Rule (CAR) on behalf of BP's Cherry Point Refinery.

BP's Cherry Point Refinery, the largest refinery in Washington state, has helped meet America's energy needs for more than 40 years. Built in 1971 to process primarily Alaskan North Slope crude oil, the refinery today processes crude oil from North America and around the world. The facility became one of BP's premier U.S. assets following the merger with ARCO in 2000. Situated on 3,300 acres in Whatcom County near Blaine and employing more than 800 people (and supporting more than 8,400 jobs across the state), the BP Cherry Point Refinery processes approximately 236,000 barrels of crude oil a day, primarily producing transportation fuels. About 90 percent of the crude oil refined emerges as transport fuels, making the Cherry Point Refinery one of the largest marketers of gasoline and jet fuel on the U.S. West Coast. The refinery supplies about 20 percent of Washington's gasoline needs, and it supplies the majority of jet fuel for Seattle, Portland and Vancouver, B.C. international airports.

BP has extensive experience both working with governments around the world to help design effective and efficient carbon policy and in complying with these policies. In past Ecology rulemaking efforts, including the current WAC 173-441 CO2 reporting rule, BP Cherry Point has appreciated the opportunity to work with Ecology staff to provide input in the interest of producing well-written, sensible and environmentally beneficial rules. As a company with a large potential compliance obligation under the proposed rule and a lot at stake in continuing to provide Washingtonians with reliable and affordable supplies of energy, we have worked diligently and in good faith to attempt to understand the proposed Clean Air Rule, to analyze the rule and its objectives and impacts, and to offer workable solutions to improve the rule.

We are writing to express our deep disappointment in the process to date and in the most recent amendments to the rule dated June 1, 2016. Despite the fact that our meetings with leadership and staff from both DOE and the Governor's office were characterized by respectful and productive exchanges, it appears that none of our proposed recommendations to improve the draft rule were accepted. Moreover,

aside from foregoing opportunities to improve the rule, the revisions included in the latest draft of the rule, on balance, have the potential to make the rule even more costly and infeasible.

BP's suggestions were offered as a good faith attempt to make the program more efficient, preserve its environmental objectives, and reduce the impact on Washington's consumers and industry. Unfortunately, the unwillingness of Ecology to consider and adopt even one of our recommendations is emblematic of a process that appears rushed, produced in a vacuum, and more representative of a "decide, announce, defend" approach to rule development than one based on meaningful stakeholder engagement.

The proposed Clean Air Rule will result in nothing less than a fundamental transformation in the way energy is produced and consumed in the state of Washington. It represents the state's attempt to solve what many consider a century-scale challenge. This challenge and its solution are deserving of much more than a rushed approach where the views of important and knowledgeable stakeholders and the opportunity to improve the program are set aside in the interest of a hasty conclusion to the regulatory process.

Regrettably, the potential for the proposed Clean Air Rule to be unnecessarily expensive, complex, and unsuccessful are greatly enhanced if there are not substantial changes to the stakeholder engagement process, to the timeline for implementation of the rule, and to Ecology's consideration of revisions to the rule. It is much more important that the proposed Clean Air Rule be done right rather than done quickly. We ask for your immediate help in setting the development of this rule and the stakeholder process on the right course.

BP supports the comments submitted by the Western State's Petroleum Association. In addition, we briefly present below what we believe to be areas especially deserving of attention. Notably, all of these concerns could be resolved if Ecology committed to take the time to work with stakeholders to develop alternative approaches to implementing the CAR.

The Unfinished State of the Regulation

The text of the draft rule clearly reflects a process that has placed more emphasis on getting a rule out quickly than putting out a rule that is consistent with the level of rigor needed to address the century-scale challenge of climate change. The rule appears unfinished, is missing key data points and definitions, contains multiple confusing, embedded references to other statutes (both state and federal), and requires significant reading between the lines by regulated parties. Compliance entities will not even know the baseline against which reductions must occur until well into the first compliance year of the program. Moreover, data is not available that would allow for the inclusion of fuel importers, which would facilitate fair and equal treatment between in-state fuel producers and importers. These are only a few examples of the unfinished state of the regulation.

BP has been involved in the development of and compliance with carbon policies in many places around the globe. Virtually without exception, these processes are marked by very deliberative stakeholder engagement over many years with dozens if not hundreds of workshops and forums focused on individual aspects of the regulations. The lack of this type of process for the Clean Air Rule has not allowed Ecology to improve the clarity of the rule or to assess, understand, or address the rule's many potential and significant unintended consequences.

We strongly urge Ecology to take the time to get the regulation right, to undertake a real, substantive stakeholder process, to accept input from experienced regulated entities on each aspect of the rule, and to identify and address the unnecessary complexities and unintended consequences of the current draft rule.

Energy Intensive and Trade Exposed Industry

Though the regulation acknowledges the significant potential for Washington industry to be subjected to trade exposure when competing against companies outside of the state who are not similarly regulated, the regulation does not make a serious attempt to analyze various sectors for their susceptibility to impacts from trade exposure. Instead, the “process” for determining which sectors are impacted appears political and not based on any objective analysis.

Competitive pressure resulting from trade exposure to unregulated parties can be especially acute in state or regional programs in the form of both neighboring states and international competition – particularly in coastal states such as Washington where there is ready access to international trade infrastructure. If not properly and adequately mitigated, this trade exposure can and will result in leakage of both emissions and jobs from Washington to unregulated areas.

The trade exposure of the refining industry is well documented, and we believe any objective analysis would confirm that. We request that Ecology release the evaluation criteria it utilized in designating sectors as trade exposed. If actual analysis was not performed, we request that Ecology carry out an objective trade exposure analysis with input from impacted industry sectors.

Point Of Regulation

A well held axiom in effectively reducing GHG emissions is to regulate these emissions as closely as possible to the point of combustion. Not only does this reduce the chance for unnecessary complexity and for double counting of reductions. but it puts the reduction obligation closest to the point where decisions can be made as to how best to reduce emissions.

Ecology has proposed amendments to WAC 173-441-120, a section that previously only applied to point sources or “facilities”. Ecology’s proposed changes to WAC 173-441-120 create a new reporting system for fuel suppliers in Washington state while leaving in place the existing reporting system for suppliers (WAC 173-441-130) authorized by the state legislature in 2010 under RCW 70.94.151. BP concurs with both the AWB and WSPA positions that the proposed amendments to WAC 173-441-120 violate RCW 70.94.151(5)(a)(iii) by requiring refineries (which are also fuel suppliers) to report CO2 emissions from fuels ex-refinery gate through Subpart MM rather than utilization of the Department of Licensing (DOL) system specified in RCW 70.94.151.

Ecology’s proposal through the WAC 173-441-120 rule amendments and the CAR expands the scope of covered products while simultaneously placing the reporting and compliance obligations solely on the backs of Washington State refineries, including BP Cherry Point, through use of Subpart MM. This will undoubtedly result in inaccurate state-wide accounting of refinery products consumed in the state. As detailed in both the WSPA and AWB comment letters, these inaccuracies arise from a combination of factors including but not limited to:

1. Traceability - Subpart MM data does not contain the necessary data elements for refineries to determine the final disposition of fuel (where “final distribution” will occur). Although some volumes can be tracked (such as those captured in the existing WAC 173-441-130 reporting scheme), in many cases (such as bulk FOB transfers of product to a barge or bulk transfers via pipeline or rail car) a refiner or “producer” such as Cherry Point will not be able to determine where those products will ultimately end up. The transfer of bulk product could be to a competitor who may subsequently take the fuel across state lines. In these cases, the final disposition is confidential business information leaving the producer with no method of determining if they are obligated for certifying the resulting CO2 emissions.
2. Misallocation – Ecology has expanded the scope of covered refinery products (transportation fuels) beyond what the legislature authorized in 70.94.151. This change will have the unintended

consequence of misallocating a compliance obligation. This could occur most frequently for refineries exchanges or purchases of refinery products that require further processing before they are suitable for consumption. One particular problematic transfer can occur when VGO (or “Heavy Gas Oil”) is sold from one refinery to another. In that case, the refinery that sold the VGO would carry the compliance obligation even though the VGO would likely be converted by the receiving refinery to jet fuel (a product not covered by the Clean Air Rule) or other products that could be exported out of the state.

3. Double Counting – Similarly, the expansion of covered refinery products beyond the 70.94.151 “DOL” reporting protocol will lead to carbon accounting errors resulting from transfer of refinery products to other refineries or industrial sectors that will report the same CO₂ emissions again. This could occur for refinery sales of anode grade calcined coke to Washington aluminum smelters that will be reported again under Subpart F for primary aluminum production.

In addition to the technical and carbon accounting issues outlined above, Ecology’s proposal to move the point of regulation to the refinery gate will impose a significant and unnecessary reporting burden on refiners such as Cherry Point. Not only will new reporting and tracking protocols for fuels and refinery products need to be developed, but attempting to reconcile volumes produced ex-gate and shipped in a fungible, intra-state distribution system where volumes can move in and out of the state will be extremely burdensome and problematic. We support the position that Ecology should continue utilizing the existing DOL reporting framework and refinery product scope that is authorized by existing statute, demonstrably more accurate, less prone to error, less burdensome, and auditable.

The Regulation Punishes the State’s Most Efficient Facilities

Well-designed carbon policy should benefit and advantage the most efficient producers. Instead, the draft CAR disadvantages the state’s most efficient plants and punishes them for investments they have made in efficient operations. Because the CAR requires a straight 1.7% per year reduction in GHG emissions from a historic baseline, facilities that have not made investments have a wider range of lower cost options available for compliance. Facilities who have already invested are instead burdened with making reductions from a much more challenging baseline that reflects years of efficient operations. Further reductions from this efficient baseline will likely require more drastic and expensive measures that are incrementally much more costly compared to their less efficient competitors.

It is possible to implement policy that rewards investments made by efficient plants – but that takes time. BP recommends that Ecology take the time to work with affected sectors to investigate ways to reward and not punish efficient facilities.

The Regulation Disadvantages In-State Producers of Transportation Fuels

Another artifact and unintended consequence of the haste with which the regulation was developed and implemented is that in-state producers of transportation fuels will be at a significant disadvantage to their out of state competition that import products. Because Ecology claims they do not have the data to set baselines for importers, the CAR gives these importers a free pass for the first 3 years of the regulation. This means that fuel producers who have shown a commitment to the state and who provide in-state jobs are forced to compete against importers who will be bearing no regulatory cost for the first 3 years of the program. Why would the state knowingly disadvantage its own industry in this way?

BP recommends that the regulation put in-state and out-of-state fuel suppliers on equal footing – by putting all fuel suppliers on a consistent compliance timeline.

The Regulation's Treatment of Transportation Fuels

We believe that any well-designed, comprehensive program to address climate change must cover emissions from transportation fuels. However, despite concerns expressed by industry, the CAR's current method to require GHG emission reductions from fuels from a fixed baseline has the potential to make it more difficult to supply the marketplace with additional volumes of transportation fuels when and if a refinery outage or other event temporarily reduces the supply of fuel in the state.

Fuel suppliers who act to supply additional volumes of fuel to address any shortfall would likely do so at the risk of exceeding their historic fuel baseline. This means that they would have to fully offset 100% of the carbon emissions from these fuels and in doing so would be competing against suppliers under their baseline who are required to offset only a fraction of their carbon emissions. This example of an unintended consequence from the current CAR could provide a disincentive for existing or outside fuel suppliers to make more transportation fuels available in the event of a supply shortage.

BP recommends that Ecology work with industry to revisit how transportation fuels are covered so that all gallons of fuel supplied to the state are subject to an equal carbon cost as well as an equal incentive to reduce carbon.

Emission Reduction Units (aka Offsets)

It is difficult to overstate the significance of the departure from the original draft regulation and the amended treatment of ERUs in the new draft CAR. The original rule, and comments from Ecology during our discussions and during public webinars, acknowledged the important role of ERUs in the rule. Not only do ERUs act as cost containment, but they allow compliance options for categories of emissions not directly controlled by regulated parties, such as emissions from transportation fuels. Inexplicably, the latest draft of the regulation severely limits the use and availability of ERUs – the impact of which is not captured in the economic analysis for the rule.

The ability of regulated entities to use ERUs, or offsets, to meet a portion of their compliance obligation is an essential part of a well-designed carbon policy. Moreover, an essential part of the design of an offset program should be a rigorous approach to ensure that the emission reductions allowed in the offset program are real, additional, permanent, and verifiable.

The use of offsets that are real, additional, permanent, and verifiable is a win-win-win for Washington consumers, for environmental integrity, and for the potential to position Washington to meet its challenging, longer term emission reduction goals. Offsets are a win for consumers because they can provide lower cost emission reductions, thereby reducing impact on consumer prices. Offsets are a win for environmental integrity because while offsets can be viewed as cost containment mechanisms, they reduce costs while maintaining the environmental integrity of the emissions reductions target. Every offset, so long as it meets rigorous standards, results in a quantifiable, equivalent reduction of GHG emissions. Lastly, as the public's acceptance of the cost of the program will likely be the factor that determines Washington's ability to meet the ambitious objectives of the CAR, the ability of offsets to reduce program costs will contribute to the potential of meeting longer term GHG emission reduction goals.

The use of offsets that are real, additional, permanent, and verifiable creates societal benefits in a carbon reduction program by maintaining the environmental integrity of the emission reduction target while reducing the social costs of the program. In addition, the use of offsets:

- expands the types of emission reductions to areas that may not be envisioned by regulators
- brings economic co-benefits to communities

- brings particular value in the short term by providing the ability to deliver short-term reductions while allowing technological advancements in capped sectors to help deliver more material, longer-term reductions
- creates a class of carbon-reduction entrepreneurs who would otherwise not be engaged in helping to address climate change

Offsets also play a vital role in a global response to climate change. The proposal contained in the June 1 draft that limits the generation of offsets to within the state represents a serious failure to recognize the global nature of the problem of climate change and the need for a global solution. Solving climate change will require, among other things, that we move beyond a mindset that requires that all of Washington's emission reductions occur in Washington. Efforts to solve climate change will suffer if instead of looking for global solutions, we allow climate change policy to begin to build walls around our jurisdictions.

Washington, through the actions of Governor Inslee and Ecology, has placed considerable focus on encouraging action on climate change at both the federal and international level. This focus is well placed because without concerted action by others, Washington's efforts on climate change will be for naught. We need more than just the state of Washington on a trajectory to reach long term reduction goals. We need the nation and the world on a similar trajectory. To be consistent with the desire to see others take serious action, Washington has to be willing to recognize the action of others. Putting in place policies that discourage or fail to credit the actions of others outside the state is not demonstrating leadership on the issue.

We strongly recommend that Ecology remove the geographic limit on the generation of offsets and align its offset eligibility protocols with well-established entities such as the American Carbon Registry and the Climate Action Reserve.

With respect to the type of projects that are able to qualify as ERUs, or offsets, conspicuously absent are forestry offsets. Given the importance of healthy forests to the state's economy, it seems incongruous that the state would seek to prohibit incentives for further protection of forests. Internationally, the role of forestry in achieving global climate change ambitions has been codified through the Paris Agreement. Specifically it states that "*Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs...including forests,*" "*Parties are encouraged to take action to implement and support, including through results based payments (read offsets)...[for]...activities related to reducing emissions from deforestation and forest degradation.*" Globally, forestry and agriculture have a higher carbon footprint than the transportation sector, thus the importance of addressing these emissions is apparent.

Also important is the contribution of forestry projects to the available supply of offset projects. The state of California has identified a pending shortage in availability of offsets for their program – even though California does not have the severe geographic limits that the Washington CAR proposes. It is estimated that forestry offsets will supply approximately half of the offsets available to California in coming years. It is not clear that Ecology has fully contemplated the impact of limiting the largest contributor to offset supply in an already short market.

BP strongly suggests that Ecology rethink its limits on the generation and use of ERUs/Offsets and take a wider, global view on the benefits of offsets.

Role of Third Parties

BP is troubled by how the regulation restricts the important role of third parties within the program to "only facilitate, broker, or assist covered parties to transfer ERUs....Third parties must not own ERUs." Third party institutions such as banks, brokers, and trading houses play an important role in helping the market to function efficiently through the liquid trading of credits. Such entities possess and bring know-

how and technical infrastructure and play a valuable role in serving the needs of less sophisticated compliance entities by acting as intermediaries.

Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis

Others have pointed out flaws and shortcomings in the Cost-Benefit analysis prepared in conjunction with the revised CAR. We would like to highlight a couple significant flaws in the analysis. First, it is not appropriate to compare the cost of offsets in the Washington program to the cost of carbon credits in the voluntary market. The level of rigor in verifying voluntary credits is much lower than in a compliance market. More importantly, there has been no analysis or estimate of the volume of ERUs available in the state of Washington. More than anything else, the volume of credits available for sale will impact the price of these credits. It is not possible to estimate a price for these credits until the volume of credits available for sale is estimated.

Also significant is the fact that the cost estimate for on-site emission reductions includes references to studies that included only reductions from stationary sources. In the state of Washington, the vast majority of emission reductions will need to come from transportation fuels – which were not included in the referenced studies. Experience suggests that emission reductions from the transportation sector are significantly more expensive (an order of magnitude or more) than emission reductions from stationary sources.

We believe that the Cost-Benefit analysis must be revised to reflect the shortcomings identified here and elsewhere.

We are available to meet to discuss any of our comments in more detail.

Sincerely,

Ralph J. Moran
Sr. Director, Governmental & Public Affairs
BP America, Inc.

cc (via email): Chris Davis, Office of Governor Inslee



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July 22, 2016

SUBMITTED ELECTRONICALLY & VIA EMAIL

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
AQComments@ecy.wa.gov

Re: Comments of Cascade Natural Gas Corporation on the Proposed Clean Air Rule, Chapter 173-442 WAC

Dear Mr. Wilson:

Cascade Natural Gas Corporation (CNGC) respectfully submits these comments on the proposed Clean Air Rule (CAR), Chapter 173-442 WAC, and the proposed amendments to Washington's Greenhouse Gas Reporting Rule, Chapter 173-441 WAC (GHG Reporting Amendments). Should you have any questions about these comments, please contact Abbie Krebsbach at 701-222-7844.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Madison".

Scott Madison
Executive Vice President Western Operations

cc: Eric Martuscelli, Vice President Operations
Mark Chiles, Vice President Regulatory Affairs, Customer Service and Gas Supply
Nicole Kivisto, President and CEO
Abbie Krebsbach, Environmental Director

Maia Bellon, Department of Ecology
Sarah Rees, Department of Ecology
Chris Davis, Department of Ecology
Stu Clark, Department of Ecology

Attachment: Energy Strategies, LLC, Critique of Washington Department of Ecology's Preliminary Cost-Benefit Analysis (July 21, 2016)

I. INTRODUCTION

Cascade Natural Gas Corporation (CNGC), a subsidiary of MDU Resources Group, Inc., is a natural gas local distribution company (natural gas distributor or NGD), that serves over 272,000 customers in 96 communities, 68 of which are in Washington. As an NGD, CNGC would be a Covered Party under the CAR.

CNGC's service areas within Washington are concentrated in the western and central part of the state. CNGC's distribution system is comprised of roughly 2,800 miles of protected steel and 1,800 miles of plastic distribution mains. In addition, CNGC's service lines to its customers are comprised of roughly 1,600 miles of protected steel and 1,228 miles of plastic. CNGC also operates one compressor engine near Mt. Vernon for operation of the company's distribution system. CNGC does not own any natural gas storage facilities.

CNGC is committed to improving and safely maintaining natural gas distribution system infrastructure. From 2012-2015, CNGC replaced over 24 miles of unprotected steel pipe in Washington (ranging from service lines to eight inch mains), with safer and more efficient protected steel or polyethylene pipe. Beginning in 2014, CNGC instituted a leak classification, survey and repair program, which has resulted in a significant reduction in the amount of leaks that are carried over from year to year. Also in 2014, CNGC created a Public Awareness Coordinator position to address community education and outreach opportunities with a focus on damage prevention opportunities that could further reduce unintentional releases of methane due to damage caused by excavations.

Most recently, CNGC became a Founding Partner of the Environmental Protection Agency's (EPA) Natural Gas Star Methane Challenge Program. As a Founding Partner, CNGC has voluntarily chosen to participate in the program under the Best Management Practice (BMP) Commitment – Excavation Damages within the natural gas distribution sector. The BMP Commitment entails a Partner commitment to company-wide implementation of BMPs to reduce methane emissions. During the initial commitment timeframe, CNGC will conduct incident analyses on all excavation damages and report the relevant data to EPA. CNGC is also exploring other voluntary actions which could reduce methane emissions resulting from excavation

damage. CNGC's operational and infrastructure changes have resulted in lower methane emissions, and therefore lower GHG emissions, in the State of Washington.

CNGC is a member of both the Association of Washington Business (AWB) and the Northwest Gas Association (NGA). In addition to the comments we offer below, CNGC adopts and incorporates herein the comments of the AWB and the NGA on this rulemaking.

II. SUMMARY OF COMMENTS

CNGC has significant concerns about the legal underpinnings of the CAR. In particular, none of the statutory provisions the Washington Department of Ecology (Department or Ecology) has identified would authorize Ecology to regulate non-sources for the emissions of their downstream customers. Rather, the Washington Clean Air Act (Washington CAA) can only be read to authorize Ecology to regulate emissions at the facilities where they are emitted. Furthermore, Ecology has failed to identify any statutory authority under which it may authorize the use of emission reduction units (ERUs) for compliance with a GHG regulatory program. Because the use of ERUs is central to the design of the CAR, we request that Ecology reconsider its legal authority and narrow the scope of its Proposed Rule accordingly.

In addition, CNGC has significant concerns related to changes to NGD obligations that result from Ecology's chosen program design. Ecology should clarify how changes in the identity and emissions of Covered Parties, Voluntary Parties, and new entities that begin operating after 2016 will be addressed through changes to NGD baselines or compliance obligations. CNGC recommends that Ecology adjust NGDs' baselines and compliance obligations to ensure that idiosyncratic design decisions (e.g., the selection of a compliance threshold and the option to become a Voluntary Party) do not compromise NGDs' abilities to plan for compliance. As currently formulated, Ecology's proposed ERU Reserve does not appear to be an effective vehicle to address these fundamental program design issues.

Next, CNGC recommends several improvements related to Ecology's proposed GHG reduction requirements. First, CNGC strongly recommends that Ecology delay the start date of compliance for all Covered Parties until 2020, as the Department has proposed for Energy Intensive Trade Exposed (EITE) industries. Next, Ecology should clarify a process for exempting NGDs from the CAR if other regulations addressing combustion or oxidation of

natural gas are implemented. Furthermore, Ecology should adjust its estimates of demand growth and treatment of weather variability in setting emission reduction requirements for NGDs.

With regard to compliance options, CNGC recommends that Ecology remove the unnecessary proposed geographic and project type restrictions on ERU projects, or make the reduction obligations correspondingly more lenient. In addition, CNGC recommends that Ecology adopt two safety valve mechanisms: an alternative compliance payment mechanism, and a streamlined variance mechanism in the case of extreme inability to comply. CNGC also offers comments specific to individual ERU projects types. In particular, CNGC strongly recommends that Ecology confer with the Washington Utilities and Transportation Commission (WUTC) and NGDs to clarify the process for issuance of ERUs for natural gas efficiency projects.

Finally, CNGC customers' monthly bills will increase for CNGC to comply with this Proposed Rule, especially as the reduction obligations increase over time. By 2035, customers may see a potential increase in their monthly bill of about 45 percent from current rates, considering ERU costs may be in the range of \$75 as projected by Energy Strategies, LLC.¹ The cost impacts for NGDs and their customers are projected to be significant, and are higher than Ecology has determined in the agency's Cost-Benefit Analysis.²

CNGC agrees with statements made by Energy Strategies in its critique of Ecology's Cost-Benefit Analysis developed for comment provided by the AWB and its members. In that critique, Energy Strategies made many determinations, among them the determination that, "Ecology also used inappropriately low proxy prices for ERUs."

The remainder of these comments explains these points in greater detail.

¹ Energy Strategies, LLC, Critique of Washington Dep't of Ecology's Preliminary Cost-Benefit Analysis at 26, Figure 1 (July 21, 2016).

² Dep't of Ecology, Preliminary Cost-Benefit and Least-Burdensome Analysis; Chapter 173-442 WAC Clean Air Rule and Chapter 173-441 WAC, Reporting of Emissions of Greenhouse Gases at 24, Publication no. 16-02-008 (June 2016).

III. LEGAL AUTHORITY ISSUES

A. Regulating Non-Sources Such as NGDs for the Emissions of Others Exceeds Ecology's Legal Authority.

CNGC has significant concerns about the legal underpinnings for the regulatory design Ecology has proposed. In particular, the CAR proposal fails to identify any legal authority under which Ecology could make NGDs liable for the carbon dioxide (CO₂) emissions of their customers. Furthermore, the proposal fails to identify any legal authority under which Ecology could make NGDs meet their obligations primarily by paying for ERUs, including ERUs from regulatory programs in other states.

NGDs are regulated utilities that deliver natural gas to consumers. NGDs typically transport natural gas from delivery points located on interstate and intrastate pipelines and distribute the gas to various end-users, including businesses, factories, and households. These end-users generate CO₂ emissions if they burn the gas as fuel for heat or electricity.

Ecology's proposal would make NGDs liable for the emissions of such customers, even though Ecology fails to identify any authority under which it could hold one entity liable for the emissions of another entity's facilities.

Ecology cites Chapter 70.94 RCW and Chapter 70.235 RCW as sources of statutory authority for adoption of the proposed CAR.³ Specifically, Ecology states: "Consistent with the Legislature's intent to reduce GHG emissions, Ecology is using its existing authority under the Washington Clean Air Act (Chapter 70.94 RCW) to adopt a rule that limits emissions of GHGs."⁴

³ Rulemaking Proposal, WSR 16-12-098.

⁴ SEPA Environmental Checklist – Clean Air Rule, Appendix A, Staff Report – SEPA Non-Project Review Form at 5.

i. RCW 70.235.020 Does Not Authorize Ecology to Regulate NGDs Via the CAR.

Ecology identifies RCW 70.235.020 as the existing regulatory/planning framework that may influence or direct the proposal.⁵ Adopted in 2008, RCW 70.235.020(1)(a) requires specified statewide GHG reductions. Under this provision,

The state shall limit emissions of greenhouse gases to achieve the following emission reductions for Washington state:

(i) By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels;

(ii) By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;

(iii) By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year.

By letter of September 1, 2015 to Senator Doug Ericksen, the Washington Office of the Attorney General concluded that RCW 70.235.020 does not require the Legislature to create a program to achieve these reductions, and creates neither a cause of action to enforce the reductions nor liability for failing to achieve the reductions.⁶ CNGC agrees with this assessment. This provision does not require Ecology to regulate emissions associated with natural gas combustion, nor does it authorize the Department to do so.

ii. Chapter 70.94 RCW Does Not Authorize Ecology to Regulate Non-Sources under the CAR.

Only two provisions of Chapter 70.94 RCW provide Ecology with authority to regulate the emissions of air contaminants—RCW 70.94.331 and 70.94.395—and both of these

⁵ SEPA Environmental Checklist – Clean Air Rule, Appendix A, Staff Report – SEPA Non-Project Review Form at 5.

⁶ Letter from Bob Ferguson, Attorney General of Washington, to Sen. Doug Erickson (Sept. 1, 2015), *available at* <http://dougerricksen.src.wastateleg.org/wp-content/uploads/sites/23/2015/09/150901AGinformalopinionGreenhouseGases.pdf>.

provisions limit Ecology to regulating “emissions” from the “sources” of the air contaminants.⁷ These provisions do not authorize Ecology to regulate non-sources (including NGDs) for the emissions of their downstream customers.

RCW 70.94.331(2) authorizes Ecology to establish “air quality standards,” “air quality objectives” and “emission standards.” Through the CAR, Ecology is not proposing to establish an “air quality standard” or “air quality objective”; rather, Ecology is proposing an “emission standard” approach. “Emission standard” is defined by statute to mean “a requirement . . . *that limits the quantity, rate, or concentration of emissions* of air contaminants on a continuous basis, including any requirement *relating to the operation or maintenance of a source* to assure continuous emission reduction”⁸ RCW 70.94.395, meanwhile, authorizes Ecology to “adopt and enforce rules to control and/or prevent *the emission* of air contaminants from [air contaminant] *source[s]*.”⁹

The Washington CAA defines “emission” as “a release of air contaminants into the ambient air.”¹⁰ The Act defines a “source” as

all of the emissions units including quantifiable fugitive emissions that are located on one or more contiguous or adjacent properties, and are under the control of the same person, or persons under common control, whose activities are ancillary to the production of a single product or functionally related group of products.¹¹

⁷ In its Order in *Foster v. Ecology*, the Superior Court for King County found a mandatory duty to adopt rules establishing air quality standards for GHG emissions under RCW 70.94.331(2)(a) and (b). Order Affirming the Dep’t of Ecology’s Denial of Petition for Rulemaking, No. 14-2-25205-1 (Wash. Super. King Cty. Ct. Nov. 19, 2015). While we believe the court’s analysis and conclusions are flawed, it is worth noting that the court’s reliance on RCW 70.94.331 is not contrary to the fact that any regulation of “emissions” must involve regulation of the “sources” of those emissions. In its May 16, 2016 Order, the Superior Court in *Foster* ordered Ecology to issue rules by the end of 2016 to limit GHG emissions in Washington State. Order on Petitioner’s Motion for Relief Under CR 60(b) at 3, No. 14-2-25205-1 (Wash. Super. King Cty. Ct. May 16, 2016). The order does not provide details on the emission sources or the timeline for rule implementation other than as directed by the Governor in July 2015. *Id.* Governor Jay Inslee directed Ecology “to develop substantive emission reductions using existing authority,” Press Release, Jay Inslee, Governor, Inslee directing Ecology to develop regulatory cap on carbon emissions (July 28, 2015), but did not specify which sectors were to be regulated.

⁸ RCW 70.94.030(12) (emphasis added).

⁹ RCW 70.94.395 (emphasis added).

¹⁰ RCW 70.94.030(11).

¹¹ RCW 70.94.030(22).

“Emissions unit” is not defined by statute, but Ecology’s regulations define it as “any part of a stationary source or source which emits or would have the potential to emit any pollutant subject to regulation under the Federal Clean Air Act, chapter 70.94 or 70.98 RCW.”¹²

The proposed CAR purports to regulate CO₂ emissions from numerous natural gas users by regulating the NGDs that deliver gas to those users. Yet, under the Washington CAA, NGDs are *not* the “sources” of those CO₂ emissions because the NGDs do not “emit” the CO₂ by releasing it into the ambient air. Therefore, the statutory provisions cited by Ecology do not support regulation of NGDs. Indeed, there does not appear to be any provision in the Washington code that would authorize Ecology to require non-sources to reduce the emissions of other, un-affiliated entities based solely on the non-source’s role as a supplier of fuel to the emitting entity.

Ecology’s rulemaking may not exceed its statutory authority.¹³ However, it appears that Ecology’s proposed CAR provisions requiring NGDs to reduce the CO₂ emissions associated with combustion or oxidation of the fuel they deliver to customers exceeds Ecology’s statutory authority under the Washington CAA.

B. The Proposed CAR Relies Significantly on Emission Credits, but Ecology Does Not Have Legal Authority to Establish Such an Emission Credit Program.

Importantly, there is little an NGD can do to reduce the emissions of a customer—short of halting deliveries of natural gas. As a regulated utility, NGDs have an obligation to serve customers with natural gas when they demand it.¹⁴ This makes it virtually impossible to halt delivery of this energy source. Because NGDs cannot reduce the emissions of the products they deliver, the proposed CAR effectively requires that regulated NGDs meet their obligations primarily, if not exclusively, by paying for ERUs obtained from other sources or from external carbon markets.¹⁵ In other words, the Proposed Rule would impose a requirement that a non-source (an NGD) address emissions from sources (its customers) primarily by paying for

¹² WAC 173-400-030(29).

¹³ RCW 34.05.570(2)(c).

¹⁴ RCW 80.28.110

¹⁵ See Dep’t of Ecology, Preliminary Cost-Benefit and Least-Burdensome Analysis; Chapter 173-442 WAC Clean Air Rule and Chapter 173-441 WAC, Reporting of Emissions of Greenhouse Gases at 24, Publication no. 16-02-008 (June 2016).

emission reductions at *some other sources* altogether, including sources outside the State of Washington.

Here again, this emission credit approach exceeds the legal authorities cited by Ecology (which, as discussed above, prescribe Ecology’s authority to set “emission standards” for particular “sources”), and Ecology has failed to identify any other authority that would allow such an approach.

To be clear, the Legislature knows how to authorize the use of emission credit approaches for purposes of air contaminant regulation, and has done so for very specific circumstances.¹⁶ Clearly, the Legislature has *not* taken the view that Ecology’s authority to promulgate “emission standards” for “sources” extends as far as an authority to establish a credit trading system, because the Legislature has made a point of providing specific authority for such a system in specific circumstances.

None of those circumstances apply here. Moreover, under RCW 70.235.005—one of the provisions Ecology cites in support of the CAR—the Legislature expressly *withheld* authority from Ecology to join a regional market-based carbon-trading program unless and until such authority was provided by the Legislature.¹⁷ The Legislature has not provided such authority here.

In light of our concerns over Ecology’s legal authority to require NGDs and other non-sources to reduce emissions caused by combustion or oxidation of natural gas, including through use of emission credits or ERUs, we request that Ecology reconsider its legal authority and narrow the scope of its Proposed Rule accordingly.

¹⁶ See RCW 70.94.850 (authorizing use of emission credits consistent with the provisions of the “prevention of significant deterioration program under RCW 70.94.860, the bubble program under RCW 70.94.155, and the new source review program under RCW 70.94.152”); and RCW 80.70.030 (authorizing credits under CO₂ mitigation plans that must be submitted by certain new fossil fuel-fired power plants).

¹⁷ See RCW 70.235.005(4) (“In the event the state elects to participate in a regional multisector market-based system, it is the intent of the legislature that the system will become effective . . . *after authority is provided to the department for its implementation.*”) (emphasis added).

IV. ISSUES RELATED TO SOURCE COVERAGE AND INCLUDED EMISSIONS

A. Ecology Should Clarify that NGDs Are Not Liable for the Emissions of EITE Covered Parties During the Period When EITE Covered Parties Are Exempt from Obligations.

The CAR is unclear whether NGDs would bear a compliance obligation for the emissions of Covered Parties that have been allowed to delay their compliance with the Rule (e.g., EITE industries, and smaller entities that later become subject to the 70,000 MT compliance threshold). Under proposed WAC-173-442-030(2), EITE industries would be exempt from compliance obligations from 2017 to 2020. NGDs should not be responsible for reducing emissions from EITE industry Covered Parties that combust natural gas, including during the first three years of the proposed CAR when EITE industry Covered Parties would be allowed to delay their compliance. If NGDs are made responsible for the emissions of temporarily exempt EITE parties, NGDs would likely be required to pass through their compliance costs to these EITEs, effectively negating the benefit of exempting these entities from the first compliance period. In addition, if CNGC was required to take responsibility for EITE industry emissions during the 2017-2020 period and could not pass on the costs associated with CAR compliance to EITE industries, CNGC's shareholders may be put at risk for these costs since the costs related to gas used by EITE industry may not be placed on other customers who did not benefit from the gas delivered to EITE industry sources. In addition, requiring NGDs to reduce emissions from these entities for only a few years would be administratively burdensome and costly, especially due to the required purchase of a significantly higher quantity of ERUs in the first compliance period. We believe Ecology's intent is to shelter EITE industries from the regulation for the first compliance period.¹⁸ Therefore, we recommend Ecology amend proposed WAC 173-442-040(3)(a) to clarify that NGDs would not bear responsibility for EITE industry emissions during 2017-2020. Specifically, WAC 173-442-040(3)(a) should be changed to read:

(3) Covered GHG emissions for a natural gas distributor do not include:

¹⁸ Ecology staff confirmed the Department's intent not to make NGDs responsible for EITE industry emissions during the first three years of compliance at a June 27, 2016 meeting with CNGC.

(a) Emissions from the combustion or oxidation of products supplied to a covered party that has an emission reduction requirement, including products supplied to an EITE Covered Party prior to 2020;

B. Ecology Should Allow “Upstream” Covered Parties such as NGDs to Modify Their Baselines to Account for Changes in the Composition of Covered Emissions and Covered Parties.

Under the CAR, NGDs would be responsible for reducing emissions associated with the combustion of natural gas by customers other than Covered Parties. However, the number of Covered Parties will not be static throughout the life of the CAR. Certain changes to the composition of Covered Parties could have significant impacts on the emissions for which NGDs are deemed responsible. It is not clear that the Reserve program in proposed WAC 173-442-240 is intended to address these changes. Nor is it clear that the Reserve would be able to address these issues in light of all of the other purposes for which the Reserve is apparently intended. Therefore, Ecology should include separate provisions in the CAR to modify the baseline of an NGD or its emission reduction pathway, as appropriate, for the scenarios we discuss below.

i. Scenarios that Could Artificially Increase NGD Obligations

We have identified at least three scenarios in which an NGD would potentially be saddled with substantially increased liability due to changes in the composition or operation of NGD customers in the state. First, entirely new businesses and industries that use natural gas could be constructed in Washington. NGDs primarily serve urbanized areas around the state. The majority of the state’s growth is happening at a faster rate in those urbanized areas than in the rural areas, thereby creating more demand for natural gas from new customers. The growth rates for new customers can be estimated, but it is by no means an exact science. When new growth occurs, either residential, commercial or industrial, NGDs have an obligation to serve that new growth under state law. Many of these new customers would be expected to emit below the Rule’s threshold, meaning that responsibility for their emissions would accrue to the NGDs that serve them. Yet, because the emissions from such new customers would not have been reflected in the historical baseline of the relevant NGD, the result would be an immediate and potentially substantial increase in the obligation of the NGD. We recommend that, for such situations, the

CAR provide for an increase in the baseline of the relevant NGD in an amount corresponding to an average of the first two or three years of emissions of the customers it serves.

Second, an existing customer that was initially a Covered Party because its annual emissions are above the 100,000 MT threshold could reduce its emissions over time to a level below the Rule's coverage threshold, including as a result of the kind of emission mitigation activities that Ecology seeks to incentivize. Under the proposed CAR, it appears that the entity's remaining emissions below the compliance threshold would become the responsibility of the NGD that serves that entity, and the NGD's costs of compliance would flow through to the entity. This outcome would punish the relevant NGD with substantial new liability for emissions that previously were not the responsibility of the NGD. Indeed, even though, in this scenario, overall state GHG emissions would have decreased, the NGD would suddenly face an increased obligation. The outcome also would punish the former Covered Party, which reduced its emissions as encouraged by the CAR, only to find that it is paying more for natural gas anyway as a result of the cost pass-through that NGDs would have to implement to reflect their added compliance costs. For such cases, we recommend that the CAR make clear that an NGD is *not liable* for the emissions for such a former Covered Party. Such an approach is fair and consistent with the policy objectives of the CAR. Alternatively, if Ecology does not adopt such an approach, it should, at a minimum, increase the baseline of the relevant NGD in an amount equivalent to the emissions of the former Covered Party in the first year that the Covered Party exits the CAR program.

Third, it is possible that the assets of one NGD in the state could be purchased by another NGD or third party, which could lead to situations in which the number of emissions for which each NGD is responsible could be substantially higher or lower solely due to changes in the ownership of NGD assets, *not* actual changes in emissions. In such cases, Ecology should shift the baseline associated with the acquired assets to the NGD that has acquired them.

Fourth, the proposal is unclear as to whether NGDs must reduce emissions on behalf of Voluntary Parties that opt into the program.¹⁹ CNGC recommends that NGDs not be responsible

¹⁹ Under proposed WAC 173-442-030(6)(a), voluntary participants do not have GHG emission reduction requirements, suggesting that their emissions would remain the responsibility of the NGD that serves the voluntary party. Nevertheless, WAC 173-442-110(1) implies that voluntary parties *can* have emission reduction requirements.

for the emissions of Voluntary Parties that they serve. This treatment would be consistent with the treatment of other NGD customers that are Covered Parties. Furthermore, Ecology should clarify the method by which NGDs will be notified of the change to their compliance obligations when a Voluntary Party opts into the program.

ii. Process for Updating NGD Baselines and Compliance Obligations

In general, we recommend that Ecology establish a process that provides NGDs with compliance certainty and the ability to plan for the future. Therefore, Ecology should avoid making frequent updates to the baseline, and should only update an NGD entity's baseline to reflect changes in Covered Parties' status following the end of a compliance period. For the same reasons, Ecology should also avoid making frequent changes to Covered Parties' status within the program. Similarly, as with changes to other Covered Parties' status, and to provide certainty and avoid the need to frequently update NGDs' baselines, CNGC recommends that Voluntary Parties be allowed to opt in or out of the program only once per compliance period. Baseline adjustments that are necessitated by changes in the ownership of natural gas assets, however, could be made more frequently—for example, upon notification to Ecology of the change.

iii. Recommended Regulatory Changes

Accordingly, we recommend the following revisions to proposed WAC-173-442-050(1)(c). First, after WAC-173-442-050(1)(c)(ii), add the following:

(iii) For a natural gas distributor, to address additional emissions from the combustion or oxidation of products supplied by the natural gas distributor to an entity that commenced operation after 2016 and is not a Covered Party; and

(iv) To reflect changes in covered emissions when a natural gas distributor purchases the assets of another natural gas distributor or sells assets to another natural gas distributor.

In addition, under proposed WAC 173-442-030(6)(b)(i), a voluntary party can elect to become a Covered Party. Covered party emissions served by NGDs are not included in the NGDs' covered emissions. See proposed WAC 173-442-040(3)(a). Thus, it is not clear whether NGDs would be responsible for voluntary parties' emissions.

In addition, Ecology should modify proposed WAC 173-442-040(3) by adding the following subsections at the end of that subsection:

(c) Emissions from the combustion or oxidation of products supplied to entities that were previously Covered Parties but are no longer Covered Parties because they meet the requirements of WAC 173-442-030(5)(a).

(d) Emissions from the combustion or oxidation of products supplied to entities that are Voluntary Parties.

If, notwithstanding our recommendations, Ecology elects to make NGDs liable for Voluntary Parties and the emissions of entities that were Covered Parties but reduced their emissions below the Covered Party threshold, then a subsection would need to be added to proposed WAC-173-442-050(1)(c) to provide for an increase to NGD baselines in these situations.

iv. Ecology Should Not Rely on the Reserve to Address These Major Program-Related Baseline Changes.

CNGC emphasizes that the above issues should be addressed through changes to the baseline or compliance obligation, and not through distributions from the Reserve. The proposed CAR already identifies multiple uses for the limited quantity of ERUs set aside for the Reserve. It is not clear whether any of these uses could include offsetting increases in NGD compliance obligations that are caused by the scenarios discussed above. It is also not clear that the Reserve will have sufficient ERUs to address these types of program-related changes to NGDs' baselines.

Furthermore, it would not be appropriate to use the Reserve program to address major changes to NGDs' covered emissions that are the result of how Ecology has structured the CAR. Changes to NGDs' covered emissions that are caused by a change in an entity's status under the CAR (e.g., changes from Covered to non-Covered Party, changes from non-covered to Covered Party, or changes from non-Covered Party to a covered Voluntary Party) are a symptom of the upstream regulatory design that Ecology has selected for the CAR, and are therefore fundamentally different in nature from the other categories of relief for which the Reserve is designated.

However, if Ecology does not adopt our recommendations for changes to the baseline and covered emissions provisions of the CAR, Ecology should state explicitly that the situations described above would be addressed through a preferential allocation from the Reserve to NGDs.

V. ISSUES RELATED TO GHG REDUCTION REQUIREMENTS

A. Ecology Should Postpone the Start of the First Compliance Period for All Covered Parties Until 2020.

For all Covered Parties other than EITEs, the first compliance period under the CAR would commence in 2017²⁰—which is just a few months after Ecology is expected to issue the final version of the CAR. This approach would risk the integrity of the regulatory program. Accordingly, we strongly recommend that Ecology align the first compliance period for all Covered Parties with the compliance period for EITEs, i.e., 2020-2022. In any event, the first compliance period should start no earlier than 2018.

There are compelling programmatic rationales for a later start to the compliance period. First, providing a buffer between finalization of the Proposed Rule and the start of the program would allow Ecology the time necessary to design and implement key elements of the regulatory program. Before the compliance period starts, Ecology must take several steps. The agency must calculate and assign baselines and emission reduction pathways for each Covered Party. Finalizing these calculations, and resolving any related disputes and corrections, could require several months. Also, Ecology must develop an electronic registry for ERUs and allowances. The registry must include multiple accounts, and must be able to interface with carbon registries and tracking systems in other states. In our view, it is unrealistic to expect that Ecology will have completed the kind of design work and quality assurance and quality control necessary to ensure that the electronic registry is secure, reliable, and capable of seamless interaction with other registries by January 1, 2017. In addition, Covered Parties will also need to hire and train new staff, adopt new protocols for reducing emissions, adopt changes to their rates, and identify potential sources of ERUs during the same time period. If Ecology maintains its current “full-speed-ahead” approach to adopting this Proposed Rule, the Department’s aggressive timeline will create a much higher possibility for mistakes by both the Department and the industries it seeks to regulate under the CAR.

²⁰ Proposed WAC 173-442-030(3).

Holding to a 2017 start for the compliance period also creates a very significant risk that there will not be a sufficient supply of ERUs for compliance purposes. The CAR contemplates the availability of a substantial number of ERUs, especially for Covered Parties such as CNGC that do not have the ability to make facility-based reductions. Yet, it is difficult to see how there will be any meaningful number of ERUs issued in 2017, or even well into 2018. Under the provisions of the proposed CAR, Ecology will not even issue its first ERUs until a qualifying project has been developed in the state of Washington *and* has undergone a *post hoc* verification of the reductions it has achieved.²¹ The 2017 start date does not take into account the time necessary for the development of projects, for projects to obtain the required third-party verification, and for Ecology to review and issue ERUs for projects.

The experience of California’s cap-and-trade program, which has relied on project-based “offset” credits, is instructive. The California Air Resources Board (CARB) finalized regulations for the cap-and-trade program—including regulations related to offset projects—in October 2011. Yet, CARB did not issue its first “compliance” offset credits for a project under the program until September 2013—nearly a full two years later.²²

Indeed, concerns about the readiness of California’s market-based program led CARB to make a decision to postpone the start of the first compliance period from January 2012 until January 2013. In announcing the delay, CARB Chair Mary Nichols cited the “need for all elements to be in place and fully functional.”²³ The author of the California legislation that gave rise to the cap-and-trade regulations added: “This modest delay in implementation is prudent.

²¹ The Proposed Rule is unclear about whether Ecology will issue ERUs for reductions achieved by “early action” projects developed before 2017, although there are some provisions that suggest that such an approach is not permitted. *See, e.g.*, proposed WAC 173-442-160(3)(b)(iii) (requiring that the “drive-alone trip rate” for a transportation measure be calculated relative to a 2015/2016 baseline, implying that only results achieved in 2017 or later would be eligible for ERUs). In any event, it appears that the *existing* number of in-state activities that happen to meet the proposed criteria for ERUs is very small.

²² *See* California Air Resources Board, ARB Offset Credit Issuance Table (July 13, 2016), *available at* http://www.arb.ca.gov/cc/capandtrade/offsets/issuance/arb_offset_credit_issuance_table.pdf (listing CAOD5002 as the first “compliance” offset project to earn credits). CARB also has issued credits for certain “early action” projects, defined to include projects commenced even before the finalization of the cap-and-trade regulations. *See* Cal. Code Reg. tit. 17, § 95990. However, as discussed above, the Proposed Rule does not include such “early action” provisions.

²³ Margot Roosevelt, California Delays its Trading Program Until 2013, *Los Angeles Times* (June 30, 2011) (quoting CARB Chair Mary Nichols), *available at* <http://articles.latimes.com/2011/jun/30/local/la-me-cap-trade-20110630>.

The one-year period will allow us to road test market mechanisms to see how they work while ensuring that the greenhouse gas pollution reductions required by the program remain intact.”²⁴

Ecology has the same compelling reasons to delay the start of the compliance period here. Furthermore, Ecology has not identified any legal mandate requiring the agency to start the compliance period in 2017.²⁵ Accordingly, Ecology has discretion to determine when the compliance period should commence—and, indeed, already has exercised that discretion by establishing different compliance periods for EITE Covered Parties.

The fact that the compliance period is a three-year period does not mitigate the risks of a precipitous start. The intended compliance flexibility of a three-year period will be undermined if it takes two or more years for the registry to be fully workable and for any meaningful supply of ERUs to materialize. This is particularly the case for CNGC because, as explained in Section V.D., below, CNGC’s forecasts suggest that the company could start in an immediate deficit position relative to its baseline in 2017.

In a June 27 meeting, Ecology staff told CNGC that emergency rules could be adopted, as prescribed by RCW 34.05.350, if there is a lack of qualified ERUs during any compliance period. However, adopting a crucial component of the CAR now with the expectation that a future “emergency” rulemaking would be needed to fix a *foreseeable* problem is highly questionable and could result in litigation over the fix in future years. To adopt an emergency rule, Ecology must find that the emergency rule is “necessary for the preservation of the public health, safety, or general welfare, and that observing the time requirements of notice and opportunity to comment upon adoption of a permanent rule would be contrary to the public interest.”²⁶ If Ecology knows now that it will make that finding if there is a lack of qualified ERUs, it should include that finding now in the CAR, rather than waiting to address this issue on an emergency basis.

²⁴ *Id.* (quoting California Sen. Fran Pavley).

²⁵ In its May 16, 2016 Order in *Foster v. Ecology*, the Superior Court for King County directed Ecology to issue a rule by the end of 2016 establishing greenhouse gas limits. However, the Order did not specify a date by which the Rule must take effect, nor did it mandate when the first compliance period must start. Order on Petitioners’ Motion for Relief Under CR 60(b), *Foster v. Ecology*, No. 14-2-25295-1 (Wash. Super. King Cty. Ct. May 16, 2016).

²⁶ RCW 34.05.350(1)(a).

For these reasons, CNGC recommends that Ecology start the compliance period for all Covered Parties in 2020—and, in any event, no earlier than 2018.

B. Ecology Should Clarify a Process for Exempting NGDs If and When a Comprehensive National GHG Reduction Program is Implemented.

Although the U.S. currently lacks a comprehensive national GHG reduction program, it is possible that a national GHG reduction program (e.g., a multi-sector cap-and-trade program) will be developed in the future. Under the Proposed Rule, electric generators covered under the Clean Power Plan—which is a national, electricity-sector GHG reduction program—would be exempt from the CAR. To avoid double-regulation of other sectors, CNGC recommends that Ecology adopt similar provisions for exempting other sectors from the Rule if emissions from those sectors become regulated under a comprehensive GHG reduction program. Ecology could implement this recommendation by adopting the following language as an additional subsection in proposed WAC 173-442-040:

Entities whose emissions are being regulated under a national GHG reduction program are not Covered Parties and are exempt from complying with this Rule.

C. Ecology Should Exempt NGDs If Initiative 732 or a Similar Initiative is Passed.

Initiative 732, as certified by the Secretary of State for the State of Washington, will be put before the voters in November 2016. This initiative, if adopted, would establish a carbon tax on natural gas. CNGC would be obligated to impose the tax imposed by Initiative 732 on the sale and distribution of natural gas, thereby creating an affirmative fiduciary compliance obligation on the company to share in the obligation of working to address CO₂ emissions in Washington. In this way, adoption of Initiative 732 would send a direct price signal to consumers of natural gas that will have a more direct and immediate influence on their consumption and emissions of natural gas than ERUs or allowances. This sort of “fixed-price” approach to reducing CO₂ emissions in Washington is more appropriate in the context of regulation of natural gas distribution companies because it affirmatively imposes the costs of CO₂ emissions on the actual users of the commodity, not the regulated distributor who has no ability to directly influence or reduce the emissions of its customers.

CNGC therefore requests that Ecology amend the CAR to account for a possible fixed price approach such as the carbon tax program envisioned by Initiative 732. This could be accomplished by including either an additional exemption category under proposed WAC 173-442-040 or an additional method of compliance under WAC 173-443-200. In addition, in case Initiative 732 is not enacted, Ecology should adopt a separate “alternative compliance payment” safety valve, as described in detail in Section VI.A.iv., below.

D. Ecology’s Assumed Average Demand Growth Is Too Low

Ecology uses a 0.75 percent annual demand growth assumption for NGDs in the Preliminary Cost-Benefit and Least-Burdensome Alternative (Cost-Benefit) Analysis.²⁷ However, CNGC’s annual demand growth is projected to be higher—approximately 1.12 percent. It is possible that other NGDs in Washington are also experiencing similar demand growth. Ecology should review publicly available Integrated Resource Plan documentation containing NGD demand growth projections submitted to the WUTC in order to establish an appropriate projection of NGD demand growth in the Cost-Benefit Analysis. We believe that a higher NGD annual demand growth in the Cost-Benefit Analysis would result in higher compliance costs for Washington, and these higher costs must be reflected accurately in Ecology’s Cost-Benefit Analysis.

CNGC’s demand growth also means that CNGC will face an emission reduction obligation in 2017, the first year of the Rule. Although the CAR would set 2017 emission reduction requirements to be equal to a baseline average of emissions from 2012 to 2016,²⁸ in CNGC’s case, our 2017 emissions are expected to be higher than our historic average due to the demand growth referenced above. Therefore, Ecology’s assumption that no compliance obligations occur in 2017 is incorrect. Tables 1 and 2 in the Cost-Benefit Analysis should be updated accordingly considering the demand growth expected by NGDs in Washington.

²⁷ Dep’t of Ecology, Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis; Chapter 173-442 WAC Clean Air Rule and Chapter 173-441 WAC Reporting of Emissions of Greenhouse Gases at 16.

²⁸ *Id.* at 18 - 19.

E. Ecology Should Consider Weather Variation and Remain Flexible in Determining NGD Baselines.

NGDs report natural gas supplied to customers to EPA as required in 40 C.F.R. Part 98 Subpart NN. These reported values reflect actual gas delivered to customers in a year and generally reflect the weather variations year to year. NGDs are obligated to serve customers and natural gas demand can vary significantly from year to year due to weather. As gas usage varies significantly from one compliance year to the next due to weather, it may be challenging for an NGD to plan and obtain sufficient compliance instruments due to the constraints in the CAR for allowances and ERUs. For this reason, CNGC recommends that Ecology provide flexibility for each NGD to determine the most appropriate baseline period or years for use in establishing emission reduction pathways. In addition, the variability of NGDs' gas delivery obligations as a result of weather is another reason to provide more flexibility to use more external market or out-of-state ERUs as discussed in Section VI.A.ii, below.

F. Ecology Should Revise the Proposed Rule to Avoid Unintended Environmental and Economic Consequences.

CNGC urges Ecology to amend the CAR to clarify how the CAR will mitigate the unintended environmental consequences which will result from economic impacts in the form of counterproductive fuel-switching from natural gas to fuel sources that are less efficient and have greater GHG impacts. For example, in many parts of Washington, local clean air agencies are proactively working to reduce air pollution resulting from the use of older wood-heating devices. These agencies rightly view natural gas as a more environmentally friendly, clean-burning alternative and promote migration to natural gas accordingly. However, as the cost of natural gas rises, customers may choose to heat their homes with less-efficient technologies they have on hand, including older wood-burning fireplaces. This trend could exacerbate air quality issues, could potentially put customers at odds with regional air regulations, and—because wood stove emissions are not covered under the Rule—could increase the emission of GHGs into the atmosphere.

CNGC seeks further information on how Ecology intends to mitigate the unintended consequences of switching to less environmentally friendly fuel sources such as wood and wood pellets. In addition, we seek information on how CNGC's most vulnerable customers, those with

an existing high energy burden that must face decisions between paying their energy bills and affording food or medicine, will be protected from the rising cost of energy.

G. Ecology Must Coordinate with the WUTC to Ensure that NGDs' Reduction Obligations under the CAR Do Not Complicate NGDs' Responsibility under State Law to Serve Their Customers' Needs.

As noted in Section III.B., above, an NGD is obligated through Washington law to serve natural gas to customers. This makes it virtually impossible to halt delivery of this energy source as a method of complying with NGD reduction obligations under the CAR. To ensure that NGDs are allowed sufficient flexibility and cost-effective compliance options in order to obtain rate recovery in demonstrating compliance for customer's emissions, CNGC recommends Ecology further engage with WUTC as the Rule is finalized.

In particular, CNGC recommends Ecology engage in further dialogue on the issue of ERU issuance for natural gas sector energy efficiency. To be sure, conservation projects potentially could be an important source of ERUs for NGDs. However, NGD energy efficiency programs are an area over which the WUTC has clear authority. Given the potential for overlapping jurisdiction and confusion about standards and accounting, CNGC seeks a dialogue with Ecology and the WUTC to ensure coordination on this issue of critical importance.

VI. ISSUES RELATED TO COMPLIANCE

A. Ecology Should Address the Unnecessary Geographic and Project-Based Restrictions on ERU Issuance.

As we discuss in other sections, CNGC is concerned that it is possible that the robust ERU market that Ecology assumes will be created under the Rule may not materialize at the pace or volume that Ecology expects. In particular, as we discuss further below, the proposed restrictions on ERU project types and geographic scope, combined with other problems with Ecology's proposed ERU provisions, could severely restrict the number of ERUs that can be made available under the Rule. In addition, as we discuss in Section V.A., above, markets for emission reduction projects under other GHG programs have taken significant time to develop and mature. We would expect similar delays in the availability of ERUs under this proposal.

The possibility that a robust ERU market may not develop creates substantial risk for NGDs and other “upstream” entities that cannot directly reduce their emissions through changes to their operations or the installation of less-polluting technologies. NGDs are required by law to serve their customers’ requirements, and cannot refuse to serve a customer on the basis that doing so would exceed the NGD’s emission target. Therefore, NGDs’ only compliance option under the Rule will be to purchase and surrender ERUs. If a robust market for ERUs does not materialize, NGDs and other upstream entities could be left without compliance options.

We therefore recommend that Ecology revise several of the proposed restrictions on ERU issuance to reduce the possibility that a shortage of ERUs will compromise NGDs’ ability to comply with the Rule. This section describes those recommendations. In addition, at a minimum, Ecology should explain what safeguards are being put into place to ensure that Covered Parties will not be penalized in the event that an ERU market is not fully developed or matured by the start of the Rule’s first compliance period. In this section, we recommend two such safeguards—an alternative compliance mechanism similar to that in other GHG reduction programs, and a variance procedure for extreme cases.

i. Ecology Should Revise the Proposal’s Geographic and Project Type Restrictions on ERU Issuance.

The proposal includes numerous restrictions on the types of emission-reducing activities that can generate ERUs. These restrictions do not appear necessary for ensuring the environmental integrity of the program. Furthermore, these unnecessary restrictions could compromise the ability of Covered Parties to procure sufficient ERUs for compliance. We recommend that Ecology not finalize these restrictions. If Ecology decides to finalize these provisions despite these recommendations, the Department should explain the rationale for the restrictions and explicitly evaluate the implications of these restrictions on the Department’s estimates of entities’ expected costs of compliance.

The first unnecessary restriction relates to the geographic scope of ERU projects. Under the Proposed Rule, all ERUs other than those derived from the conversion of out-of-state emission allowances “must originate from GHG emission reductions occurring within

Washington.”²⁹ This restriction is not necessary to the environmental integrity of the proposal, because reductions of GHGs have the same effect regardless of where they occur. Moreover, if finalized, this restriction could severely limit the number of ERUs that could be made available, because there are likely only a small number of opportunities within Washington to reduce emissions from the listed project types—particularly as compared to the rest of the country.

Other GHG reduction programs do not include such geographic restrictions. For example, California’s cap-and-trade program does not include such geographic restrictions. Indeed, many of the offsets approved for use in the California program are derived from projects located outside California.³⁰

Ecology’s proposal to restrict the issuance of ERUs based on geography is particularly puzzling in light of Ecology’s proposal that entities could use *emission allowances* issued by out-of-state GHG programs for compliance. The retirement of an out-of-state allowance has exactly the same effect on the environment as the avoidance or reduction of a ton of CO₂ by an out-of-state ERU project. In both cases, emissions from outside Washington are reduced by the same amount. Consequently, Ecology’s proposal to restrict ERU project-based crediting to in-state projects while giving credit for other types of emission reductions outside the state is arbitrary and should not be finalized. Rather, Ecology should allow projects located anywhere to generate ERUs as long as the Rule’s other requirements for project type, reporting, and verification are met.

The proposal also unnecessarily restricts the types of projects that can generate ERUs by omitting several important categories of emission-reducing projects. For example, the proposal would not allow forestry projects (including urban forestry projects), coal mine methane reduction projects, rice cultivation projects, and ozone-depleting-substance destruction projects to generate ERUs. Each of these project types is explicitly recognized as a potential source of offsets by California’s cap-and-trade program.³¹ Ecology should revise the proposal to allow

²⁹ Proposed WAC 173-442-100(2).

³⁰ See American Carbon Registry, List of Projects, <https://acr2.apx.com/myModule/rpt/myrpt.asp?r=112> (accessed July 16, 2016); Climate Action Reserve, List of Projects, <https://thereserve2.apx.com/myModule/rpt/myrpt.asp?r=111> (accessed July 16, 2016).

³¹ See California Air Resources Board, Compliance Offset Program, <http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm> (last visited July 16, 2016).

these project types to generate ERUs, or explain why it has arbitrarily excluded these project types from eligibility.

ii. Ecology Should Remove Restrictions on the Use of Out-of-State Allowances and RECs.

CNGC recommends Ecology adjust CAR requirements to reduce restrictions, including removing caps on use of external allowances and allowing out-of-state RECs to be used in compliance. These external instruments are verified through rigorous procedures and CNGC does not believe it is not necessary to place a geographic limit on a GHG reduction. Ecology should allow more of these out-of-state instruments for compliance, since this will reduce costs for NGDs and their customers and improve the availability of compliance instruments overall. This is especially important for CNGC, since NGDs are obligated to serve natural gas to customers and no pollution control technology can be added at customer's location to capture the CO₂ emissions from natural gas combustion. Purchasing ERUs, allowances, or RECs is projected to be the only option for NGDs to comply with CAR.

In addition, under proposed WAC 173-442-170(2)(a), Ecology proposes to gradually reduce the number of out-of-state allowances that could be used for compliance to a low of five percent in 2035 and beyond. The ability to use out-of-state allowances is a crucial component of the CAR—particularly in light of the stringent limits Ecology proposes for ERU issuance. This phase-out of allowance use in later years would also come at precisely the same time that emission reductions become more and more costly as the “low-hanging fruit” in emission reductions is typically “picked” during the earlier phases of compliance. Rather than limiting a crucial compliance and cost-containment option in the later years of the program, Ecology should revise the proposed CAR to allow entities to continue to use allowances for up to 100 percent of their emission reduction obligation throughout the life of the program.

iii. Ecology Should Expand the Scope of Emission Reductions that Can Count Toward Compliance with the CAR.

CNGC also recommends that Ecology modify WAC 173-442-150(1)(e)(i), which does not allow for emission reductions required under other statutes or rules to be used in complying with CAR, except for reductions required under the Clean Power Plan, Washington's GHG emissions standard for power plants, Washington's CO₂ mitigation standards for power plants,

and commute trip reduction programs. It appears that Ecology would not consider other federal or state requirements in reducing GHGs for compliance with CAR and would then require additional emissions reductions beyond what is currently contemplated. EPA recently finalized regulations to reduce methane emitted from municipal solid waste landfills as well as from the upstream oil and gas industry. Also, EPA is expected to finalize rules in the near future that would reduce emissions from airlines and petroleum refineries. All of these reductions should be considered by Ecology in its goals in order to ensure the hurdle is set at the right height for others.

iv. Ecology Should Authorize Alternative Compliance Payments and a Variance Procedure to Address the Possibility that Parties with Mandates to Serve the Public May Be Unable to Comply.

CNGC is concerned that the restrictions on the kinds of projects that can generate ERUs, combined with the phasing out of the use of allowances over time, could result in situation in which NGDs and other entities with a mandate to serve the public would be unable to comply with the Rule without forced curtailment of their customers' use of natural gas. As currently proposed, the only option for relief in cases in which sufficient ERUs are not available for compliance would be an emergency rulemaking followed by a regular rulemaking to amend or suspend an NGD's compliance obligation. In Section V.A., above, we explain the inadequacy of the emergency rulemaking provision as a safeguard.

We therefore recommend Ecology adopt two safety valve mechanisms to ensure that NGDs and other public utilities are not required to choose between serving their customers and complying with the Rule. The safety valves we recommend are an alternative compliance payment option and a variance proceeding for events that are beyond an entity's control. Without these safety valves, NGDs and other entities could be forced to make a choice between violating the Rule or curtailing their customers.

Existing GHG and related programs in Washington, California, and the Northeast all include safety valve mechanisms that ensure that GHG targets established under those programs do not compromise the supply of essential goods and services. For example, Washington's own Emissions Performance Standard for the electric sector allows electric utilities to pay third parties to provide mitigation at a set price if they cannot meet the requirements of the Standard in

other ways.³² Washington’s Renewable Portfolio Standard program also includes an off-ramp provision that allows a utility that cannot procure sufficient quantities of renewable energy to be deemed in compliance if it expends a certain percentage of its retail revenue requirement on renewable energy projects or credits.³³ In addition, both the Regional Greenhouse Gas Initiative and the California cap-and-trade program include “cost containment” reserves of additional allowances that regulated entities can access if they are unable to cost-effectively meet the emission limits under those programs.³⁴ These safety valve provisions are critical to ensuring that each of these long-term climate action programs does not create short-term crises for customers of entities that are regulated under these programs.

In light of Ecology’s chosen program design, we recommend that one safety valve take the form of an alternative compliance payment. Under this mechanism, entities would pay a fixed compliance payment per ton of CO₂ emitted above the Covered Party’s target. Covered Parties should be allowed to exceed their emission target for any compliance period in exchange for an alternative compliance payment to a third party approved by Ecology to implement emission-reducing or sequestration projects in the U.S. By authorizing alternative compliance payments to organizations that implement emission-reducing projects, this mechanism would provide needed flexibility for Covered Parties, assurance to customers that the Rule will not lead to critical shortages of natural gas and other necessities, and funding for emission reduction projects in other sectors. To ensure that alternative compliance payments would be as effective as possible, Ecology could pre-approve recipient entities based on criteria such as independence, efficacy, and experience in developing emission-reducing projects, and could require these entities to periodically report to Ecology how they use their revenue.

In addition to an alternative compliance payment option, Ecology should establish a clear, streamlined variance process through which entities could request relief from their compliance obligations if they expect to exceed their emissions target by more than 25 percent. Covered Parties that can demonstrate that they are unable to comply with their target due to

³² See RCW 80.70.020(3)(a).

³³ See WAC 194-37-200 and RCW 19.285.050.

³⁴ Regional Greenhouse Gas Initiative, The RGGI CO₂ Cap, <http://www.rggi.org/design/overview/cap> (accessed July 17, 2016); California Air Resources Board, Auction and Reserve Sale Information, <http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm> (accessed July 17, 2016).

factors beyond their control should be relieved of their obligations until these factors are no longer present.

B. Specific ERU Generation Project Issues.

i. Ecology Should Work with the WUTC and NGDs to Clarify the Process for ERU Issuance for Natural Gas Efficiency.

Proposed WAC 173-442-160 would allow NGDs to generate ERUs for natural gas energy efficiency projects. CNGC supports this provision, but urges Ecology to work directly with NGDs and the WUTC to clarify the types of projects that would be eligible, and the process for assigning ERUs for such projects. At a minimum, Ecology should clarify that NGDs that pay for energy efficiency projects or programs would receive the ERUs associated with those projects. Further, Ecology should work with the WUTC and NGDs to clarify how the overlapping jurisdiction of the WUTC and Ecology over natural gas sector energy efficiency relates to the issuance of ERUs under the CAR and to utilities' obligations under the WUTC's statutes and regulations.

ii. Ecology Should Allow Diesel- and Gasoline-to-CNG Fuel Switching for the Transportation Sector.

Ecology must clarify how it intends to account for increases in natural gas combustion associated with a vehicle fleet fuel switch from diesel to compressed natural gas (CNG). Although the fuel switch would result in a lower amount of emissions and generation of ERUs, NGDs that elect to pursue these reductions may have their ERU generation benefits offset by a subsequent increase in emissions associated with the increase in sales of natural gas to the fleet for the fuel switch. In addition, the protocol that Ecology cites, *Improved Efficiency of Vehicle Fleets* from the American Carbon Registry, does not include methodology that addresses a vehicle fleet fuel switch from liquid to gaseous fuels, even though that switch would result in an overall reduction in GHG emissions. CNGC recommends that Ecology identify the protocol or procedures necessary to successfully generate ERUs from a fuel switch from more carbon-intensive fuel to natural gas. For example, procedures for determining CO₂ reductions from fuel switching in transportation applications have been developed under the Low Carbon Fuel Standard regulation in California, and other states may have similar procedures.

iii. Unit of Measurement for Natural Gas Conservation

Under proposed WAC 173- 442-160(5)(a)(iv), natural gas conservation and efficiency must be expressed in units of megawatt-hours (MWh) using procedures established by the WUTC. However, to CNGC's knowledge, the WUTC does not have established policies for converting a therm of energy savings into MWh. Since the NGDs will be focused on the conservation of natural gas, and addressing the efficiencies of natural gas used directly for space and water heat, CNGC recommends the CAR be amended to use of therms for the purpose of calculating ERUs achieved through conservation as opposed to the use of MWh.

CNGC spoke with WUTC staff in June. Staff stated that they do not have a procedure for converting from therms to MWh. WUTC also stated that the inclusion of this requirement may have resulted in a misunderstanding between Ecology and WUTC when the agencies had discussions about the revised rulemaking. CNGC recommends that Ecology remove these requirements from the CAR. The conversion to MWh would not be necessary if an ERU would be generated for compliance with NGD operations, as saved therms can readily be converted directly to avoided GHG emissions. Requiring a conversion to MWh implies that this type of ERU could only be used for avoided natural gas combustion in the electric sector; CNGC does not believe that Ecology was intending for that restriction in the Rule. Natural conservation and efficiency should be expressed in terms of therms and then converted to CO₂ emissions using an EPA emission factor under 40 C.F.R. Part 98 Subpart NN. One ton of CO₂ saved would equal one ERU.

iv. Ecology Should Clarify the Treatment of Federal Facilities Utility Energy Services Contracts.

CNGC seeks further clarification on the inclusion of federal facilities within our service area. We note that U.S. Joint Base Lewis-McCord is listed as a Potentially Eligible Party. CNGC is neutral as to the inclusion of federal facilities in this Rule. However many investor-owned utilities, including CNGC, engage with these facilities through Utility Energy Services Contracts (UESCs), which are authorized by the U.S. Department of Energy.³⁵ A UESC is a limited source contract between a federal agency and its serving utility for the provision of energy and water conservation and other associated energy improvements. Significant

³⁵ 42 U.S.C. § 8256 (2012).

environmental improvements and energy reductions can be made through the use of a UESC partnership in which the utility offers these services directly to the federal facility. Since UESC agreements operate outside the regulated conservation programs typically operated by a utility, and in acknowledgement of the rigorous pre-screening, planning, and oversight associated with these efforts, CNGC recommends that the CAR be amended to clarify that these projects can generate ERUs attributable to the utility.

C. NGD Emissions Reporting Verification, Monitoring and Recordkeeping Is Unnecessarily Onerous.

Ecology has amended Chapter 173-441 WAC to include new section 173-441-085 which would require NGDs that exceed the compliance threshold under WAC 173-442-030, to have their annual GHG reports verified by a third party. For consideration, GHG emissions that NGDs report to Ecology are equivalent to the GHG emissions reported under 40 C.F.R. Part 98 Subpart NN to the EPA. CNGC notes that there appears to be a difference in EPA's large customer threshold versus Ecology's large customer threshold. However, it is not expected that the data reported by NGDs would be different. Considering that there is virtually no difference in the data reported to EPA and Ecology, and that EPA does not require third-party verification of Subpart NN data, Ecology should not require third-party verification of this data.

EPA understands that the quantification and billing of NGD gas sales are monitored under the oversight of state regulatory commissions. Gas meter accuracy checks and calibrations are required to be performed at periodic intervals per Chapter 480-90 WAC which is administered under the authority of the WUTC. CNGC believes that requiring third-party verification and on-site visits by verifiers to review the same calculations and flow monitoring that is already implemented under the oversight of the WUTC would be unduly burdensome and costly, and would not provide any additional benefit to customers. To address this concern, CNGC recommends that Ecology provide an exemption for NGDs under WAC 173-441-085(2) as shown below:

(a) Covered GHG emissions under chapter 173-442, that are a result of combustion of natural gas delivered to an end user from an NGD, are exempt from third-party verification requirements.

Considering that CNGC manages thousands of meters within the distribution system to quantify gas sales that would also be used to determine emissions from customers, there is an excessive burden for NGDs in complying with the current requirements in WAC 173-441-050(8) Calibration and accuracy requirements. CNGC notices that the last sentence of the general section of this requirement appears to apply a special consideration for suppliers, as it states, “Suppliers subject to the requirements of this chapter must meet the calibration accuracy requirements in chapters 308-72, 308-77, and 308-78 WAC.”³⁶ However, the rules cited here appear to be transportation fuel-related, and Ecology should amend this requirement to include some additional citations for natural gas suppliers. We recommend Ecology work with NGDs to determine what the appropriate rule references would be to address NGD calibration requirements already required by WUTC. CNGC believes that the following rule references may be the applicable requirements to cite, but again recommends that Ecology work with NGDs to finalize this in the Rule text: WAC 480-90-308, -338, -343, and/or -348.

CNGC also expects that there are exceptionally burdensome recordkeeping requirements under WAC 172-441-050(6) that are already addressed under WUTC requirements as appropriate. These issues emphasize the importance of Ecology working thoroughly with WUTC to address requirements in this rule where NGDs should be exempt due to that agency’s existing oversight.

D. Ecology Should Conduct a Robust Evaluation of ERU Project Potential and ERU Availability.

Other cost effective ERU generation opportunities may be available for Covered Parties to use for compliance, but the availability of these compliance instruments is unknown. CNGC requests that Ecology elaborate on the potential ERU availability from natural gas conservation, CNG fuel switching, biomass combustion, dairy methane digester, and combined heat and power projects in Washington as well as in other states in order to obtain a better understanding of ERU generation potential and availability of ERUs from these types of projects.

³⁶ WAC 173-441-050(8).

E. Covered Parties Should Not Be Penalized for Incorrectly Issued ERUs.

It is possible that in certain cases, emission-reducing projects would generate fewer actual emission reductions than they receive credit for—either due to actual fraud on the part of the project operator or due to simple measuring errors, clerical errors, or miscalculations on the part of a third-party verifier. Ecology should clarify how discrepancies in ERU issuance will be addressed during the program. CNGC recommends that Ecology include provisions in the Rule to hold Covered Parties harmless for subsequently discovered inaccuracies in ERU issuance. Covered Parties that purchase ERUs from verified and approved projects should be entitled to the presumption that these credits are valid, and should not be penalized for the fraud or error of others. Rather than penalizing the Covered Party using the incorrectly issued ERU, Ecology's enforcement power should be directed at the project sponsors and verifiers that allowed the incorrectly issued ERU to be issued in the first place. In addition to facing penalties, these project sponsors could be required to procure additional emission reductions to make up for the emissions shortfall that results from the use of incorrectly issued ERUs.

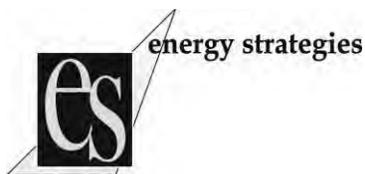
VII. CONCLUSION

Thank you for your consideration of our comments. As CNGC set out at the beginning of our comments, none of the statutory provisions Ecology has identified would authorize Ecology to regulate non-sources, such as natural gas distributors, for the emissions of their downstream customers, and the Washington CAA can only be read to authorize Ecology to regulate emissions at the facilities where they are emitted. However, if Ecology chooses to go forward with a final rule that includes natural gas distributors, we respectfully request that Ecology consider our comments and make adjustments to the rule requirements as we suggest. This will be essential in order to minimize the increase in cost to our customers and our operations.

Critique of
Washington Department of
Ecology's Preliminary Cost-Benefit
Analysis – June 2016 *Publication no.*
16-02-008

*A Critique Prepared by Energy Strategies, LLC for the
Association of Washington Business*

July 21, 2016



Power Through Ideas

Acknowledgements

The analysis presented in this report was prepared by Energy Strategies, LLC, under contract to the Association of Washington Businesses. Jeff Burks, Hollie Hohlfelder, and Gibson Peters, Richard Anderson, Daniel Ramirez and Don Hendrickson all contributed to the research and analysis contained in this report.

The report represents the findings and conclusions of Energy Strategies.

I. Introduction

A. Executive Summary

The Washington Department of Ecology's (Ecology) cost-benefit analysis, as presented in the June 2016 Preliminary Cost-Benefit and Least-Burdensome Alternative Analyses (CBA), does not constitute a robust or accurate assessment of the costs faced by Washington businesses to comply with the proposed Clean Air Rule (CAR) or the benefits. Ecology's compliance cost estimate has failed to accurately project the costs of compliance through gross errors in its CBA. Ecology systematically ignored best practices and federal guidelines in accounting for the benefits of CAR which result in estimates in the CBA that are overstated and not reflective of the benefits to Washington residents, households and businesses.

Ecology assumed a significant portion of the compliance obligations for the rule would be met through emission reduction units (ERUs) as opposed to covered parties reducing their greenhouse gas (GHG) emissions. Ecology provided no analysis that ERUs will be available in a sufficient quantity to meet the compliance obligation. Furthermore, the CBA implies limitless supply through its unchanging prices over a twenty-year period despite demand that increases every year. Ecology also used inappropriately low proxy prices for ERUs. Prices from the national, voluntary Renewable Energy Credit (REC) market are an artificially low proxy for compliance ERUs from RECs that must be from renewable energy physically located in Washington. Prices from national, voluntary carbon offset markets are an artificially low proxy for compliance ERUs from projects that must be located in Washington, and includes a small subset of projects that are allowed in the voluntary market (notably, forestry/sequestration is excluded from the Clean Air Rule). Ecology also used an unchanging allowance price as a proxy for ERUs sourced from multi-sector GHG programs, despite a regulatory floor price escalating the price for California/Quebec allowances by 5% annually in real terms. Ecology also used an inappropriate source for estimating the costs of businesses that have the opportunity to reduce their greenhouse gas emissions through on-site (facility) investments.

Ecology inflated the estimated benefits of the Clean Air Rule by only accounting for the global benefits and not attempting to estimate and report the domestic or local benefits to Washington State. Ecology estimated that the global benefits of avoided GHG emissions due to the Clean Air Rule amounted to \$14.5 billion in 2036. Had the agency chosen to report the benefits from the domestic or local perspective the benefits would have been significantly lower. Ecology's method to calculate the present value of benefits was incorrect. As a result the reported present value benefits in the CAR cost benefit analysis are inaccurate and unreliable.

Finally, the selection of the discount rate is critical to estimating the benefits of the rule. Ecology ignored standard practice in cost benefit analysis to report benefits

using a range of discount rates to quantify benefits. Instead Ecology selected a single low 2.5% discount rate to ensure the highest sum of benefits.

Ecology's cost-benefit analysis is not a realistic assessment of the costs faced by Washington businesses to comply with the proposed Clean Air Rule. The methods used by Ecology to estimate the per-MTCO₂ costs of compliance are inadequately supported, unrealistic and oversimplified. Ecology's presentation of potential benefits from the proposed Clean Air Rule, are substantially inflated and unreliable and if corrected could show that probable costs of the rule exceed the probable benefits.

B. Background

Ecology released a proposed Clean Air Rule (Chapter 173-442) on June 1, 2016. The rule, described informally as "cap and reduce," establishes GHG emissions reduction standards for certain entities in Washington. Generally, the entities that will have near-term compliance obligations under the rule are those that emit 100,000 metric tons of carbon dioxide equivalents (MT CO₂) each year. This threshold drops by 5,000 MTCO₂ every three years until the threshold is 70,000 MTCO₂ in 2035.

A baseline is established for each emitter, and the emitter's cap is equal to the baseline the first year of the compliance obligation. For subsequent years, the cap ratchets down by an additional 1.7% of the baseline. Each emitter is required to either reduce its emission to the level of the cap or to effectively "offset" its emissions through a variety of prescribed methods that can generate emission reduction units (ERUs). The program covers much of the industrial sector, the power sector, and the waste sector, as well as natural gas and transportation fuels.

To comply with the emissions reduction standards in the CAR, entities may:

- Submit GHG reporting data that shows the compliance obligation was met,
- Submit ERUs that equal the compliance obligation, or
- Some combination of these two that meets the amount of the compliance obligation.¹

Note that one ERU is intended to represent one MTCO₂. The types of projects, programs, and activities that can generate ERUs are prescribed in the rule. Ecology presented no analysis in its CBA of the availability of ERUs. In the CBA, Ecology approaches its analysis of the costs by assuming compliance entirely through on-site reductions, entirely through Washington projects/programs (which would generate ERUs), or entirely through allowances (which may generate ERUs to a limit per entity as prescribed in the rule). For each of these compliance approaches, Ecology created a low and high cost scenario, but did not attempt to model a realistic mix of approaches based on cost-effectiveness or availability. Ecology acknowledges that entities are likely to pursue a cost minimizing "mix" of compliance approaches, but it

¹ Clean Air Rule 173-442-200.

does not acknowledge the limits on allowances, or the potential limited availability of ERUs. It acknowledges that on-site reductions “might be limited or not exist” for some covered entities only in text; the modeling and calculations do not reflect this reality.²

Seeking to understand the costs of compliance and to determine the validity of the CBA that was released with the rule, the Association of Washington Business (AWB) engaged Energy Strategies to critique Ecology’s compliance cost and benefit estimates, and to prepare this report.

II. Critique of Ecology’s Cost of Compliance Estimates

A. Ecology’s costs of compliance estimates are inaccurate and unreliable.

Ecology’s estimate of the cost of compliance significantly underestimates the cost covered firm and sources will face in meeting the Clean Air Rule’s emissions standards. The estimated cost of \$1.3-\$2.8 billion is unreliable and has been derived without a credible assessment of the availability of emissions reduction opportunities in Washington or the costs of implementing those measures. Ecology’s assessment of costs consistently adopted assumptions that underestimate the likely costs of on-site and off-site emissions reduction projects; did not attempt to quantify the amount of CO₂ emissions reductions that could be achieved in Washington by known technological processes, practices and offset projects; selectively picked low prices from referenced sources for its cost analysis; and did not account for the impact Ecology’s geographic restrictions on emissions reduction instruments would have on supply and costs of compliance measures.

In an effort to create a more realistic alternative cost of compliance analysis Energy Strategies reviewed mandatory compliance markets for allowances and CO₂ offsets and evaluated the supply and costs of offsets; evaluated costs of CO₂ reductions from trip-reduction programs, livestock anaerobic digester projects; natural gas energy efficiency potential in the residential, commercial, and industrial sectors; and accounted for known and expected price increases of California carbon credits (allowances) and other price forecasts of carbon prices. Taking into account findings from this research Energy Strategies develop a price curve for CO₂ emissions reductions over the 20 year compliance period. Following this approach Energy Strategies estimates the cost of compliance with the proposed rule to be \$5.7 billion, or more than two to four times the compliance costs estimated by Ecology.

B. Ecology failed to assess the potential available supply of ERUs.

Ecology did not assess the potential for carbon dioxide emissions reductions for the covered entities individually, as groups, or as a whole. It assigned a price for on-site

² Washington Department of Ecology, Preliminary Cost-Benefit and Least-Burdensome Alternative Analyses, June 2016, at 13 (hereafter, “CBA”).

reductions at facilities (discussed later) but did not discuss, analyze, or estimate the potential cost for non-facility covered entities that might need to sell less of their product to meet the compliance obligation. Ecology’s CBA instead shows that the proposed rule is assumed to work primarily through the mechanism of ERUs—which are essentially carbon offsets. Ecology has provided no analysis or evidence that there will be an adequate supply of ERUs, despite the CBA showing that the most of the compliance obligation will need to be met through this mechanism.

Petroleum producers/importers and natural gas LDCs have 70% of the compliance obligation 2017–2036 using Ecology’s calculations and growth assumptions. If Ecology’s growth assumptions are removed, these two categories have 76% of the compliance obligation under the proposed rule. As discussed above, these covered entities cannot use on-site reductions to reduce emissions, which other covered facilities might be able to use. This means that most (estimated at roughly 70% to 76%) of the compliance obligation from this rule must be achieved through the purchase of ERUs.

ERUs may be sourced from exceeding the compliance obligation, voluntary participants, in-state projects and programs, and (with limits) allowances from multi-sector GHG programs. ERUs from entities exceeding the compliance obligation and ERUs from voluntary participants were not included in the CBA. This is probably the best assumption, as these categories are likely to be very small sources for ERUs. Ecology’s CBA focused on in-state projects/programs and allowances. The table below uses Ecology’s estimates of the compliance obligation³ in two sample years to illustrate the vast quantity of ERUs that will be required.

Table 1
Ecology’s Estimate of the Compliance Obligation
for Two Sample Years

		2025	2036
Compliance Obligation in metric tons of Co2	Facilities	2,062,626	4,999,913
	LDCs	1,451,844	3,253,273
	Petroleum	<u>3,536,470</u>	<u>8,384,407</u>
	Total	7,050,941	16,637,593
Amount that (per rule) can be sourced from allowances from multi-sector GHG programs		3,525,470	831,879
Amount that must be sourced in Washington (e.g., total minus allowances)		3,525,471	15,805,714

Ecology provided no analysis to show that this amount of ERUs—nearly 16 million in 2036—might be available. Even with the herculean assumption that all *covered stationary facilities* can meet their obligation without purchasing ERUs, this still means there will be a demand for 10.8 million ERUs. The balance of supply and

³ Ecology’s spreadsheet “CALCULATIONS cost of emissions reduction.xlsx”

demand is a fundamental influence in setting prices. With this rule, there will be substantial demand for a product that essentially does not exist in Washington. And yet, there was no analysis to estimate the supply. The implication in the CBA is that there will more than enough supply to keep prices quite low. Estimating prices without first assessing supply options within the state is an analytical error in Ecology's approach that results in inaccurate and unreliable price proxies for ERUs.

C. Ecology's implied assumption that there will be an adequate supply of ERUs cannot be supported by the experience from existing GHG regulatory markets.

The proposed rule's limitations on the sources that qualify for ERUs are particularly restrictive, and Ecology's implied assumption that over 10 million of ERUs will be available annually for compliance is not supported by evidence from other GHG regulatory markets.

The Climate Trust lists a number of Washington projects that are active or completed and have generated carbon offsets. The total carbon offsets to date from these projects (excluding forestry projects, because forestry is excluded from CAR) is 335,753.⁴

British Columbia has a "carbon neutral government" policy, and requires carbon offsets for the CO₂ its government produces annually. British Columbia purchased 0.7 million carbon offsets in 2014 to offset 2013 emissions,⁵ and purchased 0.8 million in 2013.⁶ These low numbers would be further reduced, if forestry/sequestration projects were not included. In 2014, 64% of the carbon offsets were forestry/sequestration, and in 2013, 50% were. So the amount of offsets British Columbia purchases annually that would be equivalent to Washington-sourced ERUs is a few hundred thousand.

California, which allows carbon offsets to be sourced from anywhere in the continental US (unlike the CAR rule, which requires projects to be in-state), has only generated a cumulative total of 1.6 million early action and 0.7 million compliance offsets from livestock (dairy) anaerobic digester projects since 2012.⁷ More interesting is the fact that of the 62 livestock projects generating and selling carbon off sets in to the California's GHG compliance market only two projects are located in California.⁸ California's dairy industry is six times the size of Washington's dairy

⁴ <https://www.climatetrust.org/work/portfolio/>

⁵ <http://www2.gov.bc.ca/gov/content/environment/climate-change/reports-data/carbon-neutral-action-reports/2014#offsets>

⁶ <http://www2.gov.bc.ca/gov/content/environment/climate-change/reports-data/carbon-neutral-action-reports/2012#offsets>

⁷ There are other projects that qualify for California allowances, but since Washington would not allow those project types, only the livestock carbon offsets are shown for comparison to Washington ERUs.

⁸ http://www.arb.ca.gov/cc/capandtrade/offsets/issuance/arb_offset_credit_issuance_table.pdf

industry and the average number of cows per farm is more than twice the size of Washington's farms.⁹ The critical size threshold for economically viable dairy anaerobic digester projects is considered to be 3,500 cows and the number of California dairies of this size is almost ten times that of Washington's 14 dairies. The fact that only two California dairies are participating in the California offset market is strong evidence that the supply of ERUs from this type of project will be small or non-existent in Washington.

In summary, Ecology's CBA implies that as many as 10.8 million carbon offsets (ERUs) will be available from in-state projects and programs in 2036, when evidence from other GHG programs shows that a few hundred thousand carbon offsets would be a more reasonable estimate.

D. Ecology failed to evaluate whether an adequate supply of supply of ERUs will be available in Washington to enable covered sources to comply with the CAR.

Renewable energy in excess of the Energy Independence Act and sited in Washington is a potential source for ERUs.¹⁰ The rule requires RECs to be converted to ERUs at the rate of 2.25 RECs to 1 ERU.¹¹ The amount of wind energy generated in Washington in 2014 was 7,266,000 MWh, and in 2013, it was 7,004,000.¹² Using the 2.25 conversion, this amount of wind energy would only equal 3.1 million to 3.2 million ERUs annually. Of course, these RECs are likely already used to comply with Washington's Energy Independence Act, so they would be ineligible for CAR ERUs. The intention is to illustrate that the entire installed base of wind in Washington would only generate enough ERUs to meet 30% at best of the demand for ERUs in the later years of this rule (3.2 million out of 10.8 million for the non-facility compliance obligation). Ecology did not provide any analysis as to the amount of additional renewable energy that could be built in Washington, given transmission constraints, economic viability (as it would compete primarily with hydroelectric generation), or other considerations.

Transportation is another category that has specific programs that can be sources of ERUs.¹³ One ERU source would be to exceed the workplace goals of the Washington's commute trip reduction (CTR) program. The CTR's website indicates that since the program began in 2007, "CTR participants have prevented about 69,000 metric tons of GHG from entering the atmosphere each year."¹⁴ If these reductions counted as ERUs, that would be 69,000 ERUs generated, compared to the

⁹ US Department of Agriculture, see <http://www.ers.usda.gov/data-products/dairy-data.aspx#48505>, and the Progressive Dairyman http://www.progressivepublish.com/downloads/2016/general/2015_pd_stats_highres.pdf

¹⁰ Clean Air Rule 173-442-160 (5).

¹¹ Clean Air Rule 173-442-160 (5) (c) (iii)

¹² http://www.eia.gov/electricity/annual/html/epa_03_18.html

¹³ Clean Air Rule 173-442-160 (3)

¹⁴ <http://www.wsdot.wa.gov/Transit/CTR/overview.htm>

10.8 million or more that will be required in 2036. However, because these reductions would not be considered additional, they don't count as ERUs—the proposed rule indicates the emissions reductions must be *exceed* the CTR workplace goals to qualify as ERUs.¹⁵

Both the 2013 and 2015 CTR reports to the legislature prominently state that 84% of individuals' trips are *not* included in the CTR, because they are not work-commute trips. In fact, these reports highlight that the CTR program only covers 4% of trips (because the trips are not work-commute trips, or because the employer is not included).¹⁶ As a category, Transportation is the largest category source of GHG emissions for Washington. However, the number of ERUs that could be derived from this transportation program is very small because the CTR program only covers 4% of trips, and because the rule only allows an ERU to be created if workplace goals are exceeded. Given this restriction and limitation the estimated maximum amount of trip-reduction ERUs available from the CTR program in its current format (assuming a quarter of all work-commute-related VMT are addressed by the CTR, consistent with the methodology above) is only 1.6 million MtCO₂ annually and this is only possible if all eligible employers and employees participate.¹⁷

Ecology provided no analysis of the quantity of carbon offsets potentially available from in-state projects and programs. Looking at just these two large categories of renewable energy and transportation, however, quickly points to the fact that there will be a very inadequate Washington-sourced ERU supply from these measures in the later years.

E. Ecology did not use a relevant source to estimate the costs of on-site CO₂ emissions reductions for Washington covered facilities.

Ecology's cost estimates for onsite emissions reductions are not based on company-specific engineering estimates, which potentially could have been gleaned by conducting surveys of affected entities. Ecology used a high price of \$57 per metric ton of Co₂ and a low price of \$23 per metric ton to estimate the costs of investing in reducing on-site emissions for facilities. These price estimates do not represent the actual costs faced by Washington businesses.

Ecology relies solely upon the Intergovernmental Panel on Climate Change (IPCC) report from 2007¹⁸ to provide estimates of the costs of on-site emissions reductions.

¹⁵ Clean Air Rule 173-442-160 (3) (b)

¹⁶ *CTR Report to the Washington State Legislature 2011*, Washington State Commute Trip Reduction Board, http://www.wsdot.wa.gov/NR/rdonlyres/67C887DB-1FEA-4216-8159-9F9661B18673/0/CTRBoard_Report_2011Web.pdf and *2015 Report to the Legislature*, Washington State Commute Trip Reduction Board, http://www.wsdot.wa.gov/NR/rdonlyres/5A3878AF-C379-4BE5-9EB0-3310DBDB84DB/0/CTR_LegislatureFolio2015_WEB.pdf

¹⁷ Energy Strategies Technical Working Paper: WDOE Cost-Benefit Analysis & ERU Pricing Transit Options, Table 4 p. 3.

¹⁸ <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter7.pdf>

This report is an inappropriate source of cost information because abatement costs and assumptions calculated by the IPCC are dated, global, and do not constitute a reliable estimate of the costs faced by Washington businesses to comply with the Clean Air Rule. Numbers from this report are based on studies older than 2007, and are high-level estimates of the global potential for industrial reductions. The state of industry and energy efficiency prior to 2007 in a global report clearly does not represent the sophisticated and modern manufacturing technology current being used in Washington State in 2016. By using these assumptions, Ecology has underestimated the costs associated with on-site energy efficiency projects in Washington.

Even within the report, Ecology appears to have been selective in the data it chose to use as proxy costs. For example, Ecology picked the low and high price of \$20 and \$50 (and then escalated them to \$23 and \$57 for inflation) when the report clearly shows price estimates ranging from below \$20 to below \$100.¹⁹

The reports' authors have caveated the data presented extensively. Regarding the price per ton estimates presented in Table 7.8, the report says, "Table 7.8 should be interpreted with care. It is based on a limited number of studies—sometimes only one study per industry—and implicitly assumes that current trends will continue until 2030." Despite these caveats, the age of this report, and the global scope, this report was the only report Ecology used to estimate the cost at which facilities in Washington could reduce their on-site emissions.

For industrial plants, manufacturing facilities and LDCs, the most obvious, opportunities to reduce natural gas consumption and CO₂ emissions is through investments in energy efficiency programs. Based on an Energy Strategies analysis using results and public data from a 2015 an energy efficiency potential study prepared by Cadmus,²⁰ the potential emissions reductions from energy efficiency projects undertaken by customers of Washington's LDCs indicates there is not enough potential on-site energy savings and CO₂ emission reductions to meet CAR's emission reductions standards. Ecology requires LDCs to reduce emissions by 3.25 Million Metric Tons (39% after growth) from its estimated baseline. However, according to the analysis, LDC's only have the potential to reduce emissions by 1.4 Million Metric Tons (17%) if all potentially achievable energy efficiency projects are successfully implemented. The important point is that these are "potentially achievable" energy efficiency projects and does not reflect that the savings will be easily implemented or without significant costs. In fact, using levelized cost per therm-saved from the Cadmus data base, the weighted average costs of these

¹⁹ See for example Table 7.8 on page 474, <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter7.pdf>

²⁰ Comprehensive Assessment of Demand-Side Resource Potentials (2016-2035), Puget Sound Energy, November 1, 2015

emission reductions are \$680/MTCO₂.²¹ Even if all potential savings and emissions reductions were achieved, the costs of doing so on a \$ per MTCO₂ basis dwarfs the cost Ecology assumes emissions reductions can be achieved.

F. Ecology used inappropriate sources to estimate the price out ERUs in its Cost Benefit Analysis.

The rule creates significant demand for geographically restricted, project-restricted mandatory carbon offsets (ERUs), and this is not reflected in the prices used in the CBA to determine the costs of compliance.

Ecology used three proxies to price out ERUs: Renewable Energy Credits (RECs), national voluntary market carbon offsets, and historical California/Quebec carbon allowances.²²

Ecology's use of prices from voluntary, national REC markets to estimate prices for in-state RECs is inappropriate, and grossly underestimates the price of ERUs from this category. Ecology used \$3 per metric ton of CO₂ as the low price for this category, and \$11 as the high price. It is irresponsible to use voluntary market prices to approximate cost for a compliance REC market, when compliance REC market prices are available from the same source and website from which Ecology took the voluntary REC prices.²³ Ecology is clearly developing a compliance market for RECs with the proposed rule and should have used the compliance market prices. Thirteen states in the US have compliance REC markets. The REC prices for these compliance markets range from \$1 to \$50 per MWh and average \$26.60 per MWh. These REC prices equate to an ERU price range of \$2.25 to \$112.50, with the average REC price equating to an ERU price of \$59.85. Ecology has misrepresented the costs associated with a compliance REC market by cherry-picking low REC prices from voluntary markets, when REC compliance market prices are readily available from the same source.

Ecology's use of prices from voluntary, national carbon offset markets to estimate prices for in-state non-forestry projects is inappropriate, and grossly underestimates the prices of ERUs from this category. Ecology used \$5 per metric ton of CO₂ as the low price, and \$29 as the high price. The global average price of voluntary carbon offsets is not a suitable proxy for the price of the mandatory ERUs contemplated by the Clean Air Rule. According to the Ecosystems Marketplace report, North American-based carbon offsets sold for twice the price in compliance

²¹ Energy Strategies Technical Working Paper: Cost and Supply of On-Site Carbon Emission Reduction Units Available

From LDCs and Covered Facilities Investments in Demand Side Resource Projects, July 2016 at 2

²² CBA at 13 – 15.

²³ Ecology's citation: "All historic REC prices: US Department of Energy (2016). Renewable Energy Certificates, REC Prices.

<http://apps3.eere.energy.gov/greenpower/markets/certificates.shtml?page=5> Voluntary Markets for RECs."

markets compared to voluntary markets in 2014. This “doubling” would still ignore the price impacts that would result from the geographic restrictions (the carbon offset must originate from an in-state project or program) and various project restrictions (e.g., no forestry) included in CAR. The supply of carbon offsets that comply with CAR may be extremely limited, driving prices far higher.

Ecology’s use of historical California/Quebec carbon allowance prices does not consider future changes in those programs. Ecology used \$13 per metric ton of Co2 for its low price, and \$14 for its high price, a notably narrow range. Ecology also failed to recognize the proposed rule’s limits on the use of California allowances in its CBA calculations. Ecology priced out the entire compliance obligation at the low and high allowance price, then used this allowance cost estimate as part of its mathematical average for its overall cost estimate. Ecology acknowledges the limits in allowances in the CBA qualitatively, but there is no quantitative acknowledgement of the issue in the calculations.

As discussed earlier, one type of in-state project that the proposed CAR cites as a source for ERUs is exceeding the workplace goals for the CTR program. Energy Strategies developed an estimate of the cost for ERUs from this program by using data provided in the 2011,²⁴ 2013²⁵, and 2015²⁶ CTR reports to the legislature. The direct current annual cost to Washington for the CTR program is \$2.75 million in tax credits, and \$3.2 million for the program. This does not represent all the costs, however. The 2011 report notes that, “In 2006, the latest year for which data is available, employers invested \$45 million in their CTR programs, more than \$16 for each dollar invested by the state.”²⁷ And the 2013 report notes that, “for every \$1 in public funds expended for CTR, employers spend \$18.”²⁸ This would provide a total cost for the GHG reductions at more than \$50 million per year. The emissions reductions are estimated by the CTR board at different levels in each year’s report—from a high of 71,500 in the 2011 report, to 69,000 on the CTR website, to 17,000 in the 2013 report, and a low of 14,700 in the 2015 report (all metric tons per year). Netting out motor gasoline saved from reduced trips as reported in the CTR reports and dividing the net program costs million by quantities of reported metric tons of GHG emissions reduced provides a high-level cost estimate of Washington sourced ERUs between \$360 and \$2,854 each.²⁹ A greenhouse gas emissions cost effective

²⁴ *CTR Report to the Washington State Legislature 2011*, Washington State Commute Trip Reduction Board, http://www.wsdot.wa.gov/NR/rdonlyres/67C887DB-1FEA-4216-8159-9F9661B18673/0/CTRBoard_Report_2011Web.pdf

²⁵ *2013 Report to the Legislature*, Washington State Commute Trip Reduction Board, http://www.wsdot.wa.gov/NR/rdonlyres/209016AB-3FCB-4B3D-88A6-B3A7331FC540/0/REVISED_CTRFolio2013_WEB.pdf

²⁶ *2015 Report to the Legislature*, Washington State Commute Trip Reduction Board, http://www.wsdot.wa.gov/NR/rdonlyres/5A3878AF-C379-4BE5-9EB0-3310DBDB84DB/0/CTR_LegislatureFolio2015_WEB.pdf

²⁷ 2011 CTR Report at page 8.

²⁸ 2013 CTR Report at page 3.

²⁹ Energy Strategies Technical Working Paper: WDOE Cost-Benefit Analysis & ERU Pricing Transit Options, Table 2 p. 2.

analysis for trip reduction programs prepared for LA Metro Transportation Authority showed similar prices for reduced metric tons of CO₂ that ranged between \$30 - \$380 with a weighted average price per MTCO₂ reduced of \$125.05.³⁰

Livestock methane capture and anaerobic digestion projects are another qualifying emissions reduction measure Ecology has identified in the CAR. Analysis conducted by Energy Strategies on the cost per metric ton CO₂ reduced and volumes of CO₂ reduced indicate this is another ERU in-state project that is significantly more costly than Ecology's estimates for off-site projects and has limited potential to contribute to meaningful emissions reductions. The levelized cost per MTCO₂ reduced from a project developed at a 3,500 cow dairy is estimated to be \$78.50 is the generators burning the methane operated at a 94% capacity factor.³¹ Emissions reduction over 20 years is 279,413 metric tons, or 27,943 tons per year.³² A 3,500 cow dairy is the threshold size investors consider to be financially viable. If every Washington dairy of this size, 14, were to develop an anaerobic digester methane-power project, the total emissions reduced annually would be 391,174 MTCO₂.

Ecology has systematically chosen low prices to estimate costs of compliance with this rule, and failed to conduct any meaningful research or analysis on costs for emissions reductions that would qualify under CAR. Even given the opportunity to evaluate a Washington State Government program that had estimated cost, savings, and emissions reductions metrics, Ecology chose not to do the analysis and obtain more state-specific information on costs.

G. Ecology's creation of a compliance cost "range" is a misleading mathematical average of cost estimates from four unrealistic compliance paths.

Ecology's CBA relies on "on-site reductions" as a proxy for the costs of producing fewer emissions, and three proxies for ERU prices. Without regard to the availability (or the allowance limits listed in the proposed rule), Ecology averaged the four cost estimates at the low prices for the low end of its range, and averaged the four cost estimates at the high prices for the high end of its range. In other words, Ecology could not determine which path companies would use to comply, so it picked four ways, and just averaged them, as if 25% of the compliance obligation could be met every year through each of the four pathways it chose. The net effect is that the overall cost estimate "range" provided by Ecology represents the 20-year present value costs assuming \$11 per metric ton for the low end, and \$28 per metric ton for the high end. This is not an appropriate estimate of a range of the costs.

³⁰ Ibid at Table 3 p. 3

³¹ Energy Strategies Technical Working Paper: Estimation of the Cost and CO₂ Emissions Reductions of Anaerobic Dairy Digester/Livestock Projects at 1

³² *Id.*

Table 2
Ecology's Assumed Prices for ERUs in the CBA

Compliance Pathway	Price per metric ton Co2	
	Low	High
On-Site Reductions	\$23	\$57
In-State Projects	\$5	\$29
External Market Instruments	\$13	\$14
RECs	\$3	\$11
Average	\$11	\$28

A more realistic single estimate might have used a price curve, which escalated prices as demand increased, limited the use of low-cost California allowances per the limits in the proposed rule, and used more appropriate compliance market estimates for prices for the other categories. A more realistic range would have created multiple price curves that followed these same guidelines, and summarized the results from the different price curves.

III. Critique of Ecology's Calculation/Depiction of Benefits

A. Ecology does not have the option of deciding whether cost benefit analysis conducted under the Administrative Procedures Act reports benefits on the basis of global societal benefits or domestic and local benefits.

In the preliminary cost benefit analysis report Ecology acknowledges that it typically accounts for "Washington State-only" costs and benefits when meeting its statutory obligation under the Administrative Procedures Act.³³ However, it goes on to say that for purposes of the valuation of benefits under the Clean Air Rule it will exercise its discretion to take a "broader approach" and to estimate benefits of reducing GHG emissions on a "global scale".³⁴

The Administrative Procedures Act at RCW 34.05.328(1)(d) requires Ecology to undertake a cost benefit analysis of significant rulemakings in order to "Determine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented".³⁵ For the Clean Air Rule the authorizing statute being implemented is the Washington State Clean Air Act (CAA). The declaration section of the Washington CAA is explicit in specifying that the purpose of the Act is to benefit the state and its citizens, not global society, when it declares:

³³ Preliminary Cost Benefit Analysis and Least Burdensome Alternative Analysis, Publication no. 16-02-008, June 2016. P 36 ("hereafter Ecology's Cost Benefit Analysis")

³⁴Ibid

³⁵ RCW 34.05.328(1)(d)

It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.³⁶

Similarly, this section of the CAA further confirms the intent and “...purpose of this chapter to safeguard the public interest through an intensive, progressive, and coordinated statewide program of air pollution prevention and control..... to encourage coordination and cooperation between the state, regional, and local units of government.”³⁷ Presumably the “public interest” and “public” being referred to in this provision is that of the state. There is no reference to a broader set of global concerns or objectives with respect to the purposes of the CAA.

Ecology does not have the discretion to decide what geographical scale the agency will base its estimations of costs and benefits. It is required to estimate and account for “probable” costs and benefits to the State of Washington.

B. Ecology has arbitrarily inflated the estimated benefits of the Clean Air Rule by only accounting for the global benefits and not attempting to estimate and report the domestic or local benefits to Washington State.

The standards for conducting economic impact and cost-benefit analysis of public programs, regulatory policies, and rules have been established in federal guidelines by the Office of Management and Budget and ³⁸ the Interagency Working Group on the Social Cost of Carbon has further applied these guidelines to the economic analysis of environmental issues, including the use of the Social Cost of Carbon for regulatory impact analysis.³⁹

There is an evident mismatch between Ecology’s methods for estimating the benefits of the Clean Air Rule and the guidance the Interagency Working Group provides that enables agencies to account for “domestic” benefits in regulatory impact analysis.

³⁶ RCW 70.94.011, Clean Air Act, Declaration of public policies and purpose

³⁷ Ibid

³⁸ OMB Circular A-94, Guidelines and Discount Rates for Cost Benefit Analysis and OMB Circular A-4, Regulatory Impact Analysis: A Primer. September, 2003

³⁹ Interagency Working Group on Social Cost of Carbon. (2010) “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866.” February 2010. (hereafter Interagency Working Group on Social Cost of Carbon. (2010)

In the preliminary cost benefit analysis report Ecology acknowledges that it typically accounts for “Washington State-only” costs and benefits when meeting its statutory obligation under the Administrative Procedures Act.⁴⁰ However, for purposes of its valuation of benefits under the Clean Air Rule Ecology estimates benefits of CAR reducing GHG emissions on the basis of a “global scale”.⁴¹ The justification given by Ecology is that GHG emissions are a global externality and that the emissions of GHGs contribute to damages around the world even when they are emitted in the State of Washington. Moreover, Ecology further claimed that it “...is not possible to specify the local benefits to climate change.”⁴²

Even though Ecology claims it is not possible to estimate the local benefits, the Interagency Working Group clearly states the U.S. benefit of the social cost of carbon “is about 7-10 percent for the global benefit.”⁴³ It also found that domestic benefits could be estimated on the basis of the U.S. portion of global GDP, which was estimated to be 23 percent. Accordingly, the Interagency Working Group on the Social Cost of Carbon determined that:

“On the basis of this evidence a range of values from 7 to 23 percent should be used to adjust the global SCC to calculate domestic effects. Reported domestic values should use this range.”⁴⁴

Ecology estimated that the global benefits of avoided GHG emissions due to the Clean Air Rule amounted to \$14.5 billion in 2036 using a 2.5 percent discount rate.⁴⁵ However, if Ecology had chosen to report the benefits of the CAR from the domestic or local perspective using the methodology developed by the Interagency Working Group, the reported benefits would have been significantly lower.

Adjusting Ecology’s estimates of the global benefits of the CAR to account for domestic benefits results in an estimate of U.S. domestic benefits of \$1.0 billion dollars if the 7percent “domestic” adjustment is used. The estimate of domestic benefits increases to \$3.3 billion if the higher 23 percent adjustment is applied to Ecology’s \$14.5 billion estimate of global benefits.⁴⁶ However, a smaller portion of these estimated “domestic” benefits are attributable to Washington. This can be calculated by adjusting Ecology’s estimate of global benefits to account for

⁴⁰ Ecology’s Cost Benefit Analysis at p 36

⁴¹ Ibid, p 36

⁴² Ibid, p

⁴³ Interagency Working Group on Social Cost of Carbon. (2010) at p.11

⁴⁴ Ibid

⁴⁵ Ecology’s Cost Benefit Analysis at 36

⁴⁶ Critique of the Washington Department of Ecology’s Preliminary Cost Benefit Analysis, Energy Strategies LLC., July 2016, Appendix 2, Table 5A (hereafter “Energy Strategies Cost-Benefit Analysis Critique”)

Washington state's GDP as a percent of U.S GDP; 2.5%.⁴⁷ In this case the estimated local benefits to Washington State drops precipitously to \$83.4 million when Washington State benefits of the CAR are accounted for .⁴⁸

Despite clear and unambiguous guidance from the Interagency Working Group's 2010 technical support document on how to adjust the global cost of carbon to calculate domestic benefits, Ecology arbitrarily chose to ignore this guidance. Selectively ignoring the guidance document and Washington statute enabled Ecology to claim a grossly inflated monetized value of global societal benefits of \$14.5 billion instead of domestic benefits that would have been in the range of \$1.0 million to \$3.3 billion and Washington benefits that would have only totaled \$83 million.

C. Ecology's estimate of the net present value of benefits is overstated and inaccurate because its method to estimate the net present value of benefits is incorrect.

The Interagency Working Group on the Social Cost of Carbon's approach for estimating the dollar value of CO₂ emission reductions states:

"... the benefits from reduced (or costs from increased) emissions in any future year can be estimated by multiplying the change in emissions in that year by the SCC value appropriate for that year. The net present value of the benefits can then be calculated by multiplying each of these future benefits by an appropriate discount factor and summing across all affected years."⁴⁹

In practice, this guidance states that benefits can be reported by multiplying the change in CO₂ emission reduction in any future year by the SCC value for that year. For example, EPA's cost benefit analysis of the Clean Power Plan (CPP) report the benefits of the CPP in the final year of the rule.⁵⁰ EPA took the SCC estimate for the year 2030 and multiplied it by the change in CO₂ emissions in 2030. In this way EPA estimated the global benefits of the CPP to be \$29 billion. ⁵¹ Had Ecology taken this approach the reported estimated benefits of CAR would have been \$1.5 billion. ⁵²

It also states that benefits be can be expressed as a net present value. This is done by multiplying the SCC reported for each year by the changes in CO₂ emissions for

⁴⁷ Bureau of Economic Analysis Gross Domestic Product by State, 4th quarter 2015 (http://www.bea.gov/newsreleases/regional/gdp_state/2016/xls/qgsp0616.xlsx) Table 3. Current-Dollar Gross Domestic Product (GDP) by State, 2014:IV-2015:IV

⁴⁸ Energy Strategies Cost-Benefit Analysis Critique at Appendix 2, Table 5A, p.____

⁴⁹ Interagency Working Group on Social Cost of Carbon (2010) at p. 2

⁵⁰ Regulatory Impact Analysis for the Clean Power Plan Final Rule, U.S. Environmental Protection Agency, Office of Air Radiation and the Office of Air Quality Planning and Standards, October 2015, p. 4-8 (hereafter "EPA Regulatory Impact Analysis CPP")

⁵¹ EPA Regulatory Impact Analysis CPP at Table 4-5, p. 4-9

⁵² Energy Strategies Cost-Benefit Analysis Critique at Appendix 2, Table 3A, p.____

the same years, discounting each annual benefit back to the analysis year and summing the annual values across the affected period.

The method Ecology employed to estimate the present value of benefits included multiplying the SCC (adjusted to 2015 \$) for each year by the annual change in emissions for the same year, and summing the resulting values for the years 2017-2036.⁵³ In this way the present value benefits of CAR was reported to be \$14.5 billion⁵⁴.

Ecology's net present value calculation of benefits is incorrect and overstates the benefits because it did not appropriately calculate the present value of benefits. In spite of stating that the "Present value calculations convert a stream of future impacts to current values using a 2.5 percent discount rate" ⁵⁵ Ecology failed to follow its own instructions and the guidance of the Interagency Working Group when it did not apply a discount rate to the annual stream of benefits for the affected years in its present value analysis. Had Ecology correctly calculated the present value of benefits using its own recommended discount rate of 2.5%, Ecology's reported net present value of benefits would have been \$ 9.95 billion and not \$14.5 billion. Had the agency used the range of discounts recommended by the Interagency Working Group and the OMB, the present value benefits of CAR would have been reduced further to \$9.25 billion using a 3% rate; \$6.89 billion with a 5% discount rate and \$5.34 billion if a 7% discount rate was used.⁵⁶ As a result of Ecology's failure to correctly discount benefits to the present the reported present value benefits of the CAR rule are incorrect and unreliable for use in the rulemaking's cost benefit analysis.

D. Ecology has overstated the benefits of the Clean Air Rule by making an arbitrary choice to select a single, low discount rate for its estimate and reporting of the benefits for the Cost-Benefit Analysis.

Another obvious example of Ecology's selective choices implementing Interagency Working Group on Social Cost of Carbon's (2010) guidelines is how the SCC and benefits are quantified using a range of discount rates. In estimating the value of the SCC and benefits of GHG regulations, the values are highly sensitive to the discount rate assumptions employed in the analysis. Higher discount rates will lower the future stream of costs and benefits while a lower rate will result a much larger calculation of benefits. For example, using the SCC values reported in the updated Technical Support Document on the Social Cost of Carbon (May 2013) the present value of the SCC in 2015 is \$57 if the discount rate is 2.5%, compared to \$11 if a 5% rate is employed. Selection of the 2.5% discount rate for the SCC results in present

⁵³ Ecology's Cost-Benefit Analysis at p. 39, Section 4.2.5

⁵⁴ Ibid

⁵⁵ Ibid

⁵⁶ Energy Strategies Cost-Benefit Analysis Critique at Appendix 2, Table 6A

value benefits that are approximately 500% higher than if a 5% discount rate were used.

For its primary analysis, Ecology selectively reports a discount rate of 2.5%, resulting in benefits of \$14.5 billion. While Ecology did conduct a sensitivity analysis using 3% and 5% discount rates, these results are relegated and buried in a footnote on p. 39 of the cost benefit analysis:

“Ecology performed a sensitivity analysis of this result, based on varying the SCC to those calculated using a 3-percent discount rate and a 5-percent discount rate. These alternative sets of SCC values yielded total present value benefits of \$10.0 billion and \$3.1 billion, respectively.⁵⁷”

Ecology attempts to justify its use of single, 2.5% rate by claiming the “federal interagency working group that developed the SCC table provided no guidance on which discount rate should be used.....”⁵⁸ This comment is patently incorrect. The OMB Circular A-4 Primer requires and the Interagency Working Group on Social Cost of Carbon’s (2010) recommends a range of discount rates be used. OMB requires that the costs and benefits be quantified at a discount rate of 3% and 7% (with additional rates being optional).⁵⁹

The Interagency Working Group on Social Cost of Carbon’s (2010) Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis (SC-CO2 – TSD) uses four discount rates to account for the uncertainty and proposes that discount rates of 2.5, 3, and 5 percent per year be used in cost benefit analysis that uses the SCC. This is clearly stated on page 25:

“For purposes of capturing the uncertainties involved in regulatory impact analysis, we emphasize the importance and value of including all four SCC [discount] values.”

The selection of the discount rate is critical to estimating the benefits of the rule. Ecology has ignored these clear guidelines from the OMB and Interagency Working Group that require and recommend a range of discount rates be used to quantify benefits in cost-benefit analysis of GHG regulations. Ecology’s selection of a 2.5% discount rate for calculating the benefits of the rule were chosen to ensure the highest sum of benefits.

⁵⁷ Ecology’s Cost-Benefit Analysis at p 39

⁵⁸ Ecology’s Cost-Benefit Analysis at p. 62

⁵⁹ For rules with both intra-and intergenerational effects, agencies traditionally employ constant discount rates of both 3 percent and 7 percent in accordance with OMB Circular A-4. As Circular A-4 acknowledges, however, the choice of discount rate for intergenerational problems raises distinctive problems and presents considerable challenges. After reviewing those challenges, Circular A-4 states, “If your rule will have important intergenerational benefits or costs you might consider a further sensitivity analysis using a lower but positive discount rate **in addition** to calculating net benefits using discount rates of 3 and 7 percent.”

There is a great deal of uncertainty in using the SCC to measure the benefits of the rule. Federal guidelines that Ecology purports to follow clearly account for uncertainty by transparently reporting cost-benefit results using a range of specific discount rates. Ecology has arbitrarily selected a single low discount rate that is even lower than the 3% central discount rate the federal government uses and in doing is able to attribute the highest level of benefits to the Clean Air Rule. Washington citizens and businesses deserve to know what the cost-benefit results would be if Ecology were to estimate benefits at a 3%, and 5%. Ecology should report benefits using these values in tables alongside the estimated benefits derived from the SCC derived from a 2.5% discount rate.

IV. Conclusion

Ecology's cost-benefit analysis is not a realistic assessment of the costs faced by Washington businesses to comply with the proposed Clean Air Rule and significantly overestimates the potential benefits to Washington residence and businesses. The methods used by Ecology to estimate the per-MTCO₂ costs for each of the compliance options identified in the rule are consistently below what markets and studies indicate, are inadequately supported and oversimplified. As a result Ecology's compliance cost estimate is incorrect and understates costs by over a factor of two.

Ecology systematically ignored best practices and federal guidelines in accounting for the benefits of CAR which have led to analytical errors and assumptions that result in estimates of benefits in the CBA that are grossly overstated and not reflective of the benefits to Washington residents, households and businesses.

Ecology's cost-benefit analysis is not a realistic assessment of the costs faced by Washington businesses to comply with the proposed Clean Air Rule. The costs and benefits estimates are unreliable and if corrected could show that probable costs of the rule exceed the probable benefits

Appendix A

Alternative Cost of Compliance Calculation

As part of the critique of the Ecology CBA, Energy Strategies reviewed the calculations in the CBA and the supporting spreadsheets that Ecology provided. Energy Strategies then created an alternative estimate for the costs of compliance. This analysis excludes the reporting fees, third-party verification, and report preparation costs. Modeling the costs of the proposed rule is quite difficult, as it relies on a significant amount of variables that have not yet been defined by Ecology. For example, EITE entities will need to meet a formula-based compliance obligation, but none of the data is available to complete the formula, including the reduction percentage that will be assigned by Ecology. The most significant challenge for estimating the costs of compliance, however, is estimating the future prices of ERUs. ERUs will be used to meet the majority of the compliance obligation, as outlined in the critique, and yet the availability of supply of these geographically restricted, project-restricted carbon offsets is a complete unknown.

In order to attempt a comparable cost estimate methodology, Energy Strategies used many of Ecology's modeling assumptions. Broadly, both Ecology and Energy Strategies first calculated the compliance obligation over twenty years for each entity in metric tons of CO₂, then multiplied this compliance obligation quantity for each year by a price. This provides an annual cost. Then, twenty years of these costs were discounted at 2.5% in order to present one twenty-year present value (PV) estimate of the cost of compliance.

The Compliance Obligation: An Annual Quantity of CO₂ in Metric Tons

The rule will require non-EITE entities to offset or reduce emissions by 1.7% per year beginning in the second year of applicability of the rule, plus all growth beginning in the first year of applicability of the rule. (EITE entities will have customized reduction percentages that may be higher or lower than 1.7%, and will only need to offset/reduce a portion of their growth.) Therefore, Ecology needed to project out emissions into the future. The total compliance obligation would thus be a sum of the growth plus the annual 1.7% required reduction. Ecology used four different growth rates to project future emissions:

- -0.24% annually for power producers,
- +0.75% annually for natural gas LDCs,
- -0.42% annually for petroleum product producers, and
- +0.25% annually for all other covered parties.

There is very little, and in one case, no cited support for these growth rates and it is likely these growth rates are not representative. For example, Puget Sound Energy the largest LDC in Washington is forecasting annual growth rates between 1.6-2.1%

from 2016-2035⁶⁰. However, Energy Strategies used the same growth estimates as Ecology, however, in order to allow for direct comparisons between the two estimates that could focus on the prices used for CO₂ reductions.

By projecting out emissions, estimating growth, and applying the 1.7%, Ecology estimated a total number of reductions/offsets needed per year per entity. The table below provides an illustrative example of these calculations for four years.

Table 1
Total Reductions or Offsets Needed Per Year

	Emissions <i>in metric tons Co2</i>				
	2012–2015 Average Historical = Baseline	2017	2018	2019	2020
A Covered Entity	100,000				
Reduction from Baseline, at 1.7%/year*		N/A	1,700	3,400	5,100
Growth, at 0.25%/year		<u>250</u>	<u>500</u>	<u>750</u>	<u>1,000</u>
Total Reductions or Offsets Needed Per Year		250	2,200	4,150	6,100

**Ecology split out the Reserve Account—which is 2% of the 1.7%—into a separate calculation, and thus had two sets of numbers for the non-growth obligation, .034% and 1.667%. This has been simplified into a straight 1.7% for this example.*

Note that the numbers start small and quickly grow. This example only has four years, but the trend continues, with Ecology’s data showing that the number of offsets/reductions needed in 2036 is more than 500% the quantity needed in 2021, the year in which EITEs and fuel importers have their first baseline reductions. Ecology assumed all EITE entities were “average” and thus assumed the 1.7% reduction for modeling purposes. Ecology ignored the rate-based formula for EITE entities in their modeling and thus modeled EITE entities as being required to offset/reduce emissions from all growth. Thus, the CBA slightly overstates the costs to this group, if all other assumptions are accurate. Note that by assuming a negative growth rate for some categories, the number of offsets/reductions required is lower for these categories than if there had been no growth assumption, or if the assumption was zero or positive. In other words, the CBA assumes some entities have no cost for a portion of their compliance because their business-as-usual assumption is that the companies sell less (e.g., petroleum producers).

Energy Strategies created its own spreadsheets to check the logic and math of Ecology’s calculations. Energy Strategies used the Ecology assumption that all EITE

⁶⁰ PSE 2015 IRP Chapter 5 Page 5-34

https://pse.com/aboutpse/EnergySupply/Documents/IRP_2015_Chap5.pdf

entities were average and thus had a 1.7% annual compliance reduction. Like Ecology, Energy Strategies showed *all* EITE emissions growth needing to be offset (or eliminated), instead of the *partial* requirement as outlined in the rule. As noted earlier, there is no data available to complete the formula to determine exactly how much of the growth would need to be offset. There are slight differences in the two sets of calculations, but both sets result in 16.6 million required metric tons of Co2 reductions in the year 2035, and a cumulative required 170.4 metric tons of Co2 reductions through 2036, so they are very similar at a high level.

Prices: Estimates of the Price to Reduce or Offset a Metric Ton of Co2

Once Ecology had an estimate of the quantity of reductions/offsets needed, Ecology multiplied the quantity by various prices to determine an annual cost. Ecology did not use annually changing prices (e.g., a price curve), but instead picked a high and low price for each of four categories, and used these prices for every year (2017–2036). The source for these prices is discussed at more length in the critique section. Ecology’s chosen prices are summarized in the following table.

**Table 2
Ecology’s Low and High Estimated Price to Reduce or Offset a Metric Ton of Co2**

Compliance Pathway	Price per metric ton Co2	
	Low	High
On-Site Reductions	\$23	\$57
In-State Projects	\$5	\$29
External Market Instruments	\$13	\$14
RECs	\$3	\$11

As noted extensively in the critique, Ecology provided no analysis or estimates of the *quantities* available for these four pathways in the CBA. In essence, the modeling assumption is that all these pathways are equally available in every year, and that entities will simply choose the lowest-cost method available. Note that Ecology says the price for reductions/offsets might be as low as \$3 or as high as \$57 in any given year, an incredibly wide range. Continuing the example from above, the table below shows an example of these cost calculations.

Table 3 Ecology’s High and Low Costs per Year

Costs at the Low Prices	Price	Costs, Per Year			
		2017	2018	2019	2020
Total Reductions or Offsets Needed		250	2,200	4,150	6,100
Cost for On-Site Reductions	\$23	\$5,750	\$50,600	\$95,450	\$140,300
Cost for In-State Projects	\$5	\$1,250	\$11,000	\$20,750	\$30,500
Cost for Ext. Market Instruments	\$13	\$3,250	\$28,600	\$53,950	\$79,300
Cost for RECs	\$3	\$750	\$6,600	\$12,450	\$18,300
Costs at the High Prices	Price	Costs, Per Year			
		2017	2018	2019	2020
Total Reductions or Offsets Needed		250	2,200	4,150	6,100
Cost for On-Site Reductions	\$57	\$14,250	\$125,400	\$236,550	\$347,700
Cost for In-State Projects	\$29	\$7,250	\$63,800	\$120,350	\$176,900
Cost for Ext. Market Instruments	\$14	\$3,500	\$30,800	\$58,100	\$85,400
Cost for RECs	\$11	\$2,750	\$24,200	\$45,650	\$67,100

Note that the costs rise dramatically, even with no change in the assumed price, because the entities must pay for an increasing number of offsets/reductions. Energy Strategies did not choose four low and four high prices for different compliance paths, but instead developed one primary price curve. Energy Strategies assumed that as demand dramatically increased, the prices would increase in real terms.

Energy Strategies assumed that California allowances would be a preferred source for ERUs. Thus, the price curve always includes allowance price projections to the maximum allowed by the rule. For example, in 2018, when 100% of the compliance obligation can be filled by these allowances, the price curve is 100% the projected allowance price. In 2033, when only 10% of the compliance obligation can be met through ERUs sourced from California allowances, the price curve reflects this 10% limit. Ecology did not project California allowance prices, but picked \$13 and \$14 based on historical prices (and did not escalate them whatsoever through 2036). Energy Strategies used a price curve for allowances that begins at \$12.88 in 2017, and escalates at 5.6% on average per year through 2036. California has a floor price for its allowances (called the Auction Reserve Price), which is a minimum price for the auction of these allowances. The escalation of the floor is specified as 5% plus an inflation rate. Ecology’s use of \$13 and \$14 completely ignores the escalating auction floor price for California allowances. The Northwest Power and Conservation Council estimated a CO2 price for California allowance market of \$13/ton in 2016 and \$54/ton in 2035.⁶¹

Energy Strategies also preferred mandatory or compliance market estimates to voluntary market prices. Ecology’s \$3 and \$11 prices for ERUs sourced from

⁶¹ PSE 2015 IRP Chapter 4 Page 4-14
https://pse.com/aboutpse/EnergySupply/Documents/IRP_2015_Chap4.pdf

voluntary, national RECs would have been closer to an average of \$60 (and a range of \$2.25 to \$112.50), if compliance market prices had been used. Energy Strategies felt that Ecology's use of \$5 and \$11 prices for voluntary national carbon offsets (which include forestry) was a completely inappropriate proxy for ERUs sourced from in-state carbon offset projects and programs. However, there is no comparably restrictive program to provide any sort of carbon offset proxy prices. Supply will be so restricted that the prices will be far higher than Ecology's proxy, but Energy Strategies could not find a carbon offset proxy that was suitable.

Therefore, after the California allowance limits begin, Energy Strategies also uses what is essentially a federal carbon dioxide price curve from the electricity sector. The source of the federal carbon dioxide price curve is the High CO₂ price curve in the Puget Sound Energy 2015 Integrated Resource Plan (IRP).⁶² The final Energy Strategies price curve is thus a weighted blend of the two price curves (California allowances and federal carbon dioxide price).

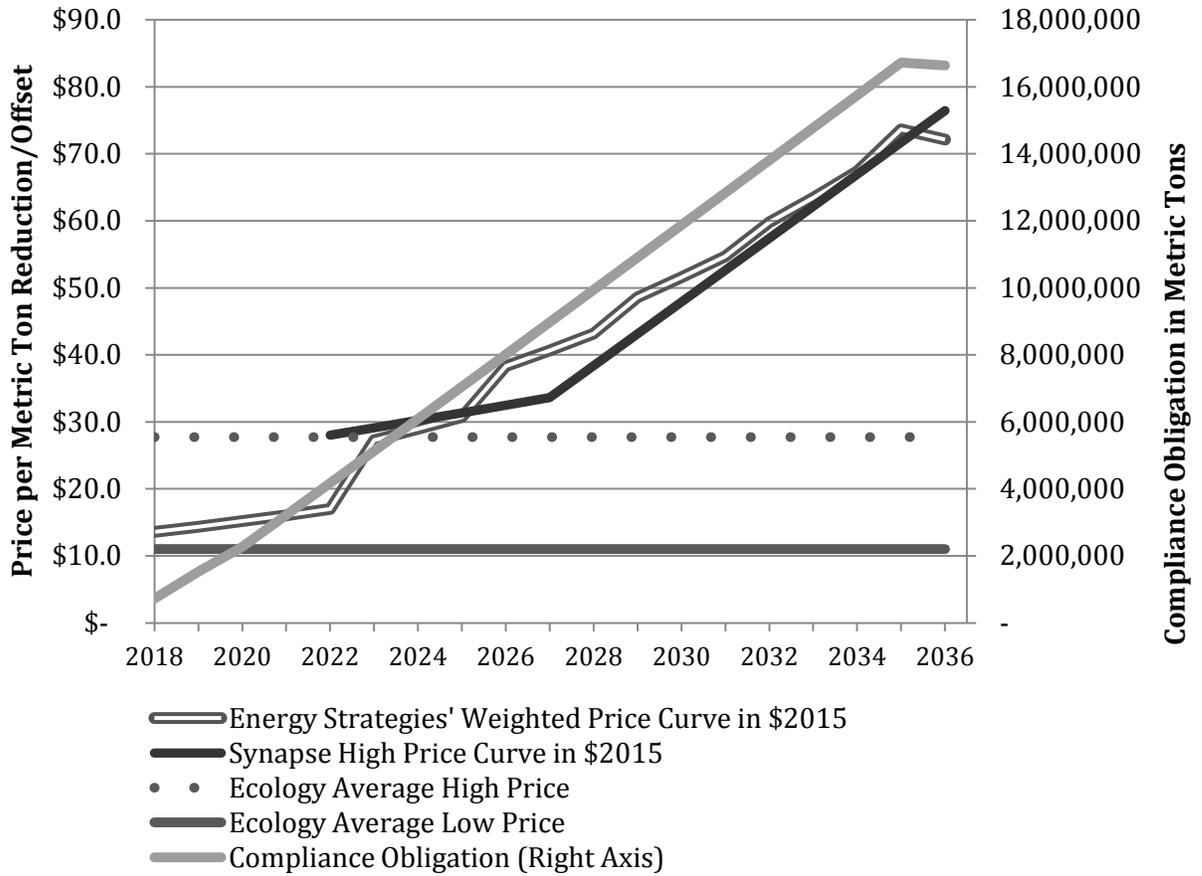
As a crosscheck, Energy Strategies also used the high carbon dioxide price forecast from Synapse Energy Economics, Inc.⁶³ This curve also represents a federal carbon dioxide price for the electricity sector. Neither curve adequately reflects the inadequate supply that is likely, given the restrictions in the proposed rule and the significant demand for ERUs in later years. However, Energy Strategies has found after extensive research and analysis that these price curves are the best publically available price curves for this purpose.

The figure that follows shows Ecology's average low price and average high price, the Energy Strategies price curve, and the Synapse High price curve on the left axis. The right axis shows the change in demand for reductions/offsets as the compliance obligation increases.

⁶² https://pse.com/aboutpse/EnergySupply/Documents/IRP_2015_Chap4.pdf

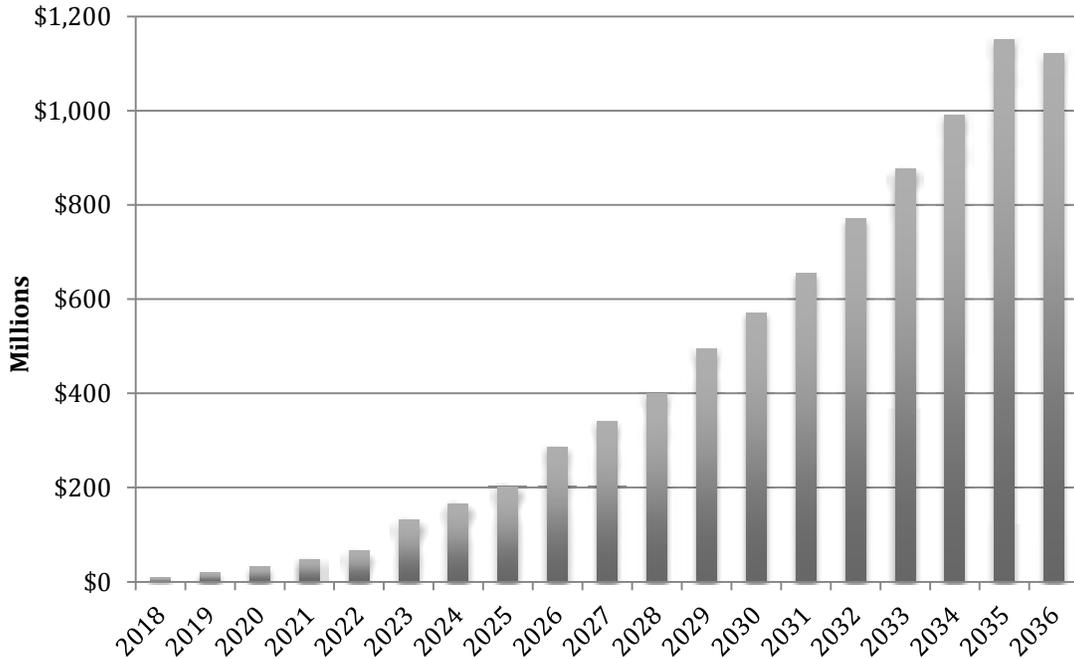
⁶³ http://www.synapse-energy.com/sites/default/files/2016-Synapse-CO2-Price-Forecast-66-008_0.pdf

Figure 1
The Compliance Obligation (Demand) Compared to Ecology's Two Average Prices, the Energy Strategies' Price Curve, and the Synapse Price Curve



The figure that follows shows the undiscounted annual costs of compliance using the Energy Strategies price curve. By 2034, the annual amounts are approaching \$1 billion.

Figure 1
Annual Compliance Costs, Undiscounted



Present Value Discounting and Summation

Once annual costs were estimated, the next step for Ecology was to discount each year’s costs back to 2015 at a 2.5% rate to arrive at a “present value” amount. The example below shows the calculations for the on-site reductions prices.

Table 4
Yearly and Cumulative Costs and Present Value Costs for On-Site Reductions

Costs	Costs and Present Value Costs				
	2017	2018	2019	2020	Cumulative
Cost for On-Site Reductions at \$23	\$5,750	\$50,600	\$95,450	\$140,300	\$292,100
Present Value at 2.5%	\$5,610	\$48,162	\$88,635	\$127,107	\$258,174
Cost for On-Site Reductions at \$57	\$14,250	\$125,400	\$236,550	\$347,700	\$723,900
Present Value at 2.5%	\$13,902	\$119,358	\$219,660	\$314,999	\$639,822

Ecology then summed all twenty years of present value calculations. The result was eight twenty-year sums of discounted costs (four at the low prices, four at the high prices). Then Ecology simply averaged the four low and the four high, and presented this as the “range.” Again, Ecology did not attempt to assess whether or in what quantities these sources of reductions or offsets (ERUs) would actually be available. The table below is a summary of Table 4 from the CBA and shows how Ecology

derived its range of \$1.3 billion to \$2.8 billion. (CBA Table 4 shows the 1.667% reduction and the growth reduction. CBA Table 5 shows the results of the similar calculations for the 0.034% Reserve Account.)

Table 5
Ecology’s Cumulative Present Value Costs at Low and High Prices

Compliance Pathway	Cumulative Present Value Costs at:	
	Low Price	High Price
On-Site Reductions	\$2,701,481,367	\$6,753,703,419
In-State Projects	\$732,801,746	\$1,282,403,055
External Market Instruments	\$1,524,969,786	\$1,626,288,909
RECs	\$401,543,314	\$1,337,692,682
Average	\$1,340,199,053	\$2,750,022,016

Using the Energy Strategies price curve and following this methodology, the twenty-year present value would be \$5.7 billion for the costs of compliance. This number still does not adequately reflect the risks of the costs of compliance, and a more appropriate estimate might be a range, extending 10% below this estimate and 20% above (that is, \$5.13 billion to \$6.84 billion). There is no ability to accurately assess the availability of ERUs in twenty years’ time, but as the critique has shown, Ecology is far too optimistic in its implied assumption that there will be adequate supply indefinitely. The inadequate supply from this very restrictive rule could quickly lead to ERU price volatility or escalation never before seen in mandatory carbon offset markets. Modeling can only approximate an expected case. The Energy Strategies costs of compliance estimates should be regarded as such, an approximation of an expected case.

Appendix B

Washington Department of Ecology's Benefit Calculations

As part of the critique of the Ecology CBA, Energy Strategies reviewed the calculation of benefits in the CBA and the supporting spreadsheets that Ecology provided. The focus of this review was the value of avoided GHG emissions, and not the benefits of associated criteria pollutants and other co-benefits.

To calculate the benefits of the rule, Ecology had to determine the value of the damages caused by greenhouse gas emissions. Ecology chose to use the Social Cost of Carbon (SCC) as developed by the federal Interagency Working Group on the Social Cost of Carbon (IWG). The SCC is “an estimate of the monetized damages associated with an incremental increase in carbon emissions in a given year.”⁶⁴ Specifically, Table 14 in the CBA uses one of the columns of values for the SCC from Table A1 in the 2013 technical update from the IWG.⁶⁵

The SCC is an estimate of the future global damages associated with an increase of carbon emissions in the present and is intended to account for the global nature of GHG emissions; that is, GHG emissions contribute to a global externality even if the emissions are local or domestic.

IWG used the average economic damages from three integrated assessment models (IAMs) to estimate the SCC. The three models are known as the FUND, DICE, and PAGE models. Each model:

- Estimates emissions and calculates the change in atmospheric concentrations,
- Given that change in atmospheric concentration, estimates the change in temperature, and
- Given that change in temperature, estimates the global economic damages.

The IWG equally weights the global economic damages from the three models. The economic damages are assumed to occur over many years, and each model operates with a different time horizon. To make them consistent, the IWG used the end year 2300 for all the models.⁶⁶ In order to capture the *present value* of economic damages associated with increased cumulative emissions over 300 hundred years, a discount rate is applied to those future damages to “discount” them back to near-term years.

⁶⁴ *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866*, Interagency Working Group on Social Cost of Carbon, United States Government, May 2013, page 2 (hereafter “2013 TSD”).

⁶⁵ 2013 TSD, page 18.

⁶⁶ *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866*, Interagency Working Group on Social Cost of Carbon, United States Government, February 2010, page 25 (hereafter “2010 TSD”).

Table 8**2013 Published Social Cost of Carbon**
2007 \$/Metric ton

Year	Discount Rate		
	5.00%	3.00%	2.50%
2010	11	33	52
2011	11	34	54
2012	11	35	55
2013	11	36	56
2014	11	37	57
2015	12	38	58
2016	12	39	60
2017	12	40	61
2018	12	41	62
2019	12	42	63
2020	12	43	65
2021	13	44	66
2022	13	45	67
2023	13	46	68
2024	14	41	69
2025	14	48	70
2026	15	49	71
2027	15	49	72
2028	15	50	73
2029	16	51	74
2030	16	52	76
2031	17	53	77
2032	17	54	78
2033	18	55	79
2034	18	56	80
2035	19	57	81
2036	19	58	82

Source: Interagency Work Group for the Social Cost of Carbon, Update to Technical Support Document, 2013, Appendix A, Table A-1, p. 18

IWG uses three different discount rates to assign a value to an incremental decrease in emissions for a given year. The three discount rates are 2.5%, 3%, and 5%. The resulting SCC values are extremely dependent on the choice of discount rate. For example, the SCC value in 2030 is \$16 per metric ton of CO2 with the 5.0% discount rate, \$52 with the 3.0% discount rate, and \$76 with the 2.5% discount rate.⁶⁷ The lower the discount rate, the higher the SCC value, because those hundreds of years of economic damages are “discounted” less with a lower rate in order to bring them to a present value.

The IWG discusses the issues and uncertainties around the choice of discount rate extensively, and concludes, “For purposes of capturing the uncertainties involved in regulatory impact analysis, we emphasize the importance and value of considering the full range”⁶⁸ (i.e., use all three discount rates). Despite this recommendation, Ecology ultimately settled on a single estimate of the SCC, and selected the SCC calculated from the lowest discount rate, 2.5%, which is the highest SCC value.

Note that the SCC values increase over time (such that the 2030 SCC value is higher than the 2015 value) because the

IWG modeling assumes that future emissions have a larger incremental impact on the damages from climate change. That is, as cumulative CO2 emissions increase, systems become more stressed, and there are more damages associated with a change in temperature caused by the increased concentration of CO2 emissions in the atmosphere.

⁶⁷ 2013 TSD, page 18.

⁶⁸ 2010 TSD, page 25.

To estimate the benefits of the CAR, Ecology first calculates the “total cumulative reductions in GHG from covered parties” for each year from 2017 through 2036.⁶⁹ Annual cumulative emissions reductions are calculated by adding the annual 1.67% emissions reductions required by the cap in each year to the previous year’s cumulative emissions reductions. Said another way, cumulative emission reductions for each year is the difference between the annual emissions cap for a given year and the emissions baseline for the same and is an estimate of the annual total avoided emissions over the period 2017-2036. The following table compares the difference in annual emissions totals when estimating emissions reductions on basis of annual 1.67% reduction required by CAR and the annual cumulative avoided emissions used by Ecology to estimate the benefits of CAR.

**Table 9
Annual and Cumulative CO₂ Emissions Reductions Estimates**

Year	Annual Incremental Emissions Reductions Required by the CAP	Ecology’s Annual Cumulative CO₂ Emissions Reductions Estimates⁷⁰
2017	(740,740)	(74,740)
2018	785,818	711,078
2019	785,818	1,496,896
2020	722,198	2,219,094
2021	934,495	3,153,589
2022	934,495	4,088,084
2023	936,113	5,024,197
2024	936,267	5,960,464
2025	936,268	6,896,732
2026	940,660	7,837,392
2027	939,636	8,777,028
2028	939,636	9,716,664
2029	950,497	10,667,161
2030	946,041	11,613,202
2031	946,041	12,559,243
2032	952,174	13,511,417
2033	948,980	14,460,396
2034	948,980	15,409,376
2035	955,724	16,365,100
2036	(88,401)	16,276,699
TOTAL	16,276,699	166,669,072

The total incremental emissions reductions, 16.3 million, represent the decrease in emissions achieved by CAR in 2036 compared to the 2012-2016 baseline emissions

⁶⁹ Preliminary Cost Benefit Analysis, p. 38

⁷⁰ CBA, Table 15, page 38.

whereas the 20 year total cumulative emissions reductions, 166.7 million metric tons, represent a cumulative avoided emissions total.

Ecology then takes the cumulative avoided emissions reductions in each year, multiplies that amount by the SCC value for that year and sums twenty years' worth of these calculations to derive its benefits value of \$14.5 billion. The table that follows combines the CBA Tables 14 and 15⁷¹ to demonstrate Ecology's methodology to arrive at the estimate of \$14.5 billion in total benefits.

Table 10
Washington Department of Ecology's Calculation
of the Benefits of the Clean Air Rule

Year	Social Cost of Carbon at the 2.5% discount rate, in 2015\$ ⁷²	Multiplied by Metric Tons of Annual Cumulative CO ₂ Emissions Reductions ⁷³	Equals Estimate of the Value of Benefits
2017	\$69.97	(74,740)	(\$5,229,558)
2018	\$71.12	711,078	\$50,571,867
2019	\$72.27	1,496,896	\$108,180,674
2020	\$74.56	2,219,094	\$165,455,649
2021	\$75.71	3,153,589	\$238,758,223
2022	\$76.85	4,088,084	\$314,169,255
2023	\$78.00	5,024,197	\$391,887,366
2024	\$79.15	5,960,464	\$471,770,726
2025	\$80.30	6,896,732	\$553,807,580
2026	\$81.44	7,837,392	\$638,277,204
2027	\$82.59	8,777,028	\$724,894,743
2028	\$83.74	9,716,664	\$813,673,443
2029	\$84.88	10,667,161	\$905,428,626
2030	\$87.18	11,613,202	\$1,012,438,950
2031	\$88.33	12,559,243	\$1,109,357,934
2032	\$89.47	13,511,417	\$1,208,866,479
2033	\$90.62	14,460,396	\$1,310,401,086
2034	\$91.77	15,409,376	\$1,414,118,436
2035	\$92.91	16,365,100	\$1,520,481,441
2036	\$94.06	16,276,699	\$1,530,986,308
TOTAL		166,669,072	\$14,478,296,431

⁷¹ CBA page 38.

⁷² CBA, Table 14, page 38.

⁷³ CBA, Table 15, page 38.

Table 11
Social Cost of Carbon Adjusted for Domestic and Washington State at
the 2.5% discount rate, in 2015\$ (\$/Metric Ton)

Year	Global Benefit as Estimated by the Interagency Working Group and Used by Ecology	Domestic Benefit as Percent of Global Benefit ⁷⁴		Washington State Benefit as % of Domestic Benefit
		FUND ^{75,76}	GDP ⁷⁷	GDP ⁷⁸
		7.0%	23.0%	2.5%
2017	\$69.97	4.9	16.1	0.40
2018	\$71.12	5.0	16.4	0.41
2019	\$72.27	5.1	16.6	0.42
2020	\$74.56	5.2	17.1	0.43
2021	\$75.71	5.3	17.4	0.44
2022	\$76.85	5.4	17.7	0.44
2023	\$78.00	5.5	17.9	0.45
2024	\$79.15	5.5	18.2	0.46
2025	\$80.30	5.6	18.5	0.46
2026	\$81.44	5.7	18.7	0.47
2027	\$82.59	5.8	19.0	0.47
2028	\$83.74	5.9	19.3	0.48
2029	\$84.88	5.9	19.5	0.49
2030	\$87.18	6.1	20.1	0.50
2031	\$88.33	6.2	20.3	0.51
2032	\$89.47	6.3	20.6	0.51
2033	\$90.62	6.3	20.8	0.52
2034	\$91.77	6.4	21.1	0.53
2035	\$92.91	6.5	21.4	0.53
2036	\$94.06	6.6	21.6	0.54

⁷⁴ On the basis of this evidence, the interagency workgroup determined that a range of values from 7 to 23 % should be used to adjust the global SCC to calculate domestic effects. Reported domestic values should use this range. (2010 TSD)

⁷⁵ The FUND (Climate Framework for Uncertainty, Negotiation, and Distribution) model, developed by Richard Tol in the early 1990s, originally to study international capital transfers in climate policy. is now widely used to study climate impacts. The FUND model is one of three models used in the 2010 TSD

⁷⁶ 7% at 2.5% discount rate was used for consistency. (2010 TSD)

⁷⁷ Based on 2008 GDP (in current US dollars) from the World Bank Development Indicators Report. According to the World Bank US GDP as percent of Global GDP is shrinking to 22.34% in 2014 (https://ycharts.com/indicators/us_gdp_as_a_percentage_of_world_gdp)

⁷⁸ Bureau of Economic Analysis Gross Domestic Product by State, 4th quarter 2015 (http://www.bea.gov/newsreleases/regional/gdp_state/2016/xls/qgsp0616.xlsx) Table 3. Current-Dollar Gross Domestic Product (GDP) by State, 2014:IV-2015:IV

Table 12
Cumulative Social Benefits of Carbon Adjusted for Domestic, and for
Washington State at the 2.5% discount rate, in 2015\$

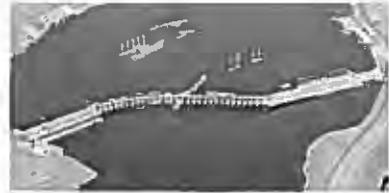
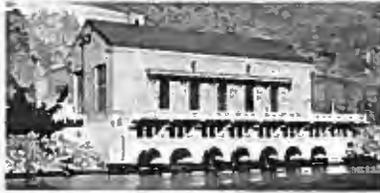
Year	Cumulative Global Benefit as Used by Ecology (SCC multiplied by Carbon Emission Reduced)	Domestic Benefit as Percent of Global Benefit		Washington State Benefit as % of Domestic Benefit
		FUND	GDP	GDP
		7.0%	23.0%	2.5%
2017	(\$5,229,558)	(\$366,069)	(\$1,202,798)	(\$30,070)
2018	\$50,571,867	\$3,540,031	\$11,631,529	\$290,788
2019	\$108,180,674	\$7,572,647	\$24,881,555	\$622,039
2020	\$165,455,649	\$11,581,895	\$38,054,799	\$951,370
2021	\$238,758,223	\$16,713,076	\$54,914,391	\$1,372,860
2022	\$314,169,255	\$21,991,848	\$72,258,929	\$1,806,473
2023	\$391,887,366	\$27,432,116	\$90,134,094	\$2,253,352
2024	\$471,770,726	\$33,023,951	\$108,507,267	\$2,712,682
2025	\$553,807,580	\$38,766,531	\$127,375,743	\$3,184,394
2026	\$638,277,204	\$44,679,404	\$146,803,757	\$3,670,094
2027	\$724,894,743	\$50,742,632	\$166,725,791	\$4,168,145
2028	\$813,673,443	\$56,957,141	\$187,144,892	\$4,678,622
2029	\$905,428,626	\$63,380,004	\$208,248,584	\$5,206,215
2030	\$1,012,438,950	\$70,870,727	\$232,860,959	\$5,821,524
2031	\$1,109,357,934	\$77,655,055	\$255,152,325	\$6,378,808
2032	\$1,208,866,479	\$84,620,654	\$278,039,290	\$6,950,982
2033	\$1,310,401,086	\$91,728,076	\$301,392,250	\$7,534,806
2034	\$1,414,118,436	\$98,988,291	\$325,247,240	\$8,131,181
2035	\$1,520,481,441	\$106,433,701	\$349,710,731	\$8,742,768
2036	\$1,530,986,308	\$107,169,042	\$352,126,851	\$8,803,171
TOTAL	\$14,478,296,432	\$1,013,480,750	\$3,330,008,179	\$83,250,204

Table 13
Discount Rate Impact on Net Present Value of Ecology Estimated Benefits

Impact of Discount Rate on Net Present Value of Benefits					
Discount Rate	0%	2.5%	3.0%	5.0%	7.0%
2017	(\$5,229,558)	(\$4,977,569)	(\$4,929,360)	(\$4,743,363)	(\$4,567,698)
2018	\$50,571,867	\$46,961,006	\$46,280,422	\$43,685,880	\$41,281,708
2019	\$108,180,674	\$98,006,351	\$96,117,128	\$89,000,508	\$82,530,518
2020	\$165,455,649	\$146,238,685	\$142,723,496	\$129,638,830	\$117,967,591
2021	\$238,758,223	\$205,880,467	\$199,956,253	\$178,165,062	\$159,094,685
2022	\$314,169,255	\$264,299,672	\$255,448,354	\$223,274,224	\$195,648,822
2023	\$391,887,366	\$321,640,212	\$309,359,506	\$265,244,795	\$228,082,015
2024	\$471,770,726	\$377,760,201	\$361,572,978	\$304,107,616	\$256,612,017
2025	\$553,807,580	\$432,633,596	\$412,084,850	\$339,989,813	\$281,527,691
2026	\$638,277,204	\$486,459,641	\$461,105,033	\$373,187,462	\$303,240,902
2027	\$724,894,743	\$538,999,752	\$508,426,588	\$403,648,517	\$321,861,935
2028	\$813,673,443	\$590,255,295	\$554,072,021	\$431,508,399	\$337,645,551
2029	\$905,428,626	\$640,796,462	\$598,594,987	\$457,302,983	\$351,140,832
2030	\$1,012,438,950	\$699,054,223	\$649,846,036	\$487,000,446	\$366,954,468
2031	\$1,109,357,934	\$747,291,165	\$691,315,188	\$508,209,652	\$375,777,914
2032	\$1,208,866,479	\$794,461,075	\$731,384,101	\$527,424,441	\$382,696,169
2033	\$1,310,401,086	\$840,184,504	\$769,722,532	\$544,498,717	\$387,700,397
2034	\$1,414,118,436	\$884,570,276	\$806,451,984	\$559,614,684	\$391,015,531
2035	\$1,520,481,441	\$927,905,643	\$841,853,709	\$573,053,464	\$392,921,298
2036	\$1,530,986,308	\$911,528,251	\$822,980,581	\$549,535,846	\$369,753,229
2015 NPV	\$14,478,296,432	\$9,949,948,908	\$9,254,366,387	\$6,983,347,976	\$5,338,885,574

Table 14
Discount Rate Impact on Ecology's Estimated Benefits and
Domestic and State of Washington Benefits

Discount Rate	Ecology's Global Benefits	Domestic Benefit as Percent of Global Benefit		State Washington Benefit as % of Domestic Benefit
		FUND (7%)	GDP (23%)	GDP (2.5%)
0%	\$14,478,296,432	\$1,013,480,750	\$3,330,008,179	\$83,250,204
2.5%	\$9,949,948,908	\$713,908,834	\$2,345,700,455	\$58,642,511
3%	\$9,254,366,387	\$667,239,816	\$2,192,359,397	\$54,808,985
5%	\$6,983,347,976	\$513,276,076	\$1,686,478,536	\$42,161,963
7%	\$5,338,885,574	\$399,882,529	\$1,313,899,740	\$32,847,493



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July 22, 2016

Washington State Department of Ecology

300 Desmond Drive SE

Lacey, WA 98503

RE: Comments on Clean Air Rule

To whom it may concern:

During the interim between the initial release and re-release of the Clean Air Rule (CAR), Chelan PUD provided comments to Ecology describing our greenhouse gas principles and the elements and objectives we believe should be part of a successful greenhouse gas program. Ecology made several changes that we believe are improvements.

The inclusion of all eligible renewable resources as sources of emission reduction units (ERUs) is a welcome change. Washington State is fortunate to have large amounts of hydropower generation. The state should seek to take advantage of these plentiful, carbon-free resources as part of its greenhouse gas reduction strategy. Recognizing the value of incremental hydropower is a good first step. Similarly, allowing the use of energy efficiency gains, beyond those required for the Energy Independence Act, to generate ERUs could encourage increased utilization of energy efficiency—another beneficial, carbon-free resource.

Chelan PUD also appreciates the changes Ecology made to remove incentives for industrial entities that eliminate or relocate in-state production. This change benefits local communities that may have faced the prospect of lost jobs and economic opportunity, if companies had chosen to leave the state to exploit the original rule. The changes to the rule should also decrease opportunities for greenhouse gas leakage from the industrial sector, helping the rule meet its overall greenhouse gas reduction goals.

As Ecology finalizes the CAR, there are two areas that require additional improvement: the plan for transitioning the electricity sector to the Clean Power Plan (CPP), and the framework for generating, banking, and transferring ERUs. Chelan PUD also suggests some clarifying language regarding the use of incremental hydropower and energy efficiency for generating ERUs.

Clean Power Plan Transition

The State Implementation Plan should be mass-based and trading-ready

As Chelan PUD pointed out in prior comments, a mass-based, trading-ready program is the best option for Washington to use for CPP implementation. It provides a least-cost approach to reductions that benefits consumers. The approach is lower-cost because it is technology neutral—allowing Washington to leverage its abundant supply of hydropower. A mass-based program also accounts for all emissions from covered electric generators and caps total, actual emissions. This would reduce reporting and compliance costs. There are also several mass-based programs operating in North America that could serve as models for Washington’s system, reducing the development and implementation costs.

Adopting a mass-based, trading-ready program would provide more opportunities for linkage with other states. For example, California already has an operating cap-and-trade program, and the Oregon Department of Environmental Quality is currently studying a mass-based greenhouse gas program. The electricity sector operates in an interstate system, and an interstate approach to greenhouse gas regulation is appropriate. Many Northwest entities are joining the Energy Imbalance Market, which already takes into account California’s mass-based greenhouse gas program. Because the electricity market is an interstate market, linkage provides several benefits to Washington consumers. It provides consistent regulation of electric generators, further reducing opportunities for leakage. Linkage also creates uniform carbon pricing and a broader allowance market, lowering costs to consumers.

Additionally, Washington must adopt a trading-ready program in order to take advantage of EPA’s Clean Energy Incentive Program. The Clean Energy Incentive Program would reward the state for its early actions, providing additional benefit to consumers.

Work on the Clean Power Plan transition needs to start as soon as practicable

Moving from CAR to CPP presents a relatively quick transition between two very different regulatory regimes. A number of parties—in and out of Washington—will be making decisions about long-term actions to best position themselves for CPP implementation. Early action by Ecology, including early discussions with affected stakeholders will allow for good decision-making and resource planning. Conversely, delays in developing the state’s implementation plan will make it more difficult for those entities to effectively plan for the CPP transition. By starting to work on the transition plan sooner, Ecology can help mitigate market uncertainty and the risk of unnecessary or stranded costs.

Additionally, early action in Washington may also encourage other states to look at their CPP plans sooner rather than later. This increases the opportunity for collaboration between the states to discuss program linkage and other design elements that would benefit consumers.

It is also important to begin promptly so that Ecology has sufficient time and resources to develop a sustainable plan. For example, Ecology has noted that it will need to use the CAR's 3-year grace period for EITEs to refine the program. This indicates both that significant time and effort will be required to develop the CPP transition plan, and that Ecology staff will have competing demands on their time from CAR implementation. Beginning as soon as practicable will ensure Ecology is able to gather and process the data necessary to develop appropriate CPP allowance targets and craft the policy and regulatory language for its CPP state implementation plan.

Emission Reduction Unit Generation and Ownership

Ecology has stated that only entities with a compliance obligation can generate ERUs, but ERU generation should not be so restrictive. Parties with the ability to create surplus RECs, surplus energy efficiency, or take other measures that can create ERUs will have more incentive to do so if they can generate, bank, and transfer those ERUs themselves. RECs have a shorter shelf-life than ERUs—and incremental hydropower has an even shorter lifespan than RECs. Allowing entities without a compliance obligation to generate ERUs themselves will create a deeper pool of ERUs for trading under the CAR.

Furthermore, allowing those entities to bank and transfer ERUs will create a more liquid market for those instruments. The CAR already contemplates that there will be ERU transfers, and even that there will be assisted transfers of ERUs. If the goal is to facilitate these transfers—and it should be, because it lowers costs for consumers—then more entities should be allowed to generate, bank, and transfer ERUs.

Chelan PUD recognizes that Ecology does not want a completely open-ended ownership structure. A reasonable limitation would be to confine ERU ownership to entities that take actions to generate ERUs. For example, if an entity can generate surplus RECs, that entity should be permitted to generate ERUs from those RECs, and bank or transfer those ERUs as it sees fit.

Chelan PUD notes that, as written, the CAR is not as restrictive as Ecology has described it regarding ERU ownership. The sections on recording, banking, and exchanging ERUs (sections 173-442-120, 130, and 140, respectively) apply to covered parties. The CAR defines a covered party as the owner or operator of a stationary source located in Washington. Stationary source is not defined in the CAR, but section 173-442-020(3) incorporates the definitions in chapter 173-400 WAC by reference. Stationary source is defined in 173-400-030(86) as "any building, structure, facility, or installation which emits or may emit any air contaminant." Thus, as written, an entity can be a "covered party" under the CAR that can own, bank, and transfer ERUs without having any compliance obligation.

Requested Clarifications

In addition to its comments, Chelan PUD proposes the following specific changes to the text of the rule. These revisions are clarifications to ensure these sections of the CAR function as intended.

Section 173-442-160(5)(b)(i) of the CAR states that all eligible renewable resources, as defined by RCW 19.285.030(12), located within Washington may generate ERUs. Section 173-442-160(5)(b) mentions retirement of RECs and the Energy Independence Act; however, entities using incremental hydropower do not retire RECs for compliance with the Energy Independence Act. Adding the below suggested language to the “renewable energy credit” definition (emphasized text) in section 173-442-020(1)(q) would provide additional clarity.

“Renewable energy credit” means a tradable certificate of proof of an eligible renewable resource, as defined in RCW 19.285.030(12), that is verified by the renewable energy credit tracking system identified in WAC 194-37-210(1) and which includes all of the nonpower attributes associated with that electricity as identified in RCW 19.285.030(15).

Section 173-442-160(5)(a) of the CAR states that acquisition of conservation and energy efficiency, in excess of the targets required by RCW 19.285.040, may generate ERUs. Adding the below suggested language (emphasized text) to 173-442-160(5)(a) would provide additional clarity that ERUs from energy efficiency are not limited to the first year of the energy efficiency measure.

The acquisition of conservation and energy efficiency in excess of the targets required by the Energy Independence Act per RCW 19.285.040 and any additional targets established by the utilities and transportation commission by rule or order may generate ERUs over the life of the conservation or energy efficiency measure.

We appreciate Ecology’s continuing efforts to refine the CAR. We offer our comments and suggested revisions—along with our prior submissions outlining our principles and preferred solutions—for your consideration when finalizing the CAR. Please do not hesitate to contact us with questions or comments.

Sincerely,



Stephen J. Wright
General Manager
Chelan County PUD



July 22, 2016

Submitted via internet upload at <http://www.ecy.wa.gov/climatechange/engagement.htm>

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Re: Greenhouse Gas Reductions under the State's Proposed Clean Air Rule (Chapter 173-442 WAC)

To the Washington Department of Ecology:

The Center for Biological Diversity submits the following comments regarding the Proposed Clean Air Rule (Chapter 173-442 WAC), released by the Washington Department of Ecology on June 1, that would create a program to reduce greenhouse gas (GHG) emissions from certain large emission contributors.

The Center is a non-profit organization with more than one million members and online activists, and offices throughout the United States, including Washington. The Center's mission is to ensure the preservation, protection and restoration of biodiversity, native species, ecosystems, public lands and waters and public health. In furtherance of these goals, the Center's Climate Law Institute seeks to reduce U.S. greenhouse gas emissions and other air pollution to protect biological diversity, the environment, and human health and welfare.

The Center for Biological Diversity strongly supports the objectives of reducing greenhouse gas emissions and limiting the negative impacts to Washington's environment, economy, and communities. However, the proposed rule enshrines several fundamental policy decisions that would undermine those objectives, frustrate the development of an effective cap-and-trade program, prevent the achievement of meaningful reductions, and greatly exacerbate the risk of generating non-additional reductions.

The Center recognizes the substantial amount of work that has gone into the development of the proposed rule, and strongly urges the Department of Ecology and Governor Inslee to consider major changes to the rule and revise its approach to achieving the greenhouse gas emissions reductions necessary to reach the state's goals. The following comments focus on the largest structural problems with the proposed rule. Specifically, the following areas must be addressed through revision of the rule:

- The proposed rule must achieve greenhouse gas reductions consistent with state goals and objectives;
- The state must consider policy options other than a market mechanisms;
- Any effective market mechanism must include a single, rapidly declining cap over all covered sources, including all sources within the covered economic sectors;
- The proposed rule must seek steeper GHG reductions from a broader range of pollution sources, on a more immediate timeline;
- The generation of emissions reduction units (ERUs) should be limited to facilities within the covered sectors, and there must be stringent limits on the use of ERUs;
- The GHG emissions and climate impacts of combustion of wood for biomass energy generation in covered facilities must be addressed if reductions are to be real.

In addition, the Center supports the comments submitted on behalf of the Western Environmental Law Center and Our Children's Trust regarding the need for the proposed rule to be based on science-based limits to greenhouse gas emissions, and we incorporate those comments here by reference.

I. The proposed rule must achieve greenhouse gas reductions consistent with state goals and objectives.

The proposed rule seeks to achieve reductions by applying emission reduction requirements to a covered facility when the baseline GHG emissions for that facility exceed the threshold in a three-year compliance period. For instance, a facility with baseline emissions greater than 100,000 MTCO₂e would be required to reduce emissions by 1.7% annually in the first compliance period, 2017 to 2019; in 2020, the threshold for inclusion would be 95,000 MTCO₂e; 90,000 MTCO₂e in 2023; and so on. Based on emissions reporting since 2012, an estimated 24 facilities are expected to be required to begin reducing emissions in 2017, with more facilities covered in each subsequent compliance period. The initial 24 facilities, collectively, are estimated to represent two-thirds of the state's GHG emissions.

Flaws in this goal will prevent the state from achieving its mandated emissions reductions. First, the rule does not set a goal for a specified level of GHG emissions from the state as a whole, nor does it guarantee any particular amount of emissions reductions from the industrial sectors in which the covered facilities are operating. Second, many emissions sources would not be required to even begin reducing emissions until as late as 2032, and even then, there are broad categories of industrial facilities under this rule that are entirely exempt from requirements to reduce emissions at all. Exempted sources include, for example, industrial concentrated animal feed operations, the combustion of woody biomass in electricity generation, and a coal-fired power plant.¹

¹ WAC 173-442-040. Exemptions. (1) Covered GHG emissions do not include: (a) The following subparts referenced in Table 120-1 in WAC 173-441-120; (i) Manure Management: Subpart JJ; (ii) Suppliers of Coal-Based

Washington cannot afford to implement a lax program without specified emission limits and predictable emission reductions. In 2009, the Washington State Legislature approved the State Agency Climate Leadership Act E2SSB 5560, which established greenhouse gas emissions reduction limits for the state. That law requires Washington to reduce overall GHG emissions to 1990 levels by 2020, to 25% percent below 1990 levels by 2035, and to “do its part to reach global climate stabilization levels” by 2050.² A subsequent section of the code directs the Department of Ecology to make recommendations regarding whether the greenhouse gas emissions reductions required under RCW 70.235.020 need to be updated.³ And, in fact, Ecology has found that these limits “should be adjusted to better reflect the current science. The limits need to be more aggressive in order for Washington to do its part to address climate risks and to align our limits with other jurisdictions that are taking responsibility to address these risks.”⁴ In April 2014, Governor Inslee signed an Executive Order ordering the establishment of a cap on carbon pollution emissions, with binding requirements to meet these statutory emission limits.⁵ And in July 2015, Governor Inslee directed the Department of Ecology to “develop a regulatory cap on carbon emissions...to make sure the state meets its statutory emission limits.”⁶

Liquid Fuels: Subpart LL; (iii) Suppliers of Industrial Greenhouse Gases: Subpart OO; (iv) Importers and Exporters of Fluorinated Greenhouse Gases Contained in Pre-Charged Equipment or Closed-Cell Foams: Subpart QQ.

(b) CO₂ from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals, as provided in RCW 70.235.020(3); (c) CO₂ that is converted into mineral form and that is not emitted into the atmosphere; and (d) Emissions from a coal-fired baseload electric generation facility in Washington that emitted more than one million tons of GHGs in any calendar year prior to 2008, as provided in RCW 80.80.040(3).

² RCW 70.235.040. (1)(a) The state shall limit emissions of greenhouse gases to achieve the following emission reductions for Washington state: (i) By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels; (ii) By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels; (iii) By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year. (b) By December 1, 2008, the department shall submit a greenhouse gas reduction plan for review and approval to the legislature, describing those actions necessary to achieve the emission reductions in (a) of this subsection by using existing statutory authority and any additional authority granted by the legislature. Actions taken using existing statutory authority may proceed prior to approval of the greenhouse gas reduction plan.

³ RCW 70.235.040. “Consultation with climate impacts group at the University of Washington—Report to the legislature. Within eighteen months of the next and each successive global or national assessment of climate change science, the department shall consult with the climate impacts group at the University of Washington regarding the science on human-caused climate change and provide a report to the legislature summarizing that science and make recommendations regarding whether the greenhouse gas emissions reductions required under RCW 70.235.020 need to be updated.”

⁴ Department of Ecology, 2014. Washington Greenhouse Gas Emission Reduction Limits Report prepared under RCW 70.235.040, Publication no. 14-01-006, at 18.

⁵ http://www.governor.wa.gov/sites/default/files/exe_order/eo_14-04.pdf

⁶ From the statement by Gov. Inslee on July 28, 2015, titled “Inslee directing Ecology to develop regulatory cap on carbon emissions”: “Gov. Jay Inslee today directed the state Department of Ecology to step up enforcement of existing state pollution laws and develop a regulatory cap on carbon emissions...The regulatory cap on carbon emissions would force a significant reduction in air pollution and will be the centerpiece of Inslee’s strategy to make sure the state meets its statutory emission limits set by the Legislature in 2008.” Accessed at <http://www.governor.wa.gov/news-media/inslee-directing-ecology-develop-regulatory-cap-carbon-emissions>.

However, the proposed regulation does not achieve these levels of reductions, does not meet the statutory emissions limits, and guarantees no particular amounts of reduction.

The proposed regulation must comply with RCW 70.235.040 and Executive Order 14-04, and the Governor's July 28, 2015 direction. More broadly, the proposed regulation should seek to achieve reductions consistent with Washington's objectives to protect Washington's communities, natural resources and economy from the impacts of climate change, and to protect these values for future generations. Specifically, the proposed rule must seek steeper GHG reduction levels from a broader range of pollution sources, on a more immediate timeline—and must be directly tied to specific reductions in statewide GHG emissions levels—if it is to be consistent with the levels of reductions necessary to achieve state objectives.

At the national level, the United States has committed to the GHG reduction goal of holding the increase in the global average temperature “to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels” under the Paris Agreement.⁷ The Paris Agreement established the international goal of limiting global warming to 1.5°C above pre-industrial levels “recognizing that this would significantly reduce the risks and impacts of climate change” and in order to “prevent dangerous anthropogenic interference with the climate system,” as set forth in the U.N. Framework Convention on Climate Change, a treaty which the United States has ratified and to which it is bound.⁸ The Paris consensus on a 1.5°C warming goal reflects the findings of the IPCC and numerous scientific studies that indicate that 2°C warming would exceed thresholds for severe, extremely dangerous, and potentially irreversible impacts.⁹

Immediate and aggressive greenhouse gas emissions reductions are necessary to keep warming below a 1.5° or 2°C rise above pre-industrial levels. The IPCC Fifth Assessment Report and other expert assessments have established global carbon budgets, or the total amount of remaining carbon that can be burned while maintain some probability of staying below a given temperature target. According to the IPCC, total cumulative anthropogenic emissions of CO₂ must remain below about 1,000 gigatonnes (GtCO₂) from 2011 onward for a 66% probability of limiting warming to 2°C above pre-industrial levels, and below 400 GtCO₂ from 2011 onward

⁷ The Paris Agreement was adopted at the 2015 United Nations Framework Convention on Climate Change Conference of the Parties and signed by the United States in April 2016. *See targets in Paris Agreement at Article 2, Section 1(a)*, <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>

⁸ The United States Senate ratified the United Nations Framework Convention on Climate Change Conference on October 7, 1992. *See* <https://www.congress.gov/treaty-document/102nd-congress/38>.

⁹ IPCC. 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, at 65, Box 2.4, Figure 2.5, https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf; U.N. Framework Convention on Climate Change. 2015. Subsidiary Body for Scientific and Technical Advice. Report on the Structured Expert Dialogue on the 2013-15 Review, No. FCCC/SB/2015/INF.1, at 15-16, 30-32, <http://unfccc.int/resource/docs/2015/sb/eng/inf01.pdf>; Schleussner, C-F. et al. 2016. Differential climate impacts for policy-relevant limits to global warming: the case of 1.5°C and 2°C. *Earth System Dynamics* 7: 327-351.

for a 66% probability of limiting warming to 1.5°C above pre-industrial levels.¹⁰ These carbon budgets have been reduced to 850 GtCO₂ and 240 GtCO₂, respectively, from 2015 onward.¹¹ Given that global CO₂ emissions in 2014 alone totaled 36 GtCO₂,¹² humanity is rapidly consuming the remaining burnable carbon budget needed to have any reasonable chance of meeting the 1.5°C temperature goal.

In addition to limits on the *amount* of fossil fuels that can be utilized, emissions pathways compatible with a 1.5 or 2°C target also have a significant temporal element and require immediate and rapid reductions in GHG emissions. Leading studies make clear that to reach a reasonable likelihood of stopping warming at 1.5° or even 2°C, global CO₂ emissions must be phased out by mid-century and likely as early as 2040-2045.¹³ United States focused studies indicate that we must phase out fossil fuel CO₂ emissions even earlier—between 2025 and 2040—for a reasonable chance of staying below 2°C.¹⁴

The already severe impacts of global warming on Washington and the rest of the world from *current* atmospheric carbon dioxide (CO₂) levels highlight the urgency of staying below the 1.5°C target.¹⁵ As CO₂ levels continue to rise past 400 parts per million (ppm),¹⁶ the consequent effects of global warming are becoming ever more apparent. Extreme weather events, such as severe droughts, floods, and heat waves, and other climate disruptions are responsible for an estimated 400,000 deaths globally each year on average, with hundreds of millions of additional people adversely affected.¹⁷ Arctic sea ice loss, rising seas, growing food insecurity, bleaching of coral reefs, and biodiversity loss are mounting worldwide.¹⁸ The United States has experienced similar devastation at home, with coastal communities and the country's most vulnerable populations of the poor, the elderly, the sick and children bearing the brunt of public health

¹⁰ IPCC. 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, at63-64 & Table 2.2.

¹¹ See Table 2 in Rogelj, J. et al. 2016. Differences between carbon budget estimates unraveled. *Nature Climate Change* 6: 245-252.

¹² See Global Carbon Emissions, <http://co2now.org/Current-CO2/CO2-Now/global-carbon-emissions.html>

¹³ See, e.g. Rogelj, Joeri et al., Energy system transformations for limiting end-of-century warming to below 1.5°C, *Nature Climate Change* 5: 519, 522 (2015).

¹⁴ See, e.g. Climate Action Tracker, USA Rating Assessment webpage, <http://climateactiontracker.org/countries/usa>.

¹⁵ A target of 1.5°C, while obviously more protective of the climate than a 2°C target, may itself be too high. Dr. James Hansen and colleagues have recommended limiting warming to 1°C to “stabilize climate and avoid potentially disastrous impacts on today’s young people, future generations, and nature”. See Hansen, J.M. *et al.*, Assessing “dangerous climate change”: required reduction of carbon emissions to protect young people, future generations and nature, *8 PLoS ONE* 8 e81648 (2013).

¹⁶ See National Oceanic and Atmospheric Administration, Recent Monthly Average Mauna Loa CO₂, <http://www.esrl.noaa.gov/gmd/ccgg/trends/> (Dec. 2015 concentration of 401.85 ppm).

¹⁷ DARA and the Climate Vulnerability Forum. (2012) *Climate Vulnerability Monitor, 2nd Edition: A Guide to the Cold Calculus of a Hot Planet*. DARA Internacional, Madrid, 62 pp. <http://www.daraint.org/wp-content/uploads/2012/10/CVM2-Low.pdf> (“DARA”).

¹⁸ Melillo, Jerry M., Climate Change Impacts in the United States: The Third National Climate Assessment, Terese (T.C.) Richmond, and Gary W. Yohe, Eds., U.S. Global Change Research Program, doi:10.7930/J0Z31WJ2 (2014).

effects, property damage, and food insecurity.¹⁹ Indeed, the Environmental Protection Agency (EPA) concluded in April 2009 that “the evidence provides compelling support for finding that greenhouse gas air pollution endangers the public welfare of both current and future generations. The risk and the severity of adverse impacts on public welfare are expected to increase over time.”²⁰

Furthermore, the CO₂ reductions proposed here are insufficient to protect Washington’s coast from dangerous ocean acidification. Ocean waters off Washington are already corrosive to sealife during certain seasons, and the proposed rule is insufficient to prevent the further degradation of coastal waters from CO₂. The harmful effects of ocean acidification are already being observed in coastal and estuarine waters throughout Washington State, therefore any addition of CO₂ will deepen the problem. There is strong scientific evidence showing that growth, survival, and behavioral changes in marine species are linked to ocean acidification. These effects can extend throughout the food webs, threatening coastal ecosystems, fisheries, and human communities. Even if CO₂ emissions are totally halted today Washington has already committed to increasing ocean acidification for the next three to four decades. For this reason, Washington must take stronger action to rapidly reduce CO₂ emissions.

As the global oceans uptake the excess of CO₂, seawater chemistry profoundly changes and the oceans become more acidic.²¹ Once anthropogenic CO₂ enters the oceans it is impossible to remove it, and the global oceans may require thousands of years to naturally return to a higher pH state.²² While there is additional study needed, there are preliminary indications that local sources of CO₂ contribute to Washington’s coastal water chemistry changes. Spikes of coastal CO₂ correspond with local Seattle CO₂ spikes from commuter traffic and on warm days.²³

¹⁹ Watt, N. et al. 2015. Health and climate change: policy responses to protect public health. *The Lancet* 386: 1861-1914; USGCRP, 2016: *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, Eds. U.S. Global Change Research Program, Washington, DC, 312 pp. <http://dx.doi.org/10.7930/J0R49NQQ>.

²⁰ U.S. Environmental Protection Agency, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,498-99 (Dec. 15, 2009) (“Final Endangerment Finding”).

²¹ Orr, J.C. et al., 2005. Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms. *Nature*, 437(7059), pp.681–6; Fabry, V.J. et al., 2008. Impacts of ocean acidification on marine fauna and ecosystem processes. *ICES Journal of Marine Science*, 65(3), p.414; Fabry, V.J., 2009. Ocean acidification at high latitudes: the bellweather. *Oceanography*, 22(4), p.160; Doney, S.C. et al., 2009. Ocean Acidification: The Other CO₂ Problem. *Annual Review of Marine Science*, 1(1), pp.169–192; Gattuso, J.-P. & Hansson, L., 2011. *Ocean Acidification*, Oxford, UK: Oxford University Press; Gattuso, J.-P. & Hansson, L., 2011. *Ocean Acidification*, Oxford, UK: Oxford University Press.

²² Solomon, S. et al., 2009. Irreversible climate change due to carbon dioxide emissions. *Proceedings of the National Academy of Sciences of the United States of America*, 106(6), pp.1704–9.

²³ Feely, R.A., Klinger, T. & Newton, J.A., 2012. *Scientific Summary of Ocean Acidification in Washington State Marine Waters*, Washington State Blue Ribbon Panel on Ocean Acidification.

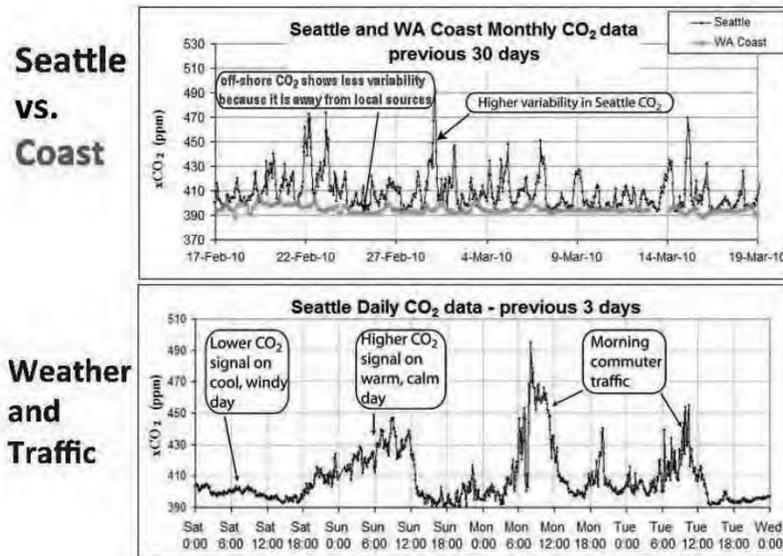


Figure 3.6 • Atmospheric $x\text{CO}_2$ (the mole fraction of CO_2 in units of ppm in dry air) measurements from NOAA PMEL for Seattle in blue (Space Needle) and the outer Washington Coast in green (Cape Elizabeth NOAA NDBC buoy) for 30 days in 2010 (upper) and 3 days (lower) to show higher resolution detail for Seattle. Also shown are comments on variation and associated activities. Graphics provided by E. Lettvin, Pacific Science Center; NOAA PMEL data exhibited in Pacific Science Center CO_2 kiosk and in collaboration with C. L. Sabine, NOAA PMEL.

The waters off Washington are extremely vulnerable to ocean acidification. Washington's surface waters already show undersaturation with respect to aragonite due to anthropogenic ocean acidification.²⁴ In fact, without acidification, undersaturated waters would have been as much as 50 m deeper than they are today.²⁵ Models predict that by the mid-century, surface coastal waters in this region would remain undersaturated during the entire summer upwelling season and more than half of nearshore waters throughout the entire year.²⁶ Already, the entire water column in Puget Sound's main basin is undersaturated with respect to aragonite in the winter.²⁷ Feely et al. (2010) estimated that human-cause ocean acidification accounts for 24-49% of the pH decrease in deep waters of the Hood Canal sub-basin in comparison with pre-

²⁴ Feely, R.A. et al., 2008. Evidence for upwelling of corrosive "acidified" water onto the continental shelf. *Science*, 320(5882), pp.1490-2; Feely, R.A. et al., 2010. The combined effects of ocean acidification, mixing, and respiration on pH and carbonate saturation in an urbanized estuary. *Estuarine, Coastal and Shelf Science*, 88(4), pp.442-449.

²⁵ Feely, R.A. et al., 2008. Evidence for upwelling of corrosive "acidified" water onto the continental shelf. *Science*, 320(5882), pp.1490-2.

²⁶ Gruber N, et al., 2012. Rapid progression of ocean acidification in the California Current System. *Science*, 37(6091), pp. 220-3; Hauri, C., et al., 2013: The intensity, duration, and severity of low aragonite saturation state events on the California continental shelf. *Geophys. Res. Lett.*, 40(13), 3424-8.

²⁷ Busch, D.S. et al., 2014. Shell Condition and Survival of Puget Sound Pteropods Are Impaired by Ocean Acidification Conditions. *PLOS ONE*, 9(8), p.e105884; Feely, R.A. et al., 2010. The combined effects of ocean acidification, mixing, and respiration on pH and carbonate saturation in an urbanized estuary. *Estuarine, Coastal and Shelf Science*, 88(4), pp.442-449.

industrial levels, and this will significantly increase overtime accounting for 49-82% of the pH decrease in subsurface water as atmospheric CO₂ concentration doubles to 560 ppm by the end of the century.²⁸

Ocean acidification has already affected oyster populations in estuarine waters of the U.S. Pacific Northwest.²⁹ Oyster production in the Pacific Northwest declined 22% between 2005 and 2009. In fact, Washington and Oregon alone experienced production declines of oyster seed hatcheries of up to 80% from 2006 to 2009.³⁰ In 2006, oyster larval production at the Whiskey Creek Hatchery (Netarts Bay, Oregon) substantially declined due to acidic water conditions leading to halted growth and oyster die offs.³¹ Other marine species are also harmed at levels of ocean acidification that occur off the Washington coast. For example, sampling studies along the Washington-Oregon-California coast showed that on average, severe dissolution is found in 53% of onshore pteropods and 24% of offshore individuals due to undersaturated waters in the top 100m with respect to aragonite.³²

Experiments have shown that ocean acidification has deleterious effects on many marine organisms³³ with long-term consequences for marine ecosystems.³⁴ Additionally, the toxicity of

²⁸ Feely, R.A. et al., 2010. The combined effects of ocean acidification, mixing, and respiration on pH and carbonate saturation in an urbanized estuary. *Estuarine, Coastal and Shelf Science*, 88(4), pp.442–449.

²⁹ Barton, A. et al., 2012. The Pacific oyster, *Crassostrea gigas*, shows negative correlation to naturally elevated carbon dioxide levels: Implications for near-term ocean acidification effects. *Limnology and Oceanography*, 57(3), pp.698–710; Barton, A. et al., 2015. Impacts of Coastal Acidification on the Pacific Northwest Shellfish Industry and Adaptation Strategies Implemented in Response. *Oceanography*, 25(2), pp.146–159; Timmins-Schiffman, E. et al., 2012. Elevated pCO₂ causes developmental delay in early larval Pacific oysters, *Crassostrea gigas*. *Marine Biology*, 160(8), pp.1973–1982.

³⁰ Chan, F. et al., 2016. The West Coast Ocean Acidification and Hypoxia Science Panel: Major Findings, Recommendations, and Actions, Oakland, California: California Ocean Science Trust.

³¹ Barton, A. et al., 2012. The Pacific oyster, *Crassostrea gigas*, shows negative correlation to naturally elevated carbon dioxide levels: Implications for near-term ocean acidification effects. *Limnology and Oceanography*, 57(3), pp.698–710.

³² Bednaršek, N. et al., 2014. *Limacina helicina* shell dissolution as an indicator of declining habitat suitability owing to ocean acidification in the California Current Ecosystem. *Proceedings of the Royal Society of London B: Biological Sciences*, 281(1785), p.20140123.

³³ Feely, R.A. et al., 2004. Impact of anthropogenic CO₂ on the CaCO₃ system in the oceans. *Science*, 305(5682), p.362; Cooley, S.R. & Doney, S.C., 2009. Anticipating ocean acidification's economic consequences for commercial fisheries. *Environmental Research Letters*, 4(2), p.024007; Hendriks, I.E., Duarte, C.M. & Álvarez, M., 2010. Vulnerability of marine biodiversity to ocean acidification: A meta-analysis. *Estuarine, Coastal and Shelf Science*, 86(2), pp.157–164; Kroeker, K.J. et al., 2013. Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming. *Global Change Biology*, (707), p.n/a–n/a; Waldbusser, G.G. et al., 2015. Saturation-state sensitivity of marine bivalve larvae to ocean acidification. *Nature Climate Change*, 5(3), pp.273–280; Yang, Y., Hansson, L. & Gattuso, J.-P., 2016. Data compilation on the biological response to ocean acidification: an update. *Earth System Science Data*, 8(1), pp.79–87

³⁴ Hoegh-Guldberg, O., 2007. Coral reefs under rapid climate change and ocean acidification. *Science*, 318, pp.1737–1742; Pandolfi, J.M. et al., 2011. REVIEW Projecting Coral Reef Futures Under Global Warming and Ocean Acidification. , 333(July), pp.418–422; Couce, E., Ridgwell, A. & Hendy, E.J., 2013. Future habitat suitability for coral reef ecosystems under global warming and ocean acidification. *Global Change Biology*, 19(12), pp.3592–3606; Nagelkerken, I. & Connell, S.D., 2015. Global alteration of ocean ecosystem functioning due to

harmful algal blooms increases with ocean acidification and eutrophication can alter phytoplankton growth and succession.³⁵ Harmful algal blooms can cause mass mortality of wildlife, shellfish harvesting closures, and tremendous risk to human health. Some species of *Pseudo-nitzschia*, a global distributed diatom genus, produce domoic acid, a neurotoxin that causes amnesic shellfish poisoning. Studies have shown that acidified conditions due to increasing pCO₂ can increase toxins concentration as much as five-fold in this harmful microalgae.³⁶

Because ocean acidification is already occurring at levels that are harmful to marine organisms, and risk damaging fisheries, ecosystems and coastal communities that depend upon them; any addition of CO₂ will deepen this problem. It is thus necessary that Washington make even deeper and more rapid cuts in CO₂ than would be provided by the proposed rule.

II. The focus on an allowance trading system ignores regulatory options necessary for achieving the emissions reductions necessary to achieve state goals.

The proposed rule is focused on Washington's largest industrial GHG polluters and the establishment of a carbon trading system that extends to GHG sources throughout the larger economy. At first, only the largest industrial sources are required to reduce emissions (estimated to represent two-thirds of the state's GHG emissions). This includes natural gas distributors, electricity generators and large industrial stationary sources, and petroleum fuel producers and importers; it explicitly does not include the TransAlta coal-fired power plant, agricultural sources such as manure management, emissions associated with imported electricity, and emissions from the combustion of woody biomass. The proposed rule would include these sources and other GHG emissions throughout the rest of the state's economy only through the establishment of an allowance trading system.

In contrast, California's approach to achieving statewide GHG reductions includes direct regulation and various other policies specific to individual source categories and economic sectors are responsible for more than 70 percent of GHG reductions between 2012 and 2020.³⁷ These include a wide array of programs targeted at, for example, passenger vehicles, energy

increasing human CO₂ emissions. Proceedings of the National Academy of Sciences, p.201510856; Linares, C. et al., 2015. Persistent natural acidification drives major distribution shifts in marine benthic ecosystems. Proc. R. Soc. B, 282(1818), p.20150587.

³⁵ Wu, Y. et al., 2014. Ocean acidification enhances the growth rate of larger diatoms. Limnology and Oceanography, 59(3), pp.1027–1034; Flynn, K.J. et al., 2015. Ocean acidification with (de)eutrophication will alter future phytoplankton growth and succession. Proceedings of the Royal Society of London B: Biological Sciences, 282(1804), p.20142604.

³⁶ Sun, J. et al., 2011. Effects of changing p CO₂ and phosphate availability on domoic acid production and physiology of the marine harmful bloom diatom *Pseudo-nitzschia multiseries*. Limnology and Oceanography, 56(3), pp.829–840; Tatters, A.O., Fu, F.-X. & Hutchins, D.A., 2012. High CO₂ and Silicate Limitation Synergistically Increase the Toxicity of *Pseudo-nitzschia fraudulenta*. PLoS ONE, 7(2), p.e32116.

³⁷ California Air Resources Board, 2014. First Update to the Climate Change Scoping Plan, <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>

efficient buildings, water use, industrial chemicals, landfills and recycling, and public transportation. Notably, the cap-and-trade program is responsible for less than 30 percent of projected GHG reductions in California by 2020. And this despite the fact that California's cap-and-trade program extends to pollution sources responsible for 85 percent of California's greenhouse gas emissions through 2020, compared with only two-thirds of emissions in Washington's proposed program. In addition, California's cap-and-trade program applied from the start to all electricity generators and large industrial facilities with annual emissions greater than 25,000 MTCO₂e, in contrast to Washington's proposal to cover only those facilities with annual GHG emissions greater than 100,000 MTCO₂e.

By focusing on only the largest individual GHG pollution sources and the development of an allowance trading scheme, the proposed regulation ignores a wide array of opportunities to achieve effective GHG reductions—and, in many cases, dramatic reductions in air pollutants associated with those GHG emissions—from a broad range of pollution sources in the state, forfeiting not only the potential emissions reductions but the many co-benefits for air quality, public health, and the economy.

III. The proposed market mechanism includes no cap, which defeats the effectiveness of an allowance trading program.

The proposed regulation allows a covered facility to comply with the reduction requirements through the purchase of an unlimited number of emission reduction units (ERUs), essentially, carbon offset credits, from any GHG emission source occurring within Washington, including from other natural gas distributors, electricity generators, large industrial stationary sources, and petroleum fuel producers with annual GHG emissions less than 100,000 MTCO₂e. The proposed approach is essentially cap-and-trade without a cap, and it greatly undermines the quantity of reductions that can be achieved under the proposed regulation as well as the certainty that the reductions will be additional and real.

It is not possible to achieve reductions in statewide GHG emissions when carbon credits can be generated by facilities within the same economic sectors as the facilities that are required to reduce their emissions. The effectiveness of a cap-and-trade program is based on its ability to place a price on GHG emissions, forcing reductions and increased efficiency within a particular economic sector. This effect is eliminated if offset credits can be generated by other polluters within that same economic sector (for example, electricity generators with annual GHG emissions less than 100,000 MTCO₂e). Instead, the proposed rule should be revised to apply a single cap over all covered sources, including all sources within the covered economic sectors.

IV. The value of the reductions is undermined by the unlimited use of poorly defined offsets.

As mentioned above, the proposed regulation allows a covered facility to comply with the reduction requirements through the purchase of an unlimited number of emission reduction units

(ERUs), essentially, carbon offset credits, from any GHG emission source occurring within the state. Furthermore, the proposed rule allows for ad hoc development of ERUs by any “project or program,” with no specific methodology for quantifying ERUs and only the general criteria that ERUs are real, specific, identifiable, and quantifiable; permanent; enforceable; verifiable; and additional to existing law or rule.³⁸ This approach would allow for an unlimited number of different methodologies for the generation of ERUs, including multiple methodologies for the same category of reductions. This dramatically increases the difficulty of determining the quality and quantity of reductions generated as ERUs, and greatly increases the potential for offset project developers to devise a methodology to their specific advantage or to select among various methodologies for one that maximizes the number of ERUs credited from their project. Furthermore, the criterion that ERUs must be “additional to existing law” is inadequate to provide for additionality as it is usually applied to offset credits. For example, in California’s Global Warming Solutions Act, AB 32, additionality is defined as “in addition to any greenhouse gas emission reduction otherwise required by law or regulation, *and any other greenhouse gas emission reduction that otherwise would occur.*”³⁹ Emphasis added. In sum, the ERU provisions include a high likelihood that ERUs would be generated from non-additional activities.

The generation of ERUs should be limited to facilities within the covered sectors, and there must be stringent limits on the use of offsets. ERUs should be included only pursuant to quantification methodologies developed by the state, approved through a formal process that includes input from relevant experts and agencies and with opportunities for public review.

By allowing power plants to use ERUs from outside the electricity sector (and outside of any capped sector), and by exempting the GHG emissions resulting from bioenergy generation, the proposed rule would frustrate, and even undermine, compliance with the federal Clean Power Plan.⁴⁰ Allowing bioenergy to generate allowances or ERUs based on life cycle or carbon cycle considerations (including anticipated resequestration or avoided emissions) is indistinguishable from allowing out-of-sector offsets as compliance instruments. Neither the text nor the structure of the Clean Air Act authorizes the use of out-of-sector offsets in developing a performance standard under section 111.⁴¹ EPA properly rejected the use of out-of-sector offsets as

³⁸ WAC 173-442-150. Criteria for activities and programs generating emission reduction units. (1) General criteria. An activity or program generating ERUs must meet all of the following criteria. Emission reductions from activities or programs must be: (a) Real, specific, identifiable, and quantifiable; (b) Permanent: The activity or program must result in an irrevocable and nonreversible reduction in GHGs released to the atmosphere; (c) Enforceable by the state of Washington; (d) Verifiable as described by WAC 173-442-210; and (e) Additional to existing law or rule...

³⁹ California Health and Safety Code, Section 38562.

⁴⁰ WAC 173-442-150. Criteria for activities and programs generating emission reduction units... (2) RCW 70.235.030(3) establishes that CO₂ emissions from the industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals are carbon neutral and result in zero CO₂ emissions.

⁴¹ See *Center for Biological Diversity v. EPA*, 722 F.3d 401, 413-14 (D.C. Cir. 2013) (Kavanaugh, J., concurring) (discussing similar textual provisions in Prevention of Significant Deterioration program and concluding that “[t]he statute does not allow EPA to exempt those sources’ emissions of a covered air pollutant just because the effects of those sources’ emissions on the atmosphere might be offset in some other way.”).

compliance measures in the final CPP.⁴² As elaborated in responses to comments on the proposed CPP, EPA’s rationale was that out-of-sector offsets are not “connected to the electrical grid and so cannot reliably address stack CO₂ emissions from affected EGUs.”⁴³

This rationale precludes using either co-fired or stand-alone bioenergy to generate allowances or ERCs. Co-firing biomass with fossil fuels at a covered EGU increases stack CO₂ emissions. Ignoring that increase, or treating co-firing emissions as zero-carbon, based on carbon cycle considerations like anticipated future sequestration or avoided decomposition is analytically identical to using an out-of-sector offset for compliance: the offsetting sequestration or avoided emissions, like out-of-sector offsets, are not connected to the electrical grid and do nothing to reduce stack emissions from affected EGUs.

The same problem arises for stand-alone biomass facilities. Like other forms of renewable energy, bioenergy generated at stand-alone biomass plants—generating units not covered under the CPP—theoretically could reduce generation, and thus stack emissions, at covered EGUs. But that non-covered generation is higher-emitting than the generation it replaces, and thus again results in a contemporaneous increase in CO₂ emissions that can be discounted or ignored only based on carbon cycle considerations that have no direct connection to the electrical grid. The out-of-sector offset is one step removed from the covered facility, but the offset itself remains critical to the conclusion that bioenergy generation reduces emissions of CO₂, the pollutant of central concern under the CPP. Indeed, using stand-alone bioenergy to generate allowances or ERCs is simply a way of “laundering” otherwise prohibited out-of-sector offsets.

V. The GHG emissions and climate impacts of combustion of wood for biomass energy generation in covered facilities must be addressed if reductions are to be real.

⁴² See, e.g., Final CPP, 80 Fed. Reg. at 64,762/3 (purchasing offsets is not part of a “system of emission reduction”); 64,776/3 (because emission standards must apply to affected sources, “actions taken by affected sources that do not result in emission reductions from the affected sources—for example, offsets (e.g., the planting of forests to sequester CO₂)—do not qualify for inclusion in the BSER”); 64,846/3 (state measures plan must account for “out-of-sector GHG offsets”); 64,891/2-3 & n.920 (states could modify broader programs to “remove flexibility mechanisms that functionally expand the emission budget, such as out-of-sector offsets . . .”); 64,891/3-64,892/1 n.922 (achievement of mass-based CO₂ goal must be “based solely on stack CO₂ emissions from affected EGUs” and no “credit” may be reduced from reported stack emissions due to use of GHG offsets); 64,903/3 (“Measures that reduce CO₂ emissions outside the electric power sector may not be counted toward meeting a CO₂ emission performance level for affected EGUs or a state CO₂ goal, under either a rate-based or mass-based approach, because all of the emission reduction measures included in the EPA’s determination of the BSER reduce CO₂ emissions from affected EGUs. Examples of measures that may not be counted toward meeting a CO₂ emission performance level for affected EGUs or a state CO₂ goal include GHG offset projects representing emission reductions that occur in the forestry and agriculture sectors [and] direct air capture . . .”); 40 C.F.R. § 60.5800(c) (“ERCs may not be issued to or for any of the following: . . . (3) Measures that reduce CO₂ emissions outside the electric power sector, including, for example, GHG offset projects representing emission reductions that occur in the forestry and agriculture sectors, direct air capture, . . .”).

⁴³ See, e.g., EPA’s Responses to Public Comments on the EPA’s Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units §§ 5.7-5.15 at 163, 164 (Aug. 2015).

The proposed rule does not recognize the GHG emissions and climate impacts of the industrial combustion of wood, pursuant to an exemption in a prior statute.⁴⁴ This means that not only will the proposed rule not require reductions of these particular emissions, but also that increased combustion of wood feedstock can itself be used as a reduction measure, either by a covered facility, such as a large power plant, or as an ERU generated by a non-covered facility. Under this scenario, the proposed rule would result in increased emissions, rather than reductions from certain facilities, and potentially from the electricity production sector as a whole.

A. The greenhouse gas emissions from the combustion of wood are real, quantifiable, and substantial.

Wood contains a great deal of carbon. Harvesting and processing of wood products result in substantial CO₂ emissions.⁴⁵ Combustion of wood for energy instantaneously releases virtually all of the carbon in the wood to the atmosphere as CO₂. Burning wood for energy is typically less efficient, and thus far more carbon-intensive per unit of energy produced, than burning fossil fuels. Measured at the stack, biomass combustion produces significantly more CO₂ per megawatt-hour than fossil fuel combustion; a large biomass-fueled boiler may have an emissions rate far in excess of 3,000 lbs CO₂ per MWh.⁴⁶ Smaller-scale facilities using gasification technology are similarly carbon-intensive; a bioenergy project recently approved by Placer County, California, would have an emissions rate of more than 3,300 lbs CO₂/MWh.⁴⁷ As one recent scientific article noted, “[t]he fact that combustion of biomass generally generates more CO₂ emissions to produce a unit of energy than the combustion of fossil fuels increases the difficulty of achieving the goal of reducing GHG emissions by using woody biomass in the short

⁴⁴ RCW 70.235.020 (3) Except for purposes of reporting, emissions of carbon dioxide from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals shall not be considered a greenhouse gas as long as the region's silvicultural sequestration capacity is maintained or increased.

⁴⁵ Mark E. Harmon, et al., *Modeling Carbon Stores in Oregon and Washington Forest Products: 1900-1992*, 33 CLIMATIC CHANGE 521, 546 (1996) (concluding that 40-60% of carbon in harvested wood is “lost to the atmosphere . . . within a few years of harvest” during wood products manufacturing process).

⁴⁶ The Central Power and Lime facility in Florida, for example, is a former coal-fired facility recently permitted to convert to a 70-80 MW biomass-fueled power plant. According to permit application materials, the converted facility would consume the equivalent of 11,381,200 MMBtu of wood fuel per year. See Golder Assoc., Air Construction Permit Application: Florida Crushed Stone Company Brooksville South Cement Plant’s Steam Electric Generating Plant, Hernando County Table 4-1 (Sept. 2011). Using the default emissions factor of 93.8 kg/MMBtu CO₂ found in 40 C.F.R. Part 98, and conservatively assuming both 8,760 hours per year of operation and electrical output at the maximum 80 MW nameplate capacity, the facility would produce about 3,350 lbs/MWh CO₂. If the plant were to produce only 70 MW of electricity, the CO₂ emissions rate would exceed 3,800 lbs/MWh. If such a facility were dispatched to replace one MWh of fossil-fuel fired generation with one MWh of biomass generation, the facility’s elevated emissions rate would also result in proportionately higher emissions on a mass basis.

⁴⁷ Ascent Environmental, Cabin Creek Biomass Facility Project Draft Environmental Impact Report, App. D (July 27, 2012) (describing 2 MW gasification plant with estimated combustion emissions of 26,526 tonnes CO₂e/yr and generating 17,520 MWh/yr of electricity, resulting in an emissions rate of 3,338 lbs CO₂e/MWh).

term.”⁴⁸ Put more directly, replacing fossil-fired electricity with biomass electricity *increases* smokestack CO₂ emissions. Depending on the overall carbon intensity of the electrical grid, that increase could be dramatic.

Biomass and fossil CO₂ are indistinguishable in terms of their atmospheric forcing effects.⁴⁹ Claims about the purported climate benefits of biomass energy thus turn entirely on “net” carbon cycle effects, particularly the possibility that new growth will re-sequester carbon emitted from combustion, and/or the possibility that biomass combustion might “avoid” emissions that would otherwise occur. But even if these net carbon cycle effects are taken into account, emissions from biomass power plants can increase atmospheric CO₂ concentrations for decades to centuries depending on feedstocks, biomass harvest practices, and other factors. Multiple studies have shown that it can take a very long time to discharge the “carbon debt” associated with bioenergy production, even where fossil fuel displacement is assumed, and even where “waste” materials like timber harvest residuals are used for fuel.⁵⁰ One study, using realistic assumptions about initially increased and subsequently repeated bioenergy harvests of woody biomass, concluded that the resulting atmospheric emissions increase may even be permanent.⁵¹

It thus cannot be assumed that biomass CO₂ emissions have no effect on the climate. As EPA’s Science Advisory Board panel on biogenic CO₂ emissions concluded, biomass cannot be considered a priori “carbon neutral.”⁵² Rather, a full and scrupulously accurate life-cycle analysis is essential to understanding the atmospheric implications of burning biomass for energy.⁵³ In

⁴⁸ David Neil Bird, et al., *Zero, one, or in between: evaluation of alternative national and entity-level accounting for bioenergy*, 4 GLOBAL CHANGE BIOLOGY BIOENERGY 576, 584 (2012), doi:10.1111/j.1757-1707.2011.01137.x.

⁴⁹ U.S. EPA Science Advisory Board, *Science Advisory Board Review of EPA’s Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources* 7 (Sept. 28, 2012) (hereafter “SAB Panel Report”); see also *Center for Biological Diversity, et al. v. EPA*, 722 F.3d 401, 406 (D.C. Cir. 2013) (“In layman’s terms, the atmosphere makes no distinction between carbon dioxide emitted by biogenic and fossil-fuel sources”).

⁵⁰ See, e.g., Stephen R. Mitchell, et al., *Carbon Debt and Carbon Sequestration Parity in Forest Bioenergy Production*, GLOBAL CHANGE BIOLOGY BIOENERGY (2012) (“Mitchell 2012”), doi: 10.1111/j.1757-1707.2012.01173.x; Ernst-Detlef Schulze, et al., *Large-scale Bioenergy from Additional Harvest of Forest Biomass is Neither Sustainable nor Greenhouse Gas Neutral*, GLOBAL CHANGE BIOLOGY BIOENERGY (2012), doi: 10.1111/j.1757-1707.2012.01169.x at 1-2; Jon McKechnie, et al., *Forest Bioenergy or Forest Carbon? Assessing Trade-Offs in Greenhouse Gas Mitigation with Wood-Based Fuels*, 45 ENVIRON. SCI. TECHNOL. 789 (2011); Anna Repo, et al., *Indirect Carbon Dioxide Emissions from Producing Bioenergy from Forest Harvest Residues*, GLOBAL CHANGE BIOLOGY BIOENERGY (2010) (“Repo 2010”), doi: 10.1111/j.1757-1707.2010.01065.x; John Gunn, et al., *Manomet Center for Conservation Sciences, Massachusetts Biomass Sustainability and Carbon Policy Study* (2010), available at https://www.manomet.org/sites/manomet.org/files/Manomet_Biomass_Report_Full_LoRez.pdf (visited May 24, 2016).

⁵¹ Bjart Holtsmark, *The Outcome Is in the Assumptions: Analyzing the Effects on Atmospheric CO₂ Levels of Increased Use of Bioenergy From Forest Biomass*, GLOBAL CHANGE BIOLOGY BIOENERGY (2012), doi: 10.1111/gcbb.12015.

⁵² SAB Panel Report, *supra* note 24 at 18.

⁵³ See *id.*; see also generally Timothy D. Searchinger, et al., *Fixing a Critical Climate Accounting Error*, 326 SCIENCE 527 (2009); see also Mitchell 2012, *supra* note 50 at 9 (concluding that management of forests for

particular, biomass emissions must be compared with emissions that would otherwise occur if the materials were not used for bioenergy.⁵⁴ Such a comparison requires careful attention not only to the quantity of emissions, but also to the timeframe on which the emissions occur; bioenergy emissions occur almost instantaneously, while future resequstration or avoided decomposition may take years, decades, or even centuries to achieve atmospheric parity.

B. Biomass harvests decrease the carbon sequestration capacity of forests.

The proposed regulations exclude from “covered GHG emissions” “CO₂ from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals, as provided in RCW 70.235.020(3).” RCW 70.235.020(3), in turn, states that except for reporting purposes, carbon dioxide from “industrial combustion” of wood “shall not be considered a greenhouse gas as long as the region’s silvicultural sequestration capacity is increased.”

It is a scientific fact that forest biomass removal and combustion can reduce “silvicultural sequestration capacity” over policy-relevant timescales.⁵⁵ Recognizing this fact, EPA’s Science Advisory Board panel roundly rejected EPA’s proposal, in its original draft “Framework” for assessing biomass CO₂ emissions, to use a “regional reference point” baseline in accounting. The “regional reference point” approach assumes that if overall forest carbon stocks are stable or increasing on an annual basis in the region where a particular biomass-burning facility is located, there is no need to consider that facility’s biomass CO₂ emissions.⁵⁶ EPA’s science panel concluded that this approach “does not indicate, or estimate, the differences in greenhouse gas emissions (the actual carbon gains and losses) over time that stem from biomass use. As a result, the Framework fails to capture the causal connection between forest biomass growth and harvesting and atmospheric impacts and thus may incorrectly assess net CO₂ emissions of a facility’s use of a biogenic feedstock.”⁵⁷ Other scientists have pointed out that a related approach—ignoring emissions from facilities using wood from forests managed according to “sustained yield” principles—“ignor[es] the principles of carbon mass balance” and overlooks the fact that harvests in managed forests tend to reduce sequestration capacity relative to what otherwise would have occurred.⁵⁸

maximum carbon sequestration provides straightforward and predictable benefits, while managing forests for bioenergy production requires careful consideration to avoid a net release of carbon to the atmosphere).

⁵⁴ See SAB Panel Report, *supra* note 49 at 18; see also Michael T. Ter-Mikaelian, et al., *The Burning Question: Does Forest Bioenergy Reduce Carbon Emissions? A Review of Common Misconceptions about Forest Carbon Accounting*, 113 J. FORESTRY 57 (2015).

⁵⁵ See, e.g., Mitchell 2012, *supra* note 50 [discussing concept of “carbon sequestration parity”].

⁵⁶ U.S. EPA, *Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources* at 42 (Sept. 2011)

(“Original Accounting Framework”), available at

<https://www.epa.gov/climatechange/Downloads/ghgemissions/Biogenic-CO2-Accounting-Framework-Report-Sept-2011.pdf>.

⁵⁷ SAB Panel Report, *supra* note 49 at 5-6.

⁵⁸ Ter-Mikaelian, *supra* note 54.

Both the proposed regulation and the underlying statute may reflect an unstated baseline grounded in the erroneous “regional reference point” assumption. But even on the statute’s terms, both EPA’s science advisors and independent scientists have found that biomass harvest and combustion necessarily have an effect on “silvicultural sequestration capacity,” regardless of whether regional forest carbon stocks are “maintained or increased.” Accordingly, CO₂ emissions from woody biomass combustion cannot and should not be excluded from coverage under the proposed regulation.

C. There is no basis for ignoring the CO₂ emissions from the industrial combustion of woody biomass.

Some argue that burning trees and other materials from forest “thinning” operations has no effect on CO₂ concentrations. This is also incorrect. Several studies have demonstrated that thinning forests and burning the resulting materials for bioenergy can result in a loss of forest carbon stocks and a transfer of carbon to the atmosphere lasting many years. Because it is impossible to know in advance that wildfire will occur in a thinned stand, thinning operations may remove carbon that never would have been released in a wildfire; one recent study concluded, for this and other reasons, that thinning operations tend to remove about three times as much carbon from the forest as would be avoided in wildfire emissions.⁵⁹ Another report from Oregon found that thinning operations resulted in a net loss of forest carbon stocks for up to 50 years.⁶⁰ Another published study found that even light-touch thinning operations in several Oregon and California forest ecosystems incurred carbon debts lasting longer than 20 years.⁶¹ Other recent studies have shown that intensive harvest of logging residues that otherwise would be left to decompose on site can deplete soil nutrients and retard forest regrowth as well as reduce soil carbon sequestration.⁶²

It has been argued that if logging residues otherwise would be burned in the open, using those same materials for bioenergy might result in a very short carbon payback period. However, unlike combustion in a bioenergy facility, broadcast and pile burning of logging slash does not tend to consume all of the material; a significant portion may remain uncombusted on site. According to Forest Service research, fuel consumption in slash piles can range as low as 75%.⁶³ Combustion factors for broadcast understory burning of coarse woody debris can be as low as

⁵⁹ John L. Campbell, et al., *Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions?* FRONT. ECOL. ENV'T (2011), doi:10.1890/110057.

⁶⁰ Joshua Clark, et al., *Impacts of Thinning on Carbon Stores in the PNW: A Plot Level Analysis*, Final Report (Ore. State Univ. College of Forestry May 25, 2011).

⁶¹ Tara Hudiburg, et al., *Regional carbon dioxide implications of forest bioenergy production*, 1 NATURE CLIMATE CHANGE 419 (2011), doi:10.1038/NCLIMATE1264.

⁶² David L. Achat, et al., *Forest soil carbon is threatened by intensive biomass harvesting*, SCIENTIFIC REPORTS 5:15991 (2015), doi:10.1038/srep15991; D.L. Achat, et al., *Quantifying consequences of removing harvesting residues on forest soils and tree growth – A meta-analysis*, 348 FOREST ECOLOGY & MGMT. 124 (2015).

⁶³ Colin C. Hardy, *Guidelines for Estimating Volume, Biomass, and Smoke Production for Piled Slash*, U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station, Gen. Tech. Rep. PNW-GTR-364 (1996).

60%.⁶⁴ Moreover, open burning of slash is not a universal practice, nor is it universally permissible; rather, it depends on local conditions, including weather and relevant air quality regulations.

Nor can other potential woody biomass feedstocks be treated as carbon neutral by default. Sawmill waste, for example, might be used for wood products manufacturing rather than disposed of in a manner that results in short-term decomposition emissions; use of this material for bioenergy thus might result in long-term net increases in atmospheric CO₂.⁶⁵ Forestry residues (including the “slash” left behind from logging operations) also typically take years to decades to decompose, and use of these materials can incur a significant carbon debt period.⁶⁶ Moreover, recent studies have shown that intensive harvest of logging residues that otherwise would be left to decompose on site can deplete soil nutrients and retard forest regrowth as well as reduce soil carbon sequestration.⁶⁷

Finally, the state cannot assume that materials produced under state (or private) “sustainable forestry” programs will result in atmospheric CO₂ reductions within relevant time frames. State-level sustained yield forestry regulations may ensure that overall growth exceeds harvest, but they do not ensure the carbon neutrality of bioenergy or otherwise guarantee against net transfers of forest carbon to the atmosphere compared to what would occur in the absence of biomass generation.⁶⁸

VIII. Conclusion

The Center for Biological Diversity strongly urges the Department of Ecology and Governor Inslee to consider major changes to the proposed regulation and Washington’s approach to achieving the greenhouse gas emissions reductions necessary to achieve the state’s goals. We understand that undertaking these changes will most likely require issuing a revised regulation, as has already occurred once with this regulation. And we further understand that the state is operating under a court-ordered deadline pursuant to litigation from Our Children’s Trust. However, given the fundamental inadequacies of the proposed regulation, and the great importance of setting the state on a course for reducing greenhouse gas emissions and limiting

⁶⁴ See Eric E. Knapp et al., *Fuel Reduction and Coarse Woody Debris Dynamics with Early Season and Late Season Prescribed Fire in a Sierra Nevada Mixed Conifer Forest*, 208 FOREST ECOLOGY & MGMT. 383 (2005).

⁶⁵ U.S. EPA, *Framework for Assessing Biogenic CO₂ Emissions from Stationary Sources*, App. D at D-7 to D-9 (Nov. 2014) (“Revised Draft Framework”).

⁶⁶ EPA has acknowledged that forestry residues, for example, may take 10-15 years to decompose if not used for bioenergy. Deferral for CO₂ Emissions From Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration (PSD) and Title V Programs: Proposed Rule, 76 Fed. Reg. 15249, 15259/1 (March 21, 2011). Other studies have shown that larger “residues” may take much longer to decompose. See Anna Repo, et al., *Indirect Carbon Dioxide Emissions from Producing Bioenergy from Forest Harvest Residues*, Global Change Biology Bioenergy (2010) (“Repo 2010”), doi: 10.1111/j.1757-1707.2010.01065.x.

⁶⁷ David L. Achat, et al., *Forest soil carbon is threatened by intensive biomass harvesting*, Scientific Reports 5:15991 (2015), doi:10.1038/srep15991; D.L. Achat, et al., *Quantifying consequences of removing harvesting residues on forest soils and tree growth – A meta-analysis*, 348 Forest Ecology & Mgmt. 124 (2015).

⁶⁸ See Ter-Mikaelian 2015, *supra* note 54.

Center for Biological Diversity

Re: comments regarding the Washington Department of Ecology Proposed Clean Air Rule (Chapter 173-442 WAC)

July 22, 2016

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the negative impacts to Washington's environment, economy, and communities, it would be counterproductive to adopt the proposed regulation in its current form. The State must address several fundamental policy decisions embodied in the rule that would undermine the development of an effective climate program and achievement of meaningful greenhouse gas emissions reductions, while creating the very real risk of generating non-additional reductions.

Thank you for your consideration of these comments. Please contact us if you have any questions.

Sincerely,

Anna Moritz

Staff Attorney

(425) 780-6204

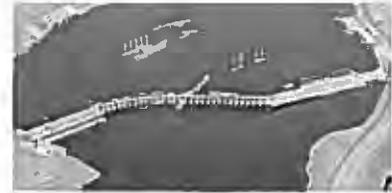
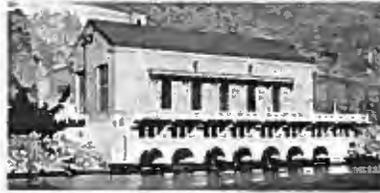
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July 22, 2016

Washington State Department of Ecology

300 Desmond Drive SE

Lacey, WA 98503

RE: Comments on Clean Air Rule

To whom it may concern:

During the interim between the initial release and re-release of the Clean Air Rule (CAR), Chelan PUD provided comments to Ecology describing our greenhouse gas principles and the elements and objectives we believe should be part of a successful greenhouse gas program. Ecology made several changes that we believe are improvements.

The inclusion of all eligible renewable resources as sources of emission reduction units (ERUs) is a welcome change. Washington State is fortunate to have large amounts of hydropower generation. The state should seek to take advantage of these plentiful, carbon-free resources as part of its greenhouse gas reduction strategy. Recognizing the value of incremental hydropower is a good first step. Similarly, allowing the use of energy efficiency gains, beyond those required for the Energy Independence Act, to generate ERUs could encourage increased utilization of energy efficiency—another beneficial, carbon-free resource.

Chelan PUD also appreciates the changes Ecology made to remove incentives for industrial entities that eliminate or relocate in-state production. This change benefits local communities that may have faced the prospect of lost jobs and economic opportunity, if companies had chosen to leave the state to exploit the original rule. The changes to the rule should also decrease opportunities for greenhouse gas leakage from the industrial sector, helping the rule meet its overall greenhouse gas reduction goals.

As Ecology finalizes the CAR, there are two areas that require additional improvement: the plan for transitioning the electricity sector to the Clean Power Plan (CPP), and the framework for generating, banking, and transferring ERUs. Chelan PUD also suggests some clarifying language regarding the use of incremental hydropower and energy efficiency for generating ERUs.

Clean Power Plan Transition

The State Implementation Plan should be mass-based and trading-ready

As Chelan PUD pointed out in prior comments, a mass-based, trading-ready program is the best option for Washington to use for CPP implementation. It provides a least-cost approach to reductions that benefits consumers. The approach is lower-cost because it is technology neutral—allowing Washington to leverage its abundant supply of hydropower. A mass-based program also accounts for all emissions from covered electric generators and caps total, actual emissions. This would reduce reporting and compliance costs. There are also several mass-based programs operating in North America that could serve as models for Washington’s system, reducing the development and implementation costs.

Adopting a mass-based, trading-ready program would provide more opportunities for linkage with other states. For example, California already has an operating cap-and-trade program, and the Oregon Department of Environmental Quality is currently studying a mass-based greenhouse gas program. The electricity sector operates in an interstate system, and an interstate approach to greenhouse gas regulation is appropriate. Many Northwest entities are joining the Energy Imbalance Market, which already takes into account California’s mass-based greenhouse gas program. Because the electricity market is an interstate market, linkage provides several benefits to Washington consumers. It provides consistent regulation of electric generators, further reducing opportunities for leakage. Linkage also creates uniform carbon pricing and a broader allowance market, lowering costs to consumers.

Additionally, Washington must adopt a trading-ready program in order to take advantage of EPA’s Clean Energy Incentive Program. The Clean Energy Incentive Program would reward the state for its early actions, providing additional benefit to consumers.

Work on the Clean Power Plan transition needs to start as soon as practicable

Moving from CAR to CPP presents a relatively quick transition between two very different regulatory regimes. A number of parties—in and out of Washington—will be making decisions about long-term actions to best position themselves for CPP implementation. Early action by Ecology, including early discussions with affected stakeholders will allow for good decision-making and resource planning. Conversely, delays in developing the state’s implementation plan will make it more difficult for those entities to effectively plan for the CPP transition. By starting to work on the transition plan sooner, Ecology can help mitigate market uncertainty and the risk of unnecessary or stranded costs.

Additionally, early action in Washington may also encourage other states to look at their CPP plans sooner rather than later. This increases the opportunity for collaboration between the states to discuss program linkage and other design elements that would benefit consumers.

It is also important to begin promptly so that Ecology has sufficient time and resources to develop a sustainable plan. For example, Ecology has noted that it will need to use the CAR's 3-year grace period for EITEs to refine the program. This indicates both that significant time and effort will be required to develop the CPP transition plan, and that Ecology staff will have competing demands on their time from CAR implementation. Beginning as soon as practicable will ensure Ecology is able to gather and process the data necessary to develop appropriate CPP allowance targets and craft the policy and regulatory language for its CPP state implementation plan.

Emission Reduction Unit Generation and Ownership

Ecology has stated that only entities with a compliance obligation can generate ERUs, but ERU generation should not be so restrictive. Parties with the ability to create surplus RECs, surplus energy efficiency, or take other measures that can create ERUs will have more incentive to do so if they can generate, bank, and transfer those ERUs themselves. RECs have a shorter shelf-life than ERUs—and incremental hydropower has an even shorter lifespan than RECs. Allowing entities without a compliance obligation to generate ERUs themselves will create a deeper pool of ERUs for trading under the CAR.

Furthermore, allowing those entities to bank and transfer ERUs will create a more liquid market for those instruments. The CAR already contemplates that there will be ERU transfers, and even that there will be assisted transfers of ERUs. If the goal is to facilitate these transfers—and it should be, because it lowers costs for consumers—then more entities should be allowed to generate, bank, and transfer ERUs.

Chelan PUD recognizes that Ecology does not want a completely open-ended ownership structure. A reasonable limitation would be to confine ERU ownership to entities that take actions to generate ERUs. For example, if an entity can generate surplus RECs, that entity should be permitted to generate ERUs from those RECs, and bank or transfer those ERUs as it sees fit.

Chelan PUD notes that, as written, the CAR is not as restrictive as Ecology has described it regarding ERU ownership. The sections on recording, banking, and exchanging ERUs (sections 173-442-120, 130, and 140, respectively) apply to covered parties. The CAR defines a covered party as the owner or operator of a stationary source located in Washington. Stationary source is not defined in the CAR, but section 173-442-020(3) incorporates the definitions in chapter 173-400 WAC by reference. Stationary source is defined in 173-400-030(86) as "any building, structure, facility, or installation which emits or may emit any air contaminant." Thus, as written, an entity can be a "covered party" under the CAR that can own, bank, and transfer ERUs without having any compliance obligation.

Requested Clarifications

In addition to its comments, Chelan PUD proposes the following specific changes to the text of the rule. These revisions are clarifications to ensure these sections of the CAR function as intended.

Section 173-442-160(5)(b)(i) of the CAR states that all eligible renewable resources, as defined by RCW 19.285.030(12), located within Washington may generate ERUs. Section 173-442-160(5)(b) mentions retirement of RECs and the Energy Independence Act; however, entities using incremental hydropower do not retire RECs for compliance with the Energy Independence Act. Adding the below suggested language to the “renewable energy credit” definition (emphasized text) in section 173-442-020(1)(q) would provide additional clarity.

“Renewable energy credit” means a tradable certificate of proof of an eligible renewable resource, as defined in RCW 19.285.030(12), that is verified by the renewable energy credit tracking system identified in WAC 194-37-210(1) and which includes all of the nonpower attributes associated with that electricity as identified in RCW 19.285.030(15).

Section 173-442-160(5)(a) of the CAR states that acquisition of conservation and energy efficiency, in excess of the targets required by RCW 19.285.040, may generate ERUs. Adding the below suggested language (emphasized text) to 173-442-160(5)(a) would provide additional clarity that ERUs from energy efficiency are not limited to the first year of the energy efficiency measure.

The acquisition of conservation and energy efficiency in excess of the targets required by the Energy Independence Act per RCW 19.285.040 and any additional targets established by the utilities and transportation commission by rule or order may generate ERUs over the life of the conservation or energy efficiency measure.

We appreciate Ecology’s continuing efforts to refine the CAR. We offer our comments and suggested revisions—along with our prior submissions outlining our principles and preferred solutions—for your consideration when finalizing the CAR. Please do not hesitate to contact us with questions or comments.

Sincerely,



Stephen J. Wright
General Manager
Chelan County PUD



Commissioners

Nancy E. Barnes
Jim Malinowski
Jane A. Van Dyke

*Chief Executive Officer/
General Manager*

Wayne W. Nelson

July 22, 2016

Submitted via email: AQComments@ecy.wa.gov

Washington Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503

Subject: Comments on Clean Air Rule

Clark Public Utilities appreciates this opportunity to provide comments to the Department of Ecology (Department) on the rulemaking under the Clean Air Rule (CAR) and the reduction of greenhouse gas emissions in Washington State as it relates to the electric sector. As members of the Public Generating Pool, Washington Public Utility District Association, and Western Power Trading Forum we support and echo the comments submitted by those entities while specifically highlighting the following concerns.

Clark Public Utilities acknowledges the difficulty the Department of Ecology is tasked with and appreciates the level of engagement extended to stakeholders. We appreciate the efforts put forward by your staff in an attempt to craft an emissions reduction program that equitably delivers on the goals of the State. However, as written it is unlikely that the rule will result in actual emission reductions from the electricity sector.

Emissions from the electric sector is best regulated under a multi-state trading ready program that relies on Washington's efficient natural gas plants and other low emission resources to offset higher emission resources outside the state. As written the Clean Air Rule would not encourage such behavior in the electric sector. We recommend that the Department exempt the electric sector from the rule and harmonize regulation of that sector with the principles and framework set out in the building blocks in the Clean Power Plan. In the alternative, we offer several suggested changes to the language in the Draft 102 Clean Air Rule that will make the program more effective in reducing emissions and benefits to Washington State residents.

Consistency with the Federal Clean Power Plan

Electricity is essential to the economy, health and vitality of the community; the price and reliability of power impacts customers and businesses alike. Ratepayers rely on Clark Public Utilities to deliver the most value for the services we provide. They also rely on us to maintain stable and low rates so that they can plan their individual budgets around the cost of their monthly energy bill. This is most important for low and mid-level income families, as well as industrial and commercial customers that cannot absorb rate increases.

We balance a complex portfolio of energy resources including hydro, wind, solar and our combined cycle natural gas plant while also making significant investments in conservation

programs. One of our primary functions is to manage our portfolio of resources and obligations in order to limit exposure to price fluctuations for gas, power, or regulatory obligations. As a result, it is concerning that the Department would obligate the electric sector to comply under the CAR regulation with the intent of transitioning to an entirely new carbon regulation within just a few years. The baseline and reduce trading model in the CAR is not compatible with trading ready options in the Clean Power Plan. It is also unclear how this transition will occur; the Department would have to adopt a completely different model to take advantage of such trading options. This undermines our ability to plan for our customers, raises the potential for unnecessary additional costs, and discourages investment in measures that provide real reductions in carbon in the most cost effective manner.

We believe a better mechanism is to create regulatory certainty by developing a trading ready program under the Clean Power Plan that recognizes the regional nature of the electricity sector. Therefore, we ask the Department to again consider excluding the electric sector from regulation under the CAR and begin developing regulation of that sector with the principles and framework set out in the building blocks in the Clean Power Plan.

In the Alternative

If the Department moves forward with regulating the electric sector under the CAR then we present five modifications that will make the program more effective in reducing emissions and ensuring that money spent on compliance with the CAR provides the most benefits to residents and businesses in the State of Washington.

Baseline Change

The Clean Air Rule calls for using emission data from 2012 as part of the baseline target calculation. In 2012 there were high flows on the river, high wind, low natural gas prices, and lower than normal retail loads. As a result, economics incentivized the Utility to displace the River Road Generating Plant for seven months, much longer than usual. Given this, the CAR baseline establishes a target that is artificially low for the River Road Generating Plant. It is noteworthy that the Federal Clean Power Plan recognized the market anomalies in 2012 and specifically scaled up the emissions for that year. It is concerning that the CAR does not also take this into consideration and make appropriate modifications.

In addition, any displacement due to the influence of the CAR from the River Road Generating Plant will likely increase regional carbon emissions and simply result in a cost shift to Washington ratepayers. The CAR will raise operating costs for in-state resources above the cost of purchasing generation from any unregulated source. As a result, reduced generation at the Plant will likely be replaced by purchases from unregulated coal and gas resources both inside and outside the state. Given the River Road Generating Plant's high level of efficiency it is highly unlikely that these resources will produce fewer emissions.

We suggest a modification to the baseline calculation to exclude 2012.

Energy Efficiency Credit For the Life of Measure, Not Just First Year Savings

Conservation provides immediate, impactful customer energy savings, reduces stress on transmission and distribution lines, and is one of the most useful ways to reduce emissions from the electric sector. The Clean Air Rule should incentivize additional cost-effective conservation to reduce emissions. Conservation serves to reduce the utility's load, which in turn reduces the need to procure additional generation. More specifically conservation measures reduce Clark Public Utilities' load in the first year it is implemented, and each year thereafter for the useful life of the conservation measure.

When determining what constitutes cost effective conservation the useful life of the measure is considered thus limiting emission reduction credits to first year savings will distort long-term cost benefits. If savings are only given for the first year life of the measure then this will undervalue measures that have a long-term benefit at a higher cost. Accounting for this benefit in the CAR will serve to send appropriate price signals that encourage additional conservation.

The Clean Air Rule should clarify that each year the utility can count on conservation credits for the useful life of the measure for purposes of complying with the CAR as these investments reduce GHG for the life of the measures.

Furthermore, the Clean Power Plan recognized the importance of energy efficiency with respect to low income customers by providing additional incentives as part of the EPA's Clean Energy Incentive Program. The CAR should also recognize the importance of targeting low income communities and promote early adoption of energy efficiency measures which benefit low income families who are struggling to pay their energy bills.

We ask for clarification that the whole useful life of energy efficiency measures be used to offset emission limits under the Clean Air Rule and provide additional incentives for conservation implemented in low income communities.

Transportation Electrification

The initiatives authorized by the CAR related to the transportation sector are limited and should be expanded. The transportation sector is the greatest source of carbon emissions in Washington and yet the Clean Air Rule does little to incent programs that could demonstrably reduce emissions in this sector. The CAR should encourage and support electrification of the transportation sector.

For example, Clark Public Utilities' service territory has many key large parking/retail areas along the I-5 corridor that provide strategic locations for electric charging stations, potentially at targeted, or reduced, rates for electric vehicle charging. It does not appear that the CAR would provide a crediting mechanism for these initiatives. If Ecology wishes to meet the Governor's desire to act quickly, the limited flexibility to create programs in the Washington transportation sector severely limits the speed and magnitude of achievable GHG reductions.

We ask for expansion of the transportation measures that can serve to offset emissions, including the establishment of vehicle electrification programs.

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We appreciate that Ecology has included a compliance method under the Clean Air Rule that allows for the use of in-state Renewable Energy Credits not necessary for meeting I-937 compliance; however, we are concerned that the current provisions in the CAR unnecessarily restricts the use of all I-937 qualified RECs. The CAR limits the use of RECs to only those produced by renewable generation in Washington. This is inconsistent with the RECs that can be used for I-937 compliance, which provides for a much larger footprint. Clark purchases the entire output of Combine Hills II wind farm in Oregon. Under the Clean Air Rule, excess RECs not needed for I-937 compliance would be worthless for compliance with the CAR. Creating a market for Washington-only Renewable Energy Credits through the CAR will likely distort REC market pricing and result in unnecessary increased costs to utilities while not serving to reduce carbon emissions. We believe a better mechanism would be to allow covered entities to comply with RECs that meet the I-937 geographic footprint.

We ask that Renewable Energy Credits that qualify under I-937 to also be considered compliant under the CAR and eliminate the requirement that the RECs be generated in Washington.

Waiver for Reliability

River Road Generating Plant is a uniquely situated resource providing reliable baseload generation within the region. The River Road Generating Plant provides significant value to the transmission system and in particular the Portland/Vancouver metropolitan area. It is foreseeable that Clark Public Utilities will displace the plant due to economics directly attributable to the CAR causing reliability challenges in the region during certain parts of the year. If this is the case, we might be asked by the Bonneville Power Administration or Peak Reliability, NERC's Western Regions' Reliability Coordinator, to run the plant. We believe that in such instances we will return the River Road Generating Plant to service however the GHG output for these timeframes should not count toward Clark Public Utilities' target. We believe that the Department of Ecology should exempt the emission produced during hours when the plant is operating for reliability reasons at the direction of a reliability coordinator.

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Wayne Nelson, CEO/General Manager
Clark Public Utilities



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Sincerely,

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Wayne Nelson, CEO/General Manager
Clark Public Utilities

4675 MacArthur Court, Suite 800
Newport Beach, California 92660
(949) 437-1000

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Ryan Kenny
Senior Public Policy and Regulatory Affairs Advisor

July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

RE: Proposed Clean Air Rule

Dear Mr. Wilson:

Clean Energy would like to submit the following comments concerning the proposed Washington Clean Air Rule as the on-going process proceeds.

As North America's largest provider of natural gas transportation fuel with over nineteen years of leading industry experience, we provide construction, operation and maintenance services for refueling stations. We have a deep understanding of the growing marketplace, and our portfolio includes over 589 stations in 43 states, including a significant presence of 18 in the great state of Washington.

Already used as a clean, low carbon source of energy around the world, natural gas is abundant and proven to be a cost-saving alternative fuel. Natural gas for transportation fuel strengthens our economy with lower fuel costs, increases our energy security, and significantly benefits our environment by reducing carbon emissions and smog-forming NOx emissions by up to 23% and 35%, respectively, relative to diesel fuel. Carbon emissions are reduced even further – between 80 to 90% - when renewable natural gas (RNG) is used instead of diesel.

One of the primary motivations of Governor Inslee for adopting this rule is to stem the negative impacts of climate change, of which transportation is a significant contributor, especially the heavy-duty sector which is primarily run on petroleum fuels. Reducing GHG emissions 25% below 1990 levels by 2035 is a noble goal that we support, with the alternative of not taking any such action devastating to the great state of Washington's economy, environment and public health. The state can greatly curtail transportation's harmful environmental effects by incorporating cleaner fuels and advanced vehicles in this space.

We are encouraged that this updated draft of the proposed Clean Air Rule includes transportation fuels and that cleaner, more environmentally beneficial fuels such as RNG would be allowed to generate credits that can be sold to other regulated parties for compliance. This credit generation is vital for alternative fuels to compete with petroleum fuels to reduce GHG emissions.

As opposed to a carbon tax, which deposits revenue with the state government, a program such as this would instead direct money to the producer of the low carbon transportation fuel, without middlemen, bureaucracy, and government waste. This is a more efficient way to incentivize private market investment in low carbon transportation fuels.

Landfills as a Source for RNG

We are concerned, however, that landfills – a prime source of organic waste for RNG – will not be exempt from the proposed Rule as it is now with California’s AB 32 Cap and Trade program. We believe Washington should proceed to limit barriers and create as much incentive as possible to stimulate and support the alternative fuels industry.

GAME CHANGER: “Next Generation Heavy-Duty Natural Gas Engines Fueled by Renewable Natural Gas”

What role can heavy-duty natural gas vehicles play in meeting Washington’s air quality goals? The state will not reach greenhouse gas emission (GHG) reductions and other goals without dedicating significant resources – and preventing impediments to growth - to the heavy-duty transportation sector to decrease dependence on diesel fuel and increase the use of much cleaner lower carbon fuel alternatives. To this Washington must incentivize the production and distribution of alternative fuels.

In May 2016 a groundbreaking major report was released, *Game Changer*¹ – sponsored by several stakeholders including the CA South Coast Air Qualified Management District – which concluded that there should be an immediate start to deploying zero-emission and near-zero-emission heavy-duty vehicle (HDV) technologies on a wide-scale basis in the United States. It stated, “Expeditious action is needed to reduce smog-forming emissions from HDVs to restore healthful air quality—as is legally required under the federal Clean Air Act—for approximately 166 million Americans who reside in areas with exceedingly poor air quality. At the same time, to combat global climate change, the United States must aggressively reduce greenhouse gas (GHG) emissions from HDVs, which are the fastest growing segment of U.S. transportation for energy use and emissions.”

Washington will not reach greenhouse gas emission (GHG) reductions and other goals without dedicating significant resources to the heavy-duty class 7 and 8 transportation sector to decrease its dependence upon diesel fuel use and increase the use of much cleaner low carbon fuels. To this end, the recent ARB-certified Cummins Westport’s 0.01 g/bhp-hr NOx heavy-duty engine will play a significant role as it is a **game changer** for the transportation sector and public health. The 9L engine is now available for deployment and the 12L scheduled for late 2017.

These low-NOx engines set at the 0.02 g/bhp-hr standard, powered by natural gas or RNG, or a blend of the two, will achieve greater environmental benefits than any electrified system for 1/5th to 1/10th the cost and far fewer operational and logistical challenges, as natural gas technology can be seamlessly integrated into large natural gas fleet operations such as drayage, goods movement, refuse, transit, and airport operations.

NATURAL GAS VS. CLEAN DIESEL TRUCKS

How do NOx emission levels from the latest technology heavy-duty natural gas trucks compare to NOx levels from heavy duty diesel trucks? Natural gas vehicles – an alternative to diesel – are in wide use throughout the heavy- and medium-duty sector today, and a fleet owner could immediately deploy a certified low-NOx engine meeting a 90% NOx reduction target for numerous heavy- and medium-duty applications. This is not the case, however, for diesel engines as there is not an approved low-NOx certification on the market. In fact, certification targets for low-NOx diesel engines range from 0.05 to 0.1 g/bhp-hr and are not anticipated to materialize for another 1 to 2 years. That said, a 0.05 g NOx engine presents only a 75% reduction and a 0.1 g NOx engine presents only a 50% reduction when most regions require a 90% to reach 8-hour ozone

¹ <http://ngvgamechanger.com/>

attainment goals set by EPA. It is interesting to note that low-NOx engines meeting the 0.02 g/bhp-hr standard are considered necessary and the most technically feasible way to meet goals to reduce levels of ozone, PM, carbon, and petroleum fuels by leading air quality authorities.

There are not any diesel engines in development today that are capable of certifying to the 90% low-NOx target. Natural gas engines run on both gaseous and liquid fuels and it remains to be the only engine strategy certified to meet the 90% low-NOx value of 0.02 g NOx.

WHAT OTHER ALTERNATIVE FUEL ENGINES ARE BEING DEVELOPED?

Heavy-duty battery and fuel cell engines are not expected to enter the heavy-duty class 7 and 8 truck space for up to 35 years in some cases according to the California Air Resources Board's technical assessments, while near-zero natural gas heavy-duty engines will be deployed in a few months and positively contributing to the state's environmental, public health, carbon and petroleum reduction goals. In addition, it is worth noting that battery and fuel cell vehicles are often referred to as zero emission vehicles but their capability of being truly zero in emissions largely depends upon whether or not the vehicle's power source is emissions free. **Low-NOx strategies combined with renewable fuels can demonstrate far superior emissions benefits for NOx and GHG emissions today as neither are dependent upon the composition of the grid.**

WA EMISSIONS CAP: AVOID UNINTENDED CONSEQUENCES

Clean Energy is concerned about any unintended consequences from the new Clean Air Rule and recommends the Department of Ecology provide ample time and opportunity for public comment and review.

With California's program, there is a critical discrepancy between the Low Carbon Fuel Standard and the AB 32 Cap and Trade program when it comes to renewable natural gas use in transportation. While both programs recognize and support the critical importance of decarbonizing California's transportation sector, it appears that the verification process of biomethane under AB 32's Cap and Trade and the Low Carbon Fuel Standard differ significantly. So much so that a sizeable portion of the biomethane sold within the state may be treated as fossil-based gas under the cap despite receiving a verification from the Low Carbon Fuel Standard as an ultra-low carbon fuel. Ironically, other biofuels receive an exemption under the cap immediately, creating a barrier to the lowest carbon fuel that can power a class 7 and 8 heavy-duty truck today. In the long run, this situation will create enormous industry confusion and may slow the renewable natural gas industry's ability to deliver more biomethane to markets that demand lower carbon transportation fuels sooner. Further, some facilities may have no alternative market in which to sell their fuel, forcing them to flare or vent methane into the open atmosphere which is contradictory to both the climate goals set by any state and our common desire to address short-lived climate pollutants.

Of course Washington does not have a low carbon fuel standard, but this example of a major unintended consequence is a reminder of what could go wrong in Washington without ample time to thoroughly review any proposed cap and trade program by vested stakeholders. It is imperative that Washington via this rulemaking also not create any unintentional barriers to renewable natural gas (RNG) development for transportation or power generation. Specifically, RNG projects are highly dependent upon the carbon reduction credits to make the economics behind each project pencil out.

Also, while Clean Energy supports the goal to reduce fugitive methane leaks from all sources, it is equally important that the state implement strategies to reduce these emissions in such a way that it does not impact the value of generation of any potential RNG credits, should this become part of the program. For example, if Ecology requires that certain sources reduce methane emissions by a certain percentage by a said date, it would be very helpful to allow a RNG project to maintain credit generation of the entire reduction required if a facility or source chose to install a RNG production facility as a mitigation measure.

We appreciate the Department of Ecology's consideration of our views. We look forward to working with the great state of Washington and continuing to be a part of the process and discussion.

Sincerely,

A handwritten signature in black ink, appearing to read "Ryan Kenny". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Ryan Kenny
Senior Public Policy & Regulatory Affairs Advisor
Clean Energy



CLIMATE ACTION RESERVE

601 W. 5th Street, Suite 650 | Los Angeles, CA 90071
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July 21, 2016

Advisory Board

Right Honorable Kim Campbell
Former Prime Minister of Canada

Hon. Gray Davis
Former Governor, State of California; Of Counsel, Loeb & Loeb

Gary Gero
Former President, Climate Action Reserve

Hon. Fran Pavley
California State Senator

Diane Wittenberg
Founding President, California Climate Action Registry

Ed Begley Jr.
Actor and environmental activist

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John Laird
Secretary, California Natural Resources Agency

Melissa Lavinson
Vice President, Federal Affairs, PG&E Corporation

Elizabeth Moler
Retired Executive Vice President, Government Affairs and Policy, Exelon Corporation; Former Chair, Federal Energy Regulatory Commission

Heather O'Neill
Vice President of Strategic Partnerships, Advanced Energy Economy

Tim Profeta
Director, Nicholas Institute for Environmental Policy Solutions, Associate Professor of the Practice at the Sanford School of Public Policy, Duke University

Dr. Stephan Schwartzman
Director, Tropical Forest Policy, Environmental Defense Fund

Nancy Sutley
Chief Sustainability and Economic Development Officer, Los Angeles Department of Water and Power

Sarah Rees, Special Assistant on Climate Change Policy
Bill Drumheller, Climate and Energy Specialist, Air Quality Program
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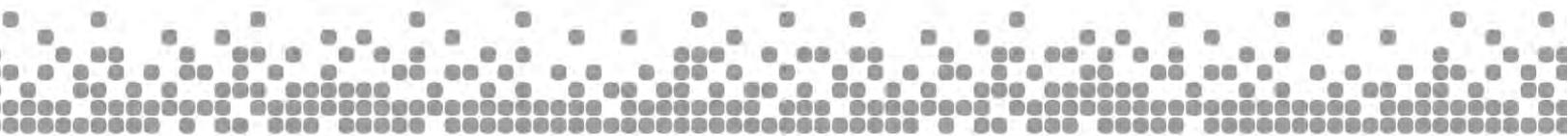
Re: Comments on the June 2016 draft of Ecology's Clean Air Rule

Dear Ms. Rees and Mr. Drumheller:

The Climate Action Reserve congratulates the Department of Ecology staff on the development of the revised draft Clean Air Rule, released June 2016. The rule provides an opportunity for Washington to show its leadership in addressing climate change on the state level, and a successful rule will prove to be an effective tool for the state to reach its emission reduction goals.

The Reserve has been a pioneer in establishing effective and respected standards for greenhouse gas accounting and strategies for reducing greenhouse gas emissions. Our ground-breaking work has included our own internationally-recognized offsets program, the largest in North America, and our ongoing support to help develop and assist California's historic cap-and-trade program. Given our areas of expertise and experience in developing emission reduction standards and administering an offset registry, our comments largely focus on strengthening and improving the integrity of the rule's Emission Reduction Units and are intended to help the Department of Ecology release a final rule that is rigorous and upholds high standards for reducing emissions. Establishing effective and comprehensive standards for reducing emissions is complex and any failure to deliver the highest quality standards could jeopardize the credibility of the entire program. We support the Department of Ecology's critical work and would like to submit the following comments on the revised draft Clean Air Rule:

- Having pioneered the real-world application of standardized offset protocols, the Reserve strongly supports the inclusion of offsets in the rule and the ability for covered parties to use them to be compliant. Offsets reduce the compliance costs for covered parties, which will help ensure lower costs for all consumers. Offsets also provide an opportunity for other entities not covered by the program (e.g., farmers, land owners and other industries that are not capped) to voluntarily reduce emissions and participate in the program. These offset opportunities will help encourage an economy-wide transition to a low/no carbon economy.
- We strongly recommend the Department of Ecology reconsider its decision to only accept offsets originating within Washington. This limits the types and quantity of offsets that can be included in the program, thereby increasing costs and decreasing the overall effectiveness of the program. We encourage the Department of Ecology to instead allow offsets originating from anywhere in North America.



- The Reserve strongly encourages the Department of Ecology to reconsider the ERU requirement in WAC 173-442-150(1)(e) “additional to existing law or rule.” This is very different from the traditional concept of “additionality” typically used in defining offsets. Emission reductions often occur for business as usual reasons that may have nothing to do with “existing law or rule” (e.g., market forces encouraging the switch from coal to natural gas). Allowing ERUs from outside capped sectors that are not clearly additional to be included in the program creates significant questions about the quality of those ERUs. At the very least, it should be included that offsets must be additional as defined by other programs such as California or the Clean Development Mechanism, as well as real, permanent, enforceable and verifiable. To date, no existing, reputable program allows offsets that are not additional.
- The Reserve strongly encourages the Department of Ecology to include offsets from forestry-related activities. Allowing sequestration offset projects into Washington’s program would have numerous benefits. They would generate high-quality, cost efficient ERUs for use in the program – forestry offsets are the largest category of offsets in California’s cap-and-trade program. Inclusion of these activities would support the continued sustainable, healthy maintenance of forests and grasslands while enhancing carbon stocks currently contributing to a significant portion of global emissions. These project types are appropriate with sufficient safeguards in place to ensure the permanence of the emission reductions for at least 100 years following the issuance of credits. The Reserve recommends the Department of Ecology consider for inclusion the Reserve’s Forest Project Protocol and Grassland Project Protocol.
- The Reserve is honored to have its U.S. Livestock Project Protocol, U.S. Landfill Project Protocol, Organic Waste Composting Project Protocol and Organic Waste Digestion Project Protocol included in the Clean Air Rule. To avoid any confusion and to be as specific as possible, it should be clarified whether the intention is to have the most recent versions of each protocol or all versions of each protocol included in the rule. The draft rule only lists “as of May 1, 2016” as the only indicator, and that indicator is unclear. We recommend including language that specifies the most recent protocol adopted by an external registry program as of May 1, 2016 should be used for the development of ERUs (unless overridden by protocol updates that may occur in the future) and all projects that have valid offset credits from protocol versions adopted prior to this date are also valid for use under the rule.
- Under WAC 173-442-160(8), we recommend that the Department of Ecology include the Reserve’s ODS Project Protocol as an eligible project protocol. The Reserve’s protocols are widely regarded to be the most transparent, rigorous, high quality standards available; adding this protocol would support the Clean Air Rule’s intent of allowing real, high quality reductions into the program. Additionally, the inclusion would pave the way for more potential ERUs to enter the program. While there are currently no ODS destruction facilities in Washington, offset credits from this protocol can be limited to those that were generated from ODS sources originating in the state.
- To avoid confusion and help create certainty and confidence in the program’s processes, the Reserve recommends that the Department of Ecology specify what level of assurance it expects for verification in WAC 173-442-220. ISO 14064-3:2006 does not require a level of assurance, and best practice is to identify a reasonable level of assurance. Additionally, the Reserve recommends that the Department of Ecology specify a materiality threshold for the positive verification statement.

In summary, we urge the Department of Ecology to make the following modifications to the revised draft Clean Air Rule:

1. Allow ERUs from GHG emission reductions – specifically offsets – to originate from within North America instead of limiting them to only originating in Washington, as defined in WAC 173-442-100(2).

2. Require that ERUs from outside covered sectors also be additional as defined in other programs (e.g., California's cap-and-trade program) and not just additional to existing law or rule (WAC 173-442-150(1)(e)).
3. Allow sequestration offset projects with safeguards ensuring the permanence of the emission reductions for at least 100 years and include the Reserve's Forest Project Protocol and Grassland Project Protocol as guidelines for how these offset project types must be designed.
4. Clarify that the most recent protocol adopted by an external registry program as of May 1, 2016 should be used for the development of ERUs (unless overridden by protocol updates that may occur in the future) and all projects that have valid offset credits from protocol versions adopted prior to this date are also valid for use under the rule. This includes providing clarity for the use of the Reserve's U.S. Livestock Project Protocol, U.S. Landfill Project Protocol, Organic Waste Composting Project Protocol and Organic Waste Digestion Project Protocol in the program (WAC 173-442-160(6)(c) and WAC 173-442-160(7)(a-c)).
5. Include the Reserve's ODS Project Protocol as an approved protocol type.
6. Specify what level of assurance is expected for verification in WAC 173-442-220 and specify a materiality threshold for the positive verification statement.

I thank you for this opportunity to share our comments and voice our support for the Clean Air Rule and Washington's initiatives to meet its emission reduction goals. The Reserve has been a proud partner in the development and support of regulatory cap-and-trade programs and would be honored to support the Department of Ecology in any way we can in the development of its cap-and-reduce program.

Sincerely,

A handwritten signature in black ink, appearing to read "Craig Ebert". The signature is fluid and cursive, with a long horizontal stroke at the beginning.

Craig Ebert
President

Washington Clean Air Rule Comments

July 21, 2016

Introduction

Thank you for the opportunity for The Climate Trust to submit comments on the Clean Air Rule (CAR). The Trust's comments are derived from our nearly 20 years of experience evaluating, purchasing, and overseeing the generation and retirement of carbon offsets on behalf of energy generating companies facing carbon mitigation regulations and voluntary companies with carbon reduction goals. We have committed over \$33.2 Million in funding and reduced carbon emissions equivalent to annual emissions from nearly 700,000 cars from nearly 50 GHG emission reduction projects. The Climate Trust has committed approximately \$4.5 million to greenhouse gas (GHG) emission reduction projects in Washington State and we are a qualified entity under Ch. 80.70 RCW; the State's GHG emissions performance standard for fossil-fired energy generation facilities. Our comments, therefore, reflect our experience working as a carbon market practitioner in support of various state implemented carbon mitigation policies.

Set a clear price signal

The CAR references many different mitigation pathways from direct on-site measures to demand side management to market-based approaches such as carbon offsets, renewable energy credits, and carbon allowances. All of these mitigation measures have a price tag associated with them that can be expressed in dollars per metric ton of carbon dioxide equivalent (mtCO₂e) reduced. However, the CAR doesn't establish a clear price signal that it can send to covered parties in Washington. The lack of a clear price signal substantially adds to the burden of figuring out a compliance strategy that incorporates the costs of compliance relative to the requirements of the regulation. Further, the lack of a price signal impedes the ability of project owners that generate offsets that could qualify as Emission Reduction Units (ERUs) from deciding whether to work with covered parties in Washington. These same project owners have a clear price signal for the California market. As a result, Washington-based projects are much likelier to pursue the California market due to the transparent pricing that exists.

The establishment of a clear price signal is key for not only encouraging reductions at the least cost, but also creating an incentive for Washington-based projects to generate offsets as ERUs. To this end, The Climate Trust recommends Ecology pursue linking with such other jurisdictions as California, Ontario, and Quebec.

Acknowledge and create consistency with complementary policies

The Washington State Legislature passed an Act in the 2007 Regular Session that created a GHG emissions performance standard for fossil-fueled thermal electric generation facilities located in the state (Ch. 80.70 RCW). The Act also noted that Ch. 80.70 RCW will work in unison with the state's carbon dioxide mitigation policy. The CAR, however, contains several elements that are contradictory to Ch. 80.70 RCW. For example, the CAR

excludes GHG emission reduction projects from outside of the state (WAC 173-442-100) and projects that sequester carbon via the permanent criterion (WAC-173-442-150).

This could result in a confusing scenario where going forward a GHG reduction project could generate verified emission reductions that are eligible for use under Ch. 80.70 RCW, but not the CAR. Additionally, both of these restrictions in the CAR needlessly increase the cost of compliance to covered parties. The permanent restriction, additionally, excludes the forestry sector in Washington from implementing projects that could create ERUs. The California Air Resources Board and the leading third-party voluntary standards organizations all recognize forestry as a scientifically credible GHG mitigation source. These systems address any non-permanence concerns by creating a buffer pool that each sequestration project contributes to, which serves as a form of insurance in the event of a non-intentional reversal.

The Climate Trust recommends that Ecology expand the geographical scope to eligible domestic projects and include sequestration projects in the CAR. This will not only ensure consistency with Ch.80.70 RCW, but it will also serve as an important cost containment mechanism, while creating opportunities for Washington's forestry sector to supply ERUs to regulated entities. Additionally, allowing offsets from outside the state creates consistency with the provision that permit covered parties to use carbon allowances from the California and Regional Greenhouse Gas Initiative (Northeast) carbon markets.

Credit early actions

The CAR does not include any provisions granting credit for early actions from Ch. 80.70 RCW. The Satsop facility has disbursed over \$2.5 million in carbon mitigation payments since 2008. The Trust has committed funds received from this facility into several projects that will generate nearly 250,000 mtCO₂e verified emission reductions when they are complete. Since these payments and reductions are directly derived from a legislative act intended to mitigate GHG emissions, The Trust recommends these and future emission reduction purchases using carbon mitigation payments mandated under Ch. 80.70 RCW count as eligible ERUs under the CAR.

Leverage existing standards

The CAR is not clear on how it would interact with the existing third party standards that have created GHG emission reduction project protocols listed in the CAR. The two standards setting bodies whose protocols are listed in the CAR are the American Carbon Registry and the Climate Action Reserve. The Trust recommends Ecology revise the CAR to take advantage of the pre-existing processes and best practices for updating project protocols and verification requirements as determined by the American Carbon Registry and the Climate Action Reserve. These two standards setting bodies have highly comparable processes for reviewing and updating protocols and reviewing and issuing offsets from projects. Therefore, relying on these organizations will avoid a fragmented approach to generating eligible emission reductions in Washington. Furthermore, since it will allow project owners to access additional carbon markets, the use of external standards bodies will encourage greater emission reductions supply, efficiency, and reduced cost in creating emission reductions for covered parties to comply with the CAR.

The CAR should clarify the earliest acceptable version of the third-party offset protocols by stating the earliest acceptable version and later instead of "as of May 1, 2016." This will provide clarity as to what is and isn't eligible. For example, there are registered offset projects in Washington state that use CAR Livestock Manure Management protocol version 2, but the as of May 1, 2016 version is version 4. Therefore, it is unclear if Ecology

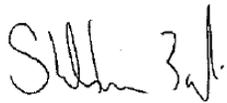
is requiring all projects to use version 4 of the protocol and whether use of earlier versions that are still valid as of May 1, 2016 would be eligible under the CAR.

The Trust also recommends Ecology add acceptable California Air Resources Board Compliance Offset Project Protocols to the CAR. There are projects in Washington, for example, that use the California Air Resources Board Compliance Offset Livestock Project Protocol. This protocol is subject to different requirements for review and updating than the Climate Action Reserve version. Therefore, they are in effect two unique protocols covering the same GHG mitigation activity. By failing to specify the California Air Resources Board version, it is unclear if it would be eligible to generate ERUs.

Summary

Thank you for the opportunity to review and provide comments on the Clean Air Rule. The Climate Trust's comments are intended to ensure the CAR works in unison with complementary policies, other carbon markets, and encourages the adoption of emission reduction measures that can deliver environmentally credible and cost-effective reductions to covered entities and the people in Washington State who depend on those businesses.

Sincerely,

A handwritten signature in black ink, appearing to read "Sheldon Zakreski".

Sheldon Zakreski

Director of Carbon Compliance



Board of Commissioners

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July 12, 2016

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CLERK OF THE BOARD

Tiffany Ostreim

**SUBJECT: Proposed Rulemaking to Adopt a New Rule (Chapter 173-442 WAC)
and Revise Chapter 173-441 WAC**

Cowlitz County is the owner and operator of a regional municipal solid waste (MSW) landfill, called the Cowlitz County Headquarters Landfill, serving southwest Washington. We recently received notice [Proposed Rulemaking to Adopt a New Rule (Chapter 173-442 WAC) and Revise Chapter 173-441 WAC] of a proposed State regulation that would intend to require various facilities, including landfills, to estimate and benchmark their annual greenhouse gas (GHG) emissions over its recent 5-year operating history, and steadily reduce those emissions by 1.7% every year thereafter until the year 2035, at which time those emission levels would be held constant. We hereby provide comments and concerns on behalf of the Cowlitz County Board of Commissioners.

Cowlitz County understands the intent of the clean air regulation being proposed by Ecology as a movement towards world-wide stewardship of our planet's biosphere in a responsible manner. That is a normal and reasonable concern for human beings, and it is an appropriate realm for governmental rulemaking of industrial processes. We have concerns, however, that the zealous attempt to enact what appears to be workable emissions cap-and-trade legislation, as promulgated by other large international jurisdictions, is being over-reached in the State of Washington by the inclusion of entities that are inappropriate for this type of rule. Inappropriate rulemaking will, in general, result in unintended consequences, costs, and potential litigation that is counterproductive and potentially produce results opposite to those intended by the rule. Specifically, we are referring to what we believe is the in-applicability of the proposed rule to landfills in general, and to the Cowlitz County Regional landfill in particular.

While we are aware that our County Public Works Department will be separately issuing more complete and technical comments to this proposed ruling, we wish this letter to convey comments directly from the Cowlitz County Board of Commissioners.

Concern that Landfills Do Not Fit the Intent of the Proposed Rule

It is our understanding that landfills as GHG emissions producers do not fit the typical profile of industrial facilities for which cap-and-trade emissions regulations are typically intended. As described by the EPA (EPA-452/R-15-008 August 2015):

“Landfills are different than many other traditionally regulated emissions source categories. Typically, entities regulated for air emissions are involved in manufacturing or production and their emissions are directly related to processes involved in creating products (e.g., vehicles, bricks) or commodities (e.g., natural gas, oil). When manufacturing or production facilities cease to operate, their emissions typically cease. Landfills are a service industry—a repository for waste that needs to be properly disposed—and their emissions are a by-product of the deposition of that waste.”

Waste residuals must be disposed or managed. Landfills and sewer plants do not generate the waste they receive and manage; these wastes are generated by others. Unless the landfill itself is the waste generator, they have very little control of the wastes they legally receive.

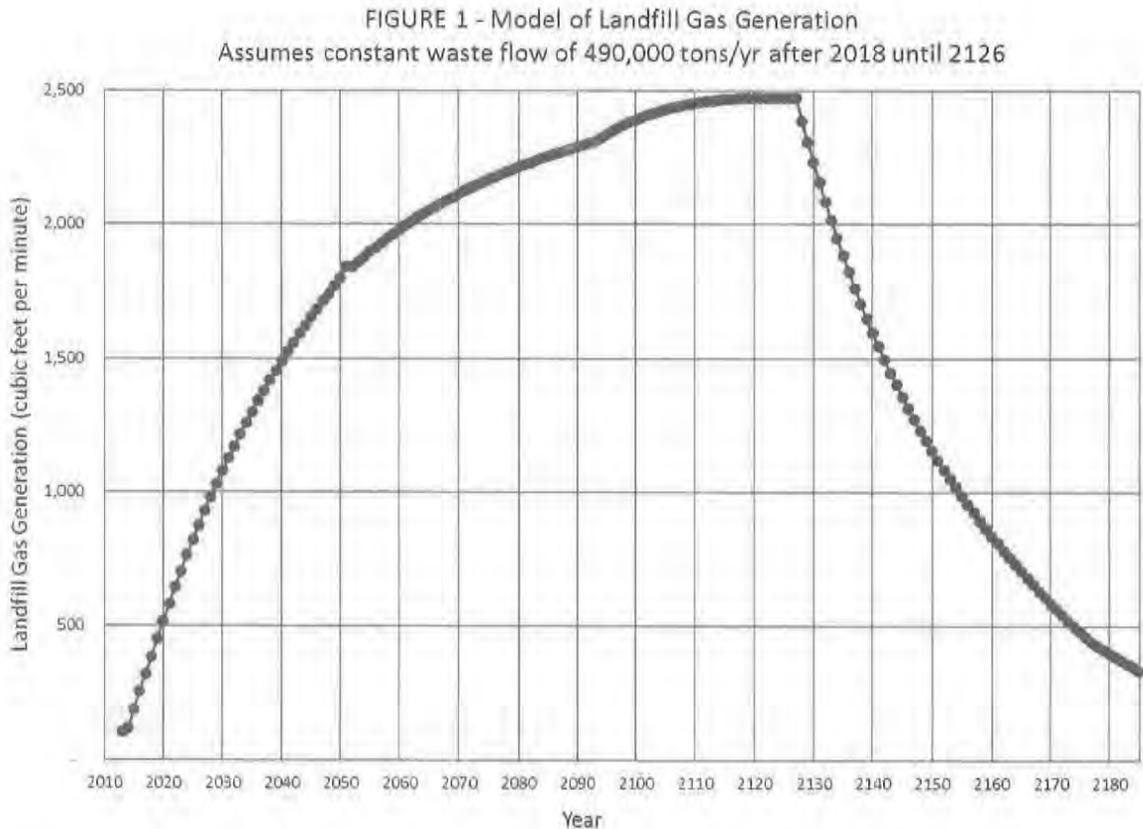
For an active landfill, methane generation increases over time as the landfill remains open. An active landfill will continue to generate more and more methane each year, even if that waste stream decreases due to diversion. Thus, the only way to achieve reductions to comply with the cap for a landfill already subject to stringent control regulations would be to close and stop accepting waste, or purchase allowances or offsets. This seems patently unfair for an industry whose GHG emissions are already significantly below 1990 levels for that industry¹.

Our concern is that since landfills by their very nature have a societal, operational, and GHG-producing context that is so different and reverse of the typical industrial model addressed in the proposed rule, that the consequences of attempted compliance will play havoc with the practicalities of planning and running major landfills in the State of Washington to the point of causing waste exports. We believe that the rule may actually end up in this case to be counter-productive to the overall goal of reducing emissions in the realm of solid waste management. Lending support to our concern is the fact that none of the other international organizations that have passed GHG emission programs (viz., California, various Canadian provinces, RGGI representing a consortium of several eastern States, and the European Union) include landfills in their regulations.

The estimated landfill gas generation rate over time for the Cowlitz County landfill is presented in Figure 1. *There is no way to avoid the increase in gas generation at the site over time*, unless there is a change in the social paradigm that stops the shipment of waste to the landfill. Since landfills are a passive acceptor of carbon waste from outside sources, changing the social paradigm is not in the control of the facility as the facility

¹ <http://epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2012-Chapter-8-Waste.pdf>

serves the stewardship needs of society to manage its residual waste. Therefore, we must accept Figure 1 as a conceptual model for the site's landfill gas generation. The actual gas generation may vary from that assumed in Figure 1 for any number of reasons including variations in the following: waste volumes, precipitation, waste composition, and inaccuracies in the modeling. Regardless of the absolute accuracy of the conceptual model that results in Figure 1, all of the case record and experience regarding landfills indicates that this is an appropriate model from which landfill gas management decisions can be based. The good news, as shown in Figure 1, is that eventually gas emissions from landfills will go down to zero over time after the landfill closes.



Given that landfills do not 'fit' the intent of the proposed rule that expects facilities to reduce emissions over time, and in fact landfills will have increasing emission rates during their operating life, then the only way that they could attempt to comply with the proposed rule would be to buy their way out of it. Essentially this would be paying a penalty in the form of Emission Reduction Units (ERU's), or equivalents thereof, as described in the proposed rule.

Estimates and Implications of Landfill Compliance through Purchase of ERU's

We have had our consultants estimate the baseline GHG emissions and reduction pathway for our Headquarters landfill as proposed in the draft rule, as well as the estimated future landfill emissions based on continued operations. Using these estimates, we have calculated the potential compliance costs to the County for purchasing ERU's, assuming a free-market ERU value of \$15 per metric tonne of CO₂-

equivalent. Using \$15/ERU, our cost estimate of penalties to the County in the timeframe from 2017 to 2035 is over \$80 million, and continues at an increasing amount after that.

We note that \$15/ERU is a current free market cost in the Western Climate Alliance that includes California and several Canadian provinces including Quebec. We also note that the proposed rule phases out the ability to obtain ERU's on the open market, and over time narrows the possibility of purchasing ERU's strictly within the State of Washington. Basic economic theory dictates that restriction of market access can only increase the cost of the commodity, and thus the value of \$15 may be low by several-fold in the future. We are concerned that this potential cost increase in ERUs would have a further devastating effect on our ability to sustain our in-County landfill.

In the economic analysis performed by Ecology for this proposed rule², it appears that Ecology believes that the additional costs for a facility to comply with the rule would be as simple as passing the costs on to its existing customers. If this were true then perhaps cost increases at landfills in the State of Washington could be argued to incentivize waste diversion alternatives away from landfills. Unfortunately this simple logic does not apply to the waste-management sector, because waste is a commodity that easily, and commonly, crosses state borders. Note that Federal law has ruled that jurisdictions cannot control waste movement across these borders.

Given the complexities of pricing landfill airspace for various customers at our landfill, which include past and recent negotiations with large industrial customers, we have significant concern that the cost increases required to be compliant with the proposed emissions rules would have a very real unintended consequence of pushing our landfill customers across State borders. Thus the economics of our County landfill would be further imperiled, and the intent of the GHG initiative with respect to landfills would not only be essentially defeated, but worsened by the extra transportation of waste out of State.

Suggested Alternatives for the Control of GHG Emissions from Landfills

Our understanding and experience with landfills is that they have been a significant "positive" to the social stewardship of the environment, and that their success is attributed largely to prescriptive-based regulations imposed at the Federal and State levels. Our due-diligence and ultimate purchase of the current County landfill was based on this high level of environmental prescriptive regulation that is designed to protect the ground water and air resources of the public.

In the realm of air resource protection, we understand that our Headquarters landfill is compliant with the state-of-the-practice gas control and collection program as required by Federal rules for landfill gas emissions. We are of the understanding that this prescriptive standard for landfill operations has made very significant headway in the GHG emissions from landfills over the past generation, and the County would continue to comply with these types of regulations even as they may be modified.

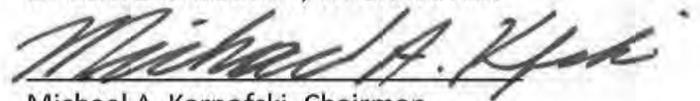
² "Preliminary Cost-Benefit and Least Burdensome Alternative Analysis", Ecology publication 16-02-008, June 2016.

Additionally, we are supportive of following State-incentivized waste diversion requirements for reuse and recycling. We are partnered through a franchise with our local private waste collection company that typically implements these types of programs. Our understanding is that future reductions in landfill GHG emissions could be derived from continued efforts at waste diversion from landfills. These mandates and incentives must come from the State level, and cannot be expected to be initiated by landfill operations.

The efforts of following best-management operational practices prescribed for landfill gas collection and treatment, combined with State-incentivized waste diversion, are appropriate means of approaching long-term GHG emission controls for waste facilities, as demonstrated by the track record of past efforts. We are very concerned that including landfills in a cap-and-trade type of emissions program will be non-productive and disruptive not only in the goal towards reducing GHG emissions, but on the whole front of promoting proper management of waste residuals in the State of Washington.

Very truly yours,

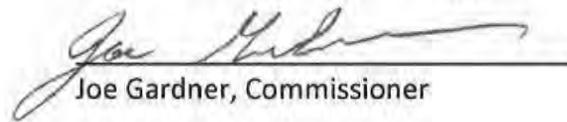
BOARD OF COUNTY COMMISSIONERS
OF COWLITZ COUNTY, WASHINGTON



Michael A. Karnofski, Chairman



Dennis P. Weber, Commissioner



Joe Gardner, Commissioner

BOCC:ec

cc: County Auditor
Accounting Section



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Board of County Commissioners
Michael A. Karnofski District 1
Dennis P. Weber District 2
Joe Gardner District 3

July 13, 2016

Sam Wilson
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

**SUBJECT: Proposed Rulemaking to Adopt a New Rule (Chapter 173-442 WAC) and
Revise Chapter 173-441 WAC**

Cowlitz County is the owner and operator of a regional municipal solid waste (MSW) landfill, called the Cowlitz County Headquarters Landfill, serving southwest Washington. We recently received notice [Proposed Rulemaking to Adopt a New Rule (Chapter 173-442 WAC) and Revise Chapter 173-441 WAC], to which we hereby provide comments and concerns on behalf of the Cowlitz County Department of Public Works. Please note that this letter is supplemental to a separate comment letter that was delivered from the Cowlitz County Board of Commissioners. While some of the comments may be overlapping between the two letters, this letter contains additional focused comments. There are primary comments included in the main body of this letter. We have supplemental comments in Attachment A, which we did not want to have dilute the main body of the letter. There are several references given in the letter. Please contact us if you require a copy of any of the references.

Introduction

We understand the intent of the clean air regulation being proposed by Ecology as a movement towards world-wide stewardship of our planet's biosphere in a responsible manner. We have concerns, however, that the zealous attempt to enact what appears to be workable market-based policy on emissions control is being over-reached in the State of Washington by the inclusion of entities that are inappropriate for this type of rule. Inappropriate rulemaking will, in general, result in unintended consequences, costs, and potential litigation that is counterproductive and potentially produce results opposite to those intended by the rule. Specifically, we are referring to what we believe is the in-applicability of the proposed rule to solid waste management facilities in general, and to the Cowlitz County Regional landfill in particular. At the heart of our comments is a concern that implementation of the proposed rule for landfills will backfire because it will cause an unintended flight of major waste streams across the State borders. Collateral unintended effects would likely include no net decrease in GHG emissions from landfills on a region-wide basis, and increase in GHG emissions from

additional waste transportation, lack of control of Washington's wastes within its borders, and economic impoverishment of well-crafted in-State waste management facilities such as the Cowlitz County landfill. The remainder of this letter supports these over-arching concerns.

Concern that a Narrow Direct-Emissions Perspective of Current Landfills That Ignores Past Context and Achievements by Solid Waste Management Regulations Will Lead to Unfair and Inappropriate Rulemaking

Figure 1 below schematically presents our understanding of the historical and projected GHG emissions in the US. The graph, showing emissions versus time for both Total Emissions in the US and for the Landfill Industry in the US, is normalized to estimated emissions from the 1990s. We note that Landfill Industry in the US represents less than 2% of the nation's Total GHG emissions¹, but because of the normalization on the graph it appears that the trajectory for Landfills crosses the trajectory for Total US Emissions in the year 1990.

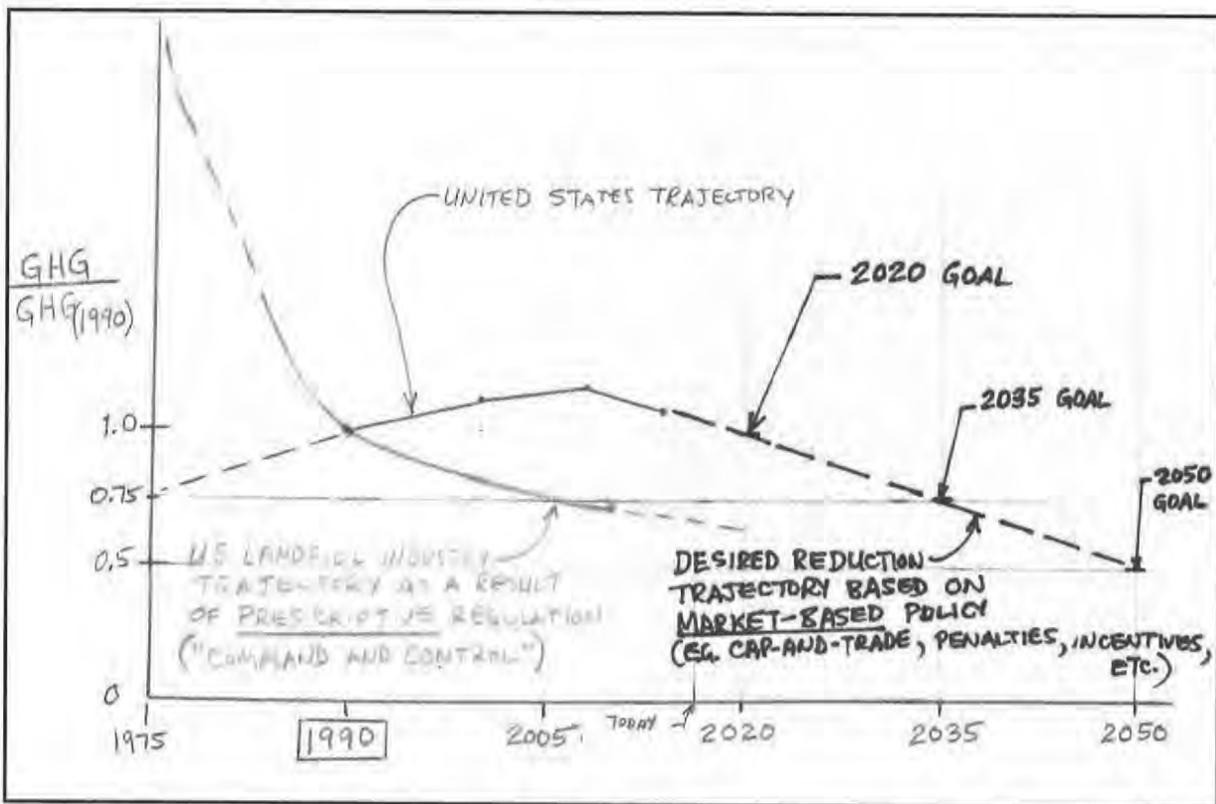


Figure 1 – Approximate representation of normalized GHG emissions history and projections for the United States overall, and for the landfill industry.

¹ Seidel, S, and Bachman, J. (March 12, 2013) "Domestic Policies to Reduce the Near-Term Risks of Climate Change", Center for Climate and Energy Solutions, <http://www.c2es.org/>

The graph for the nation's total emissions (black and blue lines) is plotted with a rough accuracy based on data for 1990-2014 available on an EPA website². The extrapolation of the "desired reduction trajectory" between 2014 and 2050 is based on the goals presented in Ecology's proposed rules. Data previous to 1990 was not obtained, and the dashed line shown on the graph for that period is purely schematic.

The graph for the US Landfill Industry (red line) is based on just a couple of data points. First, there is an excellent EPA-sponsored study published by Weitz et al (2002)³, which indicates that there was a more than 2-fold decrease in GHG emissions from landfills in the period from 1974 to 1990 (Figure 3 in their paper), represented by the dashed red line on the left. Second, EPA statistics⁴ suggest that landfills have reduced GHG emissions by 27% between 1990 and 2010, represented by the solid red line. Data after 2010 is not known by us. Not only is the GHG reduction for US Landfills up until the year 2010 beyond what any other industries can demonstrate over this time period, but it demonstrates approximate compliance of the landfill industry today with Ecology's proposed 2035 objective.

We have a concern that the past environmental performance gains in the solid waste sector are not being recognized by the current proposed rule. By putting on blinders to only the current direct emissions of landfills, while ignoring the contextual history of how landfills came into being, how they have been regulated, how they have been operated, and how they have been more successful than any other sector from an air emissions perspective to date, we are concerned that landfills will be treated unfairly and inappropriately under the proposed rule.

Concern that Landfills Do Not Fit the Intent of the Proposed Rule

The proposed rule fits in the category of a "market-based policy" initiative to control emissions. Market-based policy techniques include taxes, subsidies, cap-and-trade programs, baseline-and-credit programs, renewable energy credits, fees, and rebates⁵, of which the proposed rule contains various overlapping elements. These market-based policies are in contrast to the other major type of control policies, which would be called "prescriptive" or "command-and-control" policies that would require emitters to take specific actions to reduce emissions.

Landfills as GHG emissions producers do not fit the typical profile of industrial facilities for which market-based emissions regulations are typically intended. As described by the EPA (EPA-452/R-15-008 August 2015):

"Landfills are different than many other traditionally regulated emissions source categories. Typically, entities regulated for air emissions are involved in manufacturing

² <https://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html>

³ Weitz, K., Thorneloe, S., Nishtala, S, Yarkosky, S., and Zannes, M. (2002) "The Impact of Municipal Solid Waste Management on Greenhouse Gas Emissions in the United States", J. of the Air & Waste Mgmt Assn, V52, Sept 2002, pp 1000-1011.

⁴ <http://epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2012-Chapter-8-Waste.pdf>

⁵ "Policy Considerations for Emerging Carbon Programs", June 2016, Center for Climate and Energy Solutions, <http://www.c2es.org/>

or production and their emissions are directly related to processes involved in creating products (e.g., vehicles, bricks) or commodities (e.g., natural gas, oil). When manufacturing or production facilities cease to operate, their emissions typically cease. Landfills are a service industry—a repository for waste that needs to be properly disposed—and their emissions are a by-product of the deposition of that waste.”

Waste residuals must be disposed or managed. Landfills and sewer plants do not generate the waste they receive and manage; these wastes are generated by others. Unless the landfill itself is the waste generator, they have very little control of the wastes they legally receive, and market-based initiatives to control emissions will have very little ability to influence landfill operations.

For an active landfill, methane generation increases over time as the landfill remains open. An active landfill will continue to generate more and more methane each year, even if that waste stream decreases somewhat due to diversion. In essence there is no practical way for a landfill to reduce gas generation outside of shutting the landfill down. As such the optimum method to control gas emissions from landfills has been via direct regulations involving prescriptive mechanisms that recognize the best-available-control-technology and require its implementation, codified on the Federal level by the Clean Air Act New Source Performance Standards (NSPS) and Emission Guidelines (EG). The policies governing the control of air emissions from landfills in this sense mimic the policies governing the control of potential ground-water polluting leachate emissions from the bottoms of landfills, which were codified on the Federal level by the RCRA rules that were subsequently adopted by the States.

Our concern is that since landfills by their very nature have a societal, operational, and GHG-producing context that is so different and reverse of the typical industrial model addressed in the proposed rule, that the consequences of attempted compliance will play havoc with the practicalities of planning and running major landfills in the State of Washington to the point of causing waste exports. We believe that the rule may actually end up in this case to be counter-productive to the overall goal of reducing emissions in the realm of solid waste management. Lending support to our concern is the fact that none of the other international organizations that have passed GHG emission programs (viz., California, various Canadian provinces, RGGI representing a consortium of several eastern States, and the European Union) include landfills in their regulations.

The estimated landfill gas generation rate over time for the Cowlitz County landfill is presented in Figure 2. There is no way to avoid the increase in gas generation at the site over time, unless there is a change in the social paradigm that stops the shipment of waste to the landfill. Since landfills are a passive acceptor of carbon waste from outside sources, changing the social paradigm is not in the control of the facility as the facility serves the stewardship needs of society to manage its residual waste. Therefore, we must accept Figure 2 as a conceptual model for the site’s landfill gas generation. The actual gas generation may vary from that assumed in Figure 2 for any number of reasons including variations in the following: waste volumes, precipitation, waste composition, and inaccuracies in the modeling. Regardless of the

absolute accuracy of the conceptual model that results in Figure 2, all of the case record and experience regarding landfills indicates that this is an appropriate model from which landfill gas management decisions can be based. The good news, as shown in Figure 2, is that eventually gas emissions from landfills will go down to zero over time after the landfill closes.

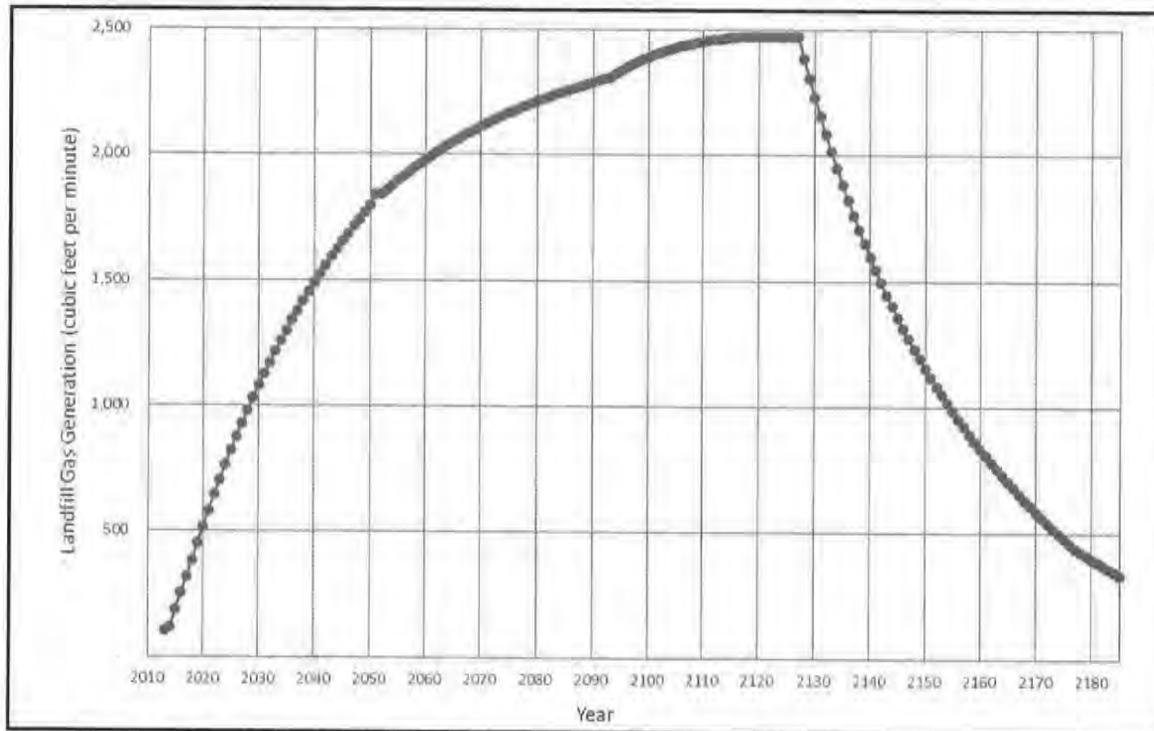


Figure 2 – Model of landfill gas generation over the life of the Headquarters Landfill.

Figure 3 presents a graph of estimated GHG emissions from the Headquarters Landfill over time from 2017 until 2035. The estimated emissions presented in Figure 3 are related to the gas generation curve presented in Figure 2. The lower red line in Figure 3 presents the “Reduction Pathway” that we interpret would be required for the Headquarters Landfill by the proposed new rule, based on our understanding of how to calculate the “Baseline” emissions for year 2017, a 1.7% reduction every year afterwards until 2035, and a flat-line emissions pathway after 2035. What is immediately apparent in looking at the estimated emissions curve versus the “Reduction Pathway” is that they grow ever-wider apart from each other over time. There is no chance for the landfill to ever come close to the “Reduction Pathway”. It is clear, in fact, that the name “Reduction Pathway” is a misnomer, in the case of a landfill facility. The red line is, in fact, simply a basis from which ERU penalties would be calculated, and has no basis in reality for being an emission pathway for the landfill. We believe that this apparent misnomer is symptomatic of the essential problem that landfills do not ‘fit’ in this type of regulation.

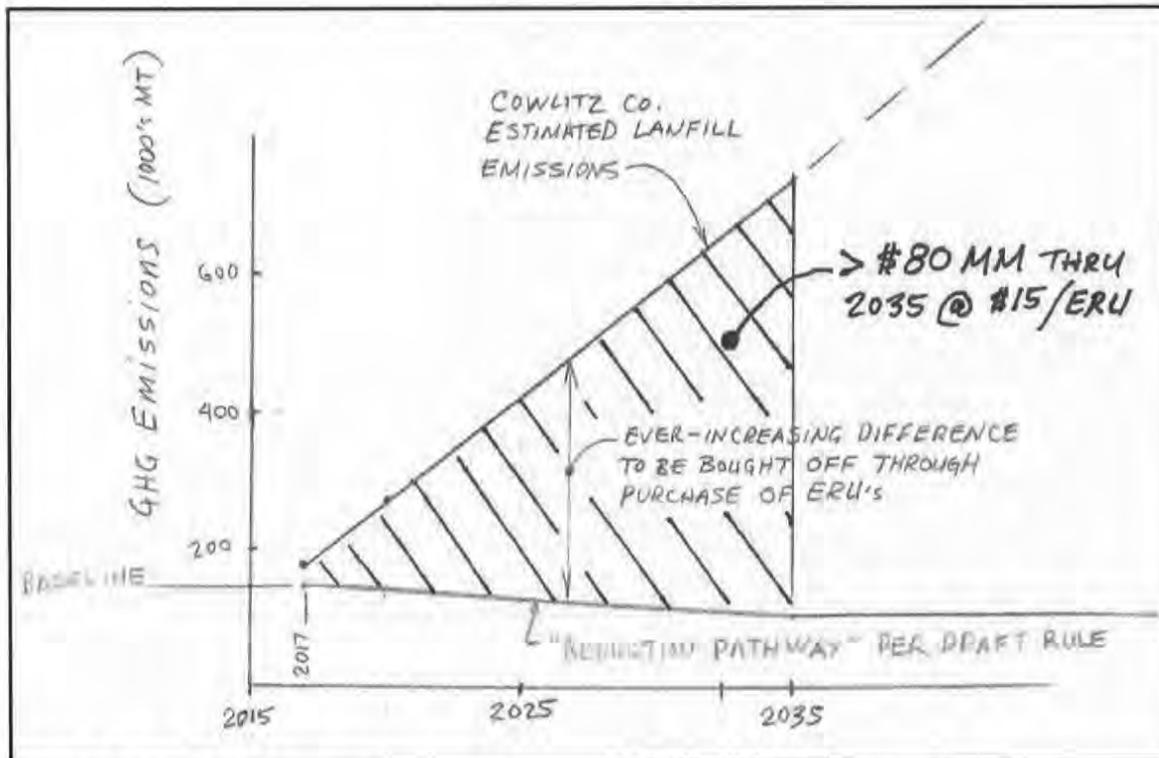


Figure 3 – Estimated landfill emissions compared to “reduction pathway”.

Estimates and Implications of Landfill Compliance through Purchase of ERU’s

Using the graph presented in Figure 3, we have calculated the potential compliance costs to the County for purchasing ERU’s, assuming a free-market ERU value of \$15 per metric ton of CO₂-equivalent. Using \$15/ERU, our cost estimate of penalties to the County in the timeframe from 2017 to 2035 is over \$80 million, and continues at an increasing amount after that.

We note that \$15/ERU is an approximate current free-market cost in the Western Climate Alliance that includes California and several Canadian provinces including Quebec. We also note that the proposed rule phases out the ability to obtain ERU’s on the open market, and over time narrows the possibility of purchasing ERU’s strictly within the State of Washington. Basic economic theory dictates that restriction of market access can only increase the cost of the commodity, and thus the value of \$15 may be low by several-fold in the future. We are concerned that this potential cost increase in ERUs would have a further devastating effect on our ability to sustain our in-County landfill.

In the economic analysis performed by Ecology for this proposed rule⁶, it appears that Ecology believes that the additional costs for a facility to comply with the rule would be as simple as passing the costs on to its existing customers. If this were true then perhaps cost increases at

⁶ “Preliminary Cost-Benefit and Least Burdensome Alternative Analysis”, Ecology publication 16-02-008, June 2016.

landfills in the State of Washington could be argued to incentivize waste diversion alternatives away from landfills. Unfortunately this simple logic does not apply to the waste-management sector, because waste is a commodity that easily, and commonly, crosses state borders.

Given the complexities of pricing landfill airspace for various customers at our landfill, which include past and recent negotiations with large industrial customers, we have significant concern that the cost increases required to be compliant with the proposed emissions rules would have a very real unintended consequence of pushing our landfill customers across State borders. Thus the economics of our County landfill would be further imperiled, and the intent of the GHG initiative with respect to landfills would not only be essentially defeated, but worsened by the extra transportation of waste out of State. ***We consider this the most important concern related to the proposed rule relative to the solid waste sector in general, and to the Cowlitz County Headquarters landfill in particular.*** All of the other points made previous to this are supporting information leading up to this point.

Without presenting confidential pricing and business-specific rate information, we emphasize that management of waste residuals is an enterprising, competitive business that runs on thin margins. Contracts to manage waste streams are won or lost on “pennies” per ton. Given the multi-faceted and creative methods that are commonly utilized for waste transport in the Pacific Northwest (trucking, barging, railing), it does not take very much of a price increase to divert a complete waste stream from one landfill to another even though the other may be further away. There are many examples of this, including the City of Seattle and Clark County waste currently be railed and barged, respectively, to landfills in Oregon. The projected cost penalties for purchasing ERUs will easily push waste out of the State of Washington and into surrounding States, which will defeat the desired GHG reduction goals, while devastating current in-State healthy and environmentally-sound waste management projects such as the Cowlitz County landfill.

Suggested Alternatives for the Control of GHG Emissions from Landfills

Whatever perception people may have of landfills, landfills are one of the most successful responses in modern society to the plea of environmental awareness that came out of the 1970’s to take care of our environment. The American Society of Civil Engineers (ASCE) grades the US infrastructure every 5 years and reports to Congress. Figure 4 presents the latest grades that were posted on the internet for the year 2013, where the average grade is a D+.

You can note that Solid Waste has the best grade at a B-. That is not insignificant. When you consider everything around you that is supporting your lifestyle, such as public transit, dams and levees, roads, wastewater, schools, parks, energy sector, drinking water, and others – the area of solid waste management has the highest grade in American infrastructure. Many take that for granted, or out of lack of historical context they may even disdain landfills, but landfills are a cornerstone of what has made America a leader among nations. We have cleaned up our act and live responsibly.

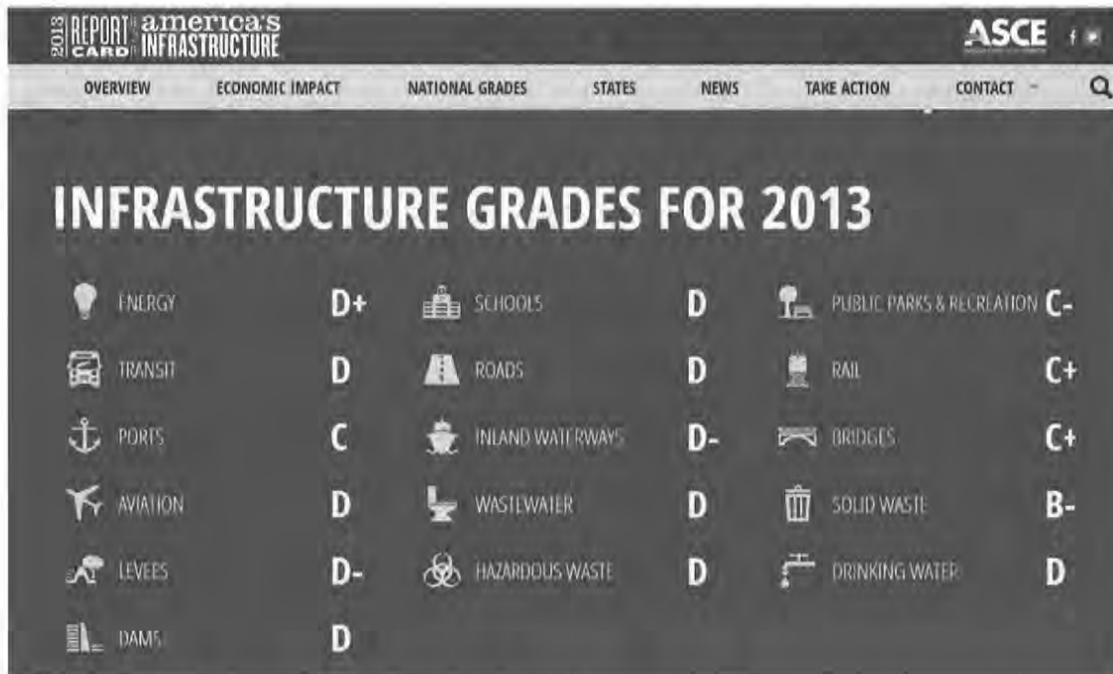


Figure 4 – ASCE report card for America’s infrastructure.

Interestingly, many of the ASCE infrastructure categories are the subject of carbon emissions controls. For example, the sectors of energy and transportation figure highly in emission control areas.

What has worked for landfills is fundamentally direct prescriptive-based regulations imposed at the Federal and State levels. It started with RCRA in the ‘80’s and early ‘90’s for the liner systems and landfill operations. It then continued in the late ‘90’s with an extension of the Clean Air Act to create Emissions Guidelines (EGs) for larger landfills. New amended Federal EG guidelines are currently in the works to extend GHG capture to even smaller landfill facilities. The success of the EGs for landfills was fundamentally due to the prescriptive requirement for the installation of effective gas collection and control systems (GCCSs) that would collect and treat landfill gas, and require surface emission monitoring of landfills to prove that the GCCSs were being effective. We note that this approach is echoed by the Center for Climate and Energy Solutions¹.

Additional success in overall landfill emission reductions is attributed to diversion of waste away from landfills: reuse and recycling. We note that this approach was recently endorsed by a west-coast Climate Leadership gathering of governors (including Inslee), mayors and environmental ministers from California, Oregon, Washington, and British Columbia in San Francisco on June 1, 2016 where one of the four key provisions they agreed upon was related to promoting recovery of organic waste and composting it.

Note that a significant part of the waste stream for many landfills is from the residuals of

existing recycling programs. This is exemplified by the Cowlitz County Headquarters landfill, where 50% of the waste currently received is from pulp & paper recycling mills.

We believe that landfills themselves can be most efficiently regulated and managed through the use of appropriate EGs (California is a good example of building further on the Federal EGs). We believe that the overall solid waste industry emissions reductions can continue to be achieved through the requirement and incentivization of reuse and recycling. We do not believe it is the job of landfill facilities themselves to create or enforce those initiatives. Those types of initiatives are best done through various mechanisms at a State level.

It seems clear to us that the approach of only looking at “direct emissions” with blinders, without considering context, is too simplistic and will result in incongruities. We all know how important context is, just like an eco-web, and that the big picture is the only way regulations can be fairly and justly applied. In the area of solid waste there is a lot of context related to:

- History of landfill regulation
- Environmental performance of landfills
- Big picture GHG emissions related to recycling, energy co-generation, waste-to-energy, recycling, inter-state commerce, transportation, carbon sequestration as it relates to landfills

We are concerned that in the haste (yes – let’s be frank, this regulation is being pushed through at a fast pace) to push through this regulation, potentially inappropriate facilities (we are focused on the solid waste industry only) may get included that create unintended discriminatory cost penalties that will have to be undone after creating angst, economic disruption, and potential litigation, all of which would be counterproductive.

Closure

Our due-diligence and ultimate purchase of the current County landfill was based on a high level of environmental prescriptive regulation of landfills that is designed to protect the ground water and air resources of the public. In the realm of air resource protection, we understand that our Headquarters landfill is compliant with the state-of-the-practice gas control and collection program as required by Federal rules for landfill gas emissions. We are of the understanding that this prescriptive standard for landfill operations has made very significant headway in the GHG emissions from landfills over the past generation, and the County would continue to comply with these types of regulations even as they may be modified.

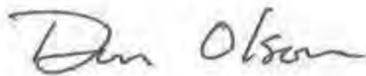
We are supportive of following State-incentivized waste diversion requirements for reuse and recycling. We are partnered through a franchise with our local private waste collection company that typically implements these types of programs. Our understanding is that future reductions in landfill GHG emissions could be derived from continued efforts at waste diversion from landfills. These mandates and incentives must come from the State level, and cannot be expected to be initiated by landfill operations.

The efforts of following best-management operational practices prescribed for landfill gas collection and treatment, combined with State-incentivized waste diversion, are appropriate means of approaching long-term GHG emission controls for waste facilities, as demonstrated by the track record of past efforts. We are very concerned that including landfills in a market-based cap-and-trade type of emissions program will be non-productive and disruptive not only in the goal towards reducing GHG emissions, but on the whole front of promoting proper management of waste residuals in the State of Washington.

Sincerely,



RICHARD THIEL, PE
Consulting Engineer



DON OLSON
Cowlitz County Solid Waste Manager



BRAD BASTIN, PE
Director/County Engineer
Cowlitz County Department of Public Works

cc: County Auditor

Attachment A - Supplemental Comments

1. There are several international examples of cap-and-trade type of emission regulations that either overtly exclude landfills, or exclude them by virtue of not including them in a discreet list of regulated entities. These international examples include the State of California, Canadian provinces of which the most notable is Quebec (who forms the Western Climate Alliance with California), The Regional Greenhouse Gas Initiative (RGGI) which is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont; and the European Union.
 - a. We are concerned that while these other international jurisdictions have intelligently recognized that landfills do not 'fit' the market-based cap-and-trade type of regulation, Ecology's exuberance to enact what appears to be workable emissions cap-and-trade legislation is over-reaching by including an inappropriate entity, viz. landfills, just as inclusion of waste-water treatment plants would seem just as inappropriate.
 - b. We would like to question why Ecology has chosen to strike out on its own regulations, rather than join the Western Climate Alliance that has already developed and vetted many aspects of this complicated topic of emissions regulations. We believe that there is merit for Ecology to join an already-established neighboring international program such as this for several reasons: (1) the existing Western Climate Alliance has already gone through a learning curve and vetted many of the technical, administrative, and book-keeping issues; (2) it would provide a larger inclusive market for managing ERU's and ERU-equivalents which in any market-based consideration could only be considered as a positive; (3) many of the large industries and corporations that will be regulated by this initiative have neighboring inter-state and international affiliates, and it is common knowledge that cross-border regulatory compliance is a significant burden and challenge for large industries, and thus joining such international regulatory alliances is in the right spirit of encouraging efficient and compliant business and environmental goals; (4) we all know that emissions controls benefits and compliance do not stop at an artificial jurisdictional border, and thus collaboration with neighboring jurisdictions for air-quality issues only makes more sense. We note, for example, that the State of Oregon is also in the process of establishing emissions rules. As reported by Kahn (2016)⁷, the Oregon DEQ staff plan to start with the assumption that they would be linking markets with the Western Climate Alliance, which is a US-Canadian carbon trading alliance. That article quotes Colin McConaha, the ODEQ Climate Change Policy Lead, as saying that their program is "...going to be heavily reliant on data and research that's already out there....We are certainly not going to be reinventing the wheel on this."

⁷ Kahn, D. (June 13, 2016) "Oregon Could Widen Carbon Trading across North America", *Scientific American*, <http://www.scientificamerican.com/article/oregon-could-widen-carbon-trading-across-north-america/>

2. The Ecology notice of Proposed Rule Making proposal (CR-102 form) for this proposed rule checks a box stating that the rule is necessary because of a State Court Decision. The citation given is King County Superior Court No. 14-2-25295-1. A review of that citation indicates that court decision was a DENIAL of petitioners to require Ecology to create a rule for GHG emissions. We are concerned that there is no legal basis for that court decision to serve as the basis for the current proposed rulemaking.



Submitted via email to: AQComments@ecy.wa.gov

July 22, 2016

Ms. Sara Reese
Special Assistant, Climate Policy
Washington Dept. of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

RE: Cowlitz PUD Comments on the Clean Air Rule

Dear Ms. Reese:

The Washington Department of Ecology issued the draft Clean Air Rule (CAR) on June 1, 2016 and is implementing an extensive public outreach program concluding on July 22, 2016. Public Utility District No. 1 of Cowlitz County, Washington (Cowlitz PUD) appreciates the opportunity to provide the following comments on the CAR.

Cowlitz PUD provides electricity to over 48,000 residential, commercial and industrial customers in Cowlitz County. Because of two large energy intensive industrial customers in our area (Weyerhaeuser and Kapstone Paper) who make up 68% of our load, Cowlitz PUD's load ranks in the top five among public and municipal utilities in Washington. We own hydro and wind resources and we purchase 90% of our wholesale power from the Bonneville Power Administration (BPA). The majority of the power we receive from BPA is clean renewable hydro and wind, and non-emitting nuclear power. However, this power is augmented by market purchases made by BPA and by Cowlitz PUD through The Energy Authority. Based on Fuel Mix Reports published by the Washington Department of Commerce, on average, 93% of Cowlitz PUD's energy comes from non-emitting and renewable sources. The remaining 7% comes from unspecified market sources.

While the CAR does not regulate any of Cowlitz PUD's generating resources, it does potentially influence power markets. Because Cowlitz PUD buys and sells energy in the market, we are directly affected by the CAR's impact on power markets. We are also directed affected by the markets for Renewable Energy Credits (RECs) and Energy Efficiency (EE).

Further, as you know, EPA issued the Clean Power Plan (CPP) which includes individual State Implementation Plans and specific state emission targets. Again, while Cowlitz PUD does not own any greenhouse gas emitting generating resources, we are impacted by regulations that influence the power markets. Although the CPP is currently on hold and it is not known when and how the legal challenges will be resolved, States have been encouraged to move forward with the State Implementation Plans.

Cowlitz PUD looks to the principles listed below when evaluating carbon reduction policies and regulations. To be successful, the regulations must:

- ✓ Avoid duplicative regulations.
- ✓ Be environmentally effective (actually reduce carbon emissions rather than displace emissions).
- ✓ Not economically disadvantage electric generating resources in Washington relative to out-of- state resources.
- ✓ Provide a mechanism to implement emission reductions at the lowest possible cost.

- ✓ Be equitable in requiring emission reductions across sectors.
- ✓ Allow for load growth to support electrification of the transportation system.
- ✓ Facilitate alignment with other Washington and out-of-state carbon regulations.
- ✓ Provide regulatory certainty and a smooth transition to emerging federal regulations under the CPP.

A market-based, multi-state, multi-sector allowance trading program best meets these objectives. However, from Cowlitz PUD's perspective, the proposed CAR does not achieve these objectives. We respectfully request that Ecology consider:

Clarifying the Role of the CAR under Duplicative Regulations

Multiple carbon reduction measures are currently in play in various forums in Washington. All of these directly affect the electric utility industry and potentially result in significant additional costs and pancaked, duplicative, and/or conflicting regulations. We respectfully request that Ecology include language in the CAR that clearly describes how and when the CAR will be revised to eliminate pancaking, duplicative regulations, and duplicative costs to electric ratepayers, in the event additional carbon or renewable portfolio standard regulations come to fruition.

Regulating the Power Sector Under the Clean Power Plan

The power sector should be regulated under EPA's CPP instead of the CAR because the CPP:

- ✓ supports the development of a broad geographic carbon market through its trading ready platforms;
- ✓ assures consistent treatment of electric generators across states;
- ✓ accommodates electric load growth;
- ✓ accommodates electrification of the transportation sector; and
- ✓ incents efficient emission reductions from electricity in Washington and throughout the western interconnection.

Providing Regulatory Certainty

If, given the current legal challenges to the CPP, Ecology believes it is necessary to regulate the electric sector under the CAR in the short-term, then Ecology, prior to implementation of the CAR, should:

- ✓ Modify the targets for the electric sector covered entities to be consistent with Washington's statutory emission reduction goals:
 - Define electric sector specific goals based on the State goals (2020: 1990 levels, 2035: 25% below 1990, 2050: 50% below 1990).
 - Proportion the electricity sector goals into facility-specific targets based on the capacity of covered generators.
- ✓ Develop a transition plan that clearly identifies how the cap and reduce CAR will transition to a trading ready program under the CPP. Specifically, the plan needs to address how covered entities, other entities, and the state target would be affected.
- ✓ Modify the CAR language regarding the transition to the CPP to allow the electricity sector to transition to the State Implementation Plan as soon as the CPP is approved.
- ✓ Begin work on the CPP with goal of having the State Implementation Plan effective by 2020.

Assuring the Liquidity of Emission Reduction Units (ERU)

To facilitate alignment with other state plans and support the development of a broad geographic carbon market through trading ready platforms, Ecology should modify the CAR to:

- ✓ Allow all RECs, not just RECs generated by in-state renewable resources, to be eligible for ERUs.
- ✓ Allow entities without a compliance obligation to create ERUs without having to become voluntary participants.
- ✓ Provide ERU credit for the life of an EE measure instead of limiting the credit to just the first year savings. Explain how EE from a non-covered entity is transferred as an ERU to a covered entity.
- ✓ Provide safeguards for covered entities, voluntary participants, and others in the event that the ERU Registry, ERU Reserve, and markets are not fully functional at the beginning of the CAR compliance period.
- ✓ Define how the value of ERUs is secure if ERUs are not property rights.

Regulating Emissions Equitably Across Sectors

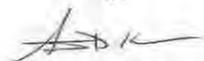
Recognize the significant existing electricity sector carbon reduction measures and align the electricity sector targets in the CAR with the electricity sector's share of the state-wide goals. Under the CAR, the electricity sector bears a disproportionate share of the state-wide carbon reduction requirement. As a result of investments in renewable energy, energy efficiency, and the pending closure of the coal plant in Centralia, the electricity sector in Washington has already achieved its portion of the state's 2020 goal of reducing emissions to 1990 levels, and is well on its way to meeting the 2035 goal of 25% below 1990 levels.

Supporting Electrifying Transportation

Modify the CAR to provide a specific pathway for load growth and ERUs related to electrifying transportation. As noted on Ecology's CPP website, in 2012ⁱ, the transportation sector produced 46% of Washington's greenhouse gas emissions, more than twice that of any other sector. The electricity sector accounted for only 17% of the state's emissions and is uniquely positioned to electrify transportation. However, while the CAR lists transportation projects as a means to generate ERUs, it does not provide for the load growth necessary to electrify transportation and does not clearly describe the mechanism to create ERUs from transportation-related projects.

Thank you for the opportunity to comment on the Clean Air Rule. Please feel free to contact Diana MacDonald at 360-501-9585 or dmacdonald@cowlitzpud.org if you have any questions.

Sincerely,



Steven D. Kern
General Manager

ⁱ <http://www.ecy.wa.gov/climatechange/powerplantpollution.htm>



CRS

center for
resource
solutions

July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504

RE: Comments of Center for Resource Solutions on Chapter 173-442 WAC, Clean Air Rule Draft Proposal

Mr. Wilson:

Center for Resource Solutions (CRS) applauds the state of Washington for proposing such a comprehensive system for reducing greenhouse gas (GHG) emissions, and appreciates the opportunity to provide feedback on the Clean Air Rule (CAR) draft proposal (“Draft Proposal”).

Our comments are focused on potential interactions with existing renewable energy (RE) markets and market instruments. Overall, we strongly support the Department of Ecology’s (“Ecology”) efforts to address interactions with existing RE markets, renewable energy credits (RECs), and particularly the voluntary renewable energy (VRE) market. We feel that some clarification and minor adjustments will strengthen the CAR and help achieve stated policy objectives, including “to promote the viability of voluntary renewable energy programs in Washington.”¹

Following a brief introduction to CRS, and some information on the VRE market in Washington, we have organized our comments into two primary comments followed by a short series of other comments on the Draft Proposal below.

Intro to CRS and Green-e®

CRS is a 501(c)(3) nonprofit organization that creates policy and market solutions to advance sustainable energy. CRS has broad expertise in RE policy design and implementation, electricity product disclosures and consumer protection, and GHG reporting and accounting. CRS administers the Green-e programs. Green-e Energy is the leading certification program for VRE products in North America. In 2014, Green-e Energy certified retail sales of 38 million megawatt-hours (MWh), representing over 1% of the total U.S. electricity mix, or enough to power nearly a third of U.S. households for a month. In 2014, there were over 836,000 retail purchasers of Green-e certified RE, including 50,000 businesses.

¹ WAC 173-442-240 (2)(c)

Stakeholder-driven standards supported by rigorous verification audits and semiannual reviews of marketing materials ensure robust customer disclosure and are pillars of Green-e Certification. Through these audits and reviews, CRS is able to provide independent third-party certification of RE products. Green-e program documents, including the standards, Code of Conduct, and the annual verification report, are available at www.green-e.org. CRS also has a long history of working with state agencies to design and implement policies to avoid double counting, maintain the VRE market as surplus to regulation, and support positive market interactions.

The Effect of Power Sector GHG Regulations on VRE Claims and the Importance of “Regulatory Surplus”

Companies and individuals that purchase and invest in RE voluntarily do so in order to take steps beyond actions and outcomes attributable to state or federal policy. These voluntary market participants seek to go beyond what a Renewable Portfolio Standard (RPS), cap-and-trade program, or other regulation in the power sector might require and in this way make a difference with their investment. This difference is often referred to as “regulatory surplus.”

However, where RE sold into the voluntary market does not have this effect, and instead only serves to help regulated entities comply with existing regulatory requirements, this production could not be considered surplus and the motivation—the demand—for voluntary purchases may be lost.

Where voluntary demand for RE is limited, by extension, so is the overall development of RE and associated emissions reductions. Regulatory surplus is critical to sustaining clear voluntary claims and has been very helpful in Washington in sustaining voluntary investment in RE beyond what is already required.

The CAR sets emissions limits in the power sector such that RE generation reduces emissions at regulated units, but does not affect the level of allowed emissions from these units. As a result, emissions reductions at regulated units due to VRE generation are automatically accounted for under the CAR and no longer surplus to regulation. Emissions cannot exceed the limits and emissions reduced below these limits due to RE can be made up elsewhere. Instead, the effect of VRE generation in terms of GHG emissions at regulated units is to make it easier for regulated entities to comply.

To restore regulatory surplus and allow the VRE market to continue to affect GHG emissions beyond what is required by law—and to avoid potentially discouraging all voluntary actors, and specifically commercial customers, from making private investments in renewable energy in Washington—the CAR must include a mechanism that effectively lowers emissions limits to explicitly recognize emissions reductions from VRE as incremental to what would otherwise be achieved due to the CAR.

Similar mechanisms have had broad support when implemented in other states. In California, for example, over 50 organizations publically supported the inclusion of the VRE Reserve Account in the cap-and-trade program, including energy companies, project developers, environmental and public health advocates, industry associations, academic institutions, and others.²

The Impact of Green-e Certified VRE in Washington

The VRE market promotes clean energy development, which in turn leads to more jobs and greater economic growth. It leverages private, non-ratepayer funding to help speed the transition to RE sources. It provides a pathway whereby the appetite for voluntary action can be channeled to clean energy development in Washington. To realize these benefits, and prevent the emissions limits in the CAR from becoming the ceiling for GHG emissions reductions from the sector instead of the floor, the CAR must adequately recognize the carbon-reduction value of VRE purchases.

Since Green-e sets the standard for the voluntary market, an allowance set-aside or similar mechanism to maintain regulatory surplus is currently required for all certified voluntary sales in regions in the U.S. with power sector emissions limits in order to meet consumer expectations. If the CAR is adopted and implemented without such a mechanism, or without an effective mechanism, Green-e may be unable to continue to certify voluntary sales of RE from Washington.

This would mean that voluntary buyers in Washington will have to get their certified RE from outside of the state in the future. In 2014, Green-e certified over 4.4 million MWh from Washington generators. This shows strong demand for certified VRE in the state. Green-e certifies the majority but not the entire VRE market, and as a result these numbers represent a conservative estimate of the size and impact of the total VRE market in Washington.

Inclusion of an effective mechanism to maintain regulatory surplus for the VRE market under the CAR in Washington would allow for this demand to be met by resources in Washington—

² See *Joint Letter in Support for Voluntary Renewable Energy Set-Aside in the Proposed California Cap-and-Trade Program*, December 13, 2010, http://resource-solutions.org/site/wp-content/uploads/2015/08/Voluntary-Renewable-Set-Aside_12-13-10.pdf

Coalition letter to Kevin Kennedy, CARB Office of Climate Change on the issue of off-the-top treatment of voluntary renewable energy purchases, June 7, 2010, http://www.resource-solutions.org/pub_pdfs/nonprofit_and_clean_energy_coalition_7_7_2010.pdf

Comments of Renewable Energy markets Association (REMA) on a Western Climate Initiative (WCI) paper, February 19, 2010, http://www.renewablemarketers.org/pdf/file_111.pdf

Letter to Senator Boxer on Recommended Changes to Cap-and-Trade Design Under ACESA to Support the Voluntary Renewable Energy Market, July 23, 2009, http://resource-solutions.org/site/wp-content/uploads/2015/08/Senate_EPW_off_the_top_072309.pdf

Letter to Claudia Orlando, California Air Resources Board supporting off-the-top approach to voluntary renewable energy purchases in a California cap-and-trade program, June 12, 2009, <http://resource-solutions.org/site/wp-content/uploads/2015/08/Center-for-Resource-Solutions-comment.pdf>

allowing your state the opportunity to maintain the private investment dollars that may otherwise go elsewhere—and this could prevent a loss of revenue from voluntary purchasers for Washington generation.

Primary Comments

- 1. Emission Reduction Units (ERUs) should not be issued to RE that has reduced emissions at covered parties since this would represent double crediting (double counting of emissions reductions).**

The Draft Proposal allows alternative energy generation technologies located in Washington to generate ERUs.³ But since emissions reductions from alternative energy generation are automatically included in mass emissions reductions at regulated units, issuance of ERUs to RE (or any other activities) that reduce emissions at regulated units would represent double crediting (double counting of emissions reductions) and these ERUs would not represent actual emissions reductions.

Since ERUs cannot be issued to RE that is used to meet the RPS or voluntary programs,⁴ this only applies to non-RPS and non-voluntary alternative energy generation (e.g. RE that sells into system power), but nonetheless it is a policy flaw that could prevent the state from meeting its emissions reductions goals, depending on how much of this generation there is and how many ERUs are issued to alternative energy that reduces emissions at regulated units.

We recommend that generation of ERUs by alternative energy generation technologies located in Washington be disallowed, amending section WAC 173-442-160 (1) to remove the third bullet and removing section WAC 173-442-160 (5) in the Draft Proposal.

- 2. In order for ERU retirement on behalf of VRE through the proposed ERU Reserve to work to restore regulatory surplus for VRE market, the ERUs used and retired must represent emissions reductions at covered parties (regulated units).**

Though the Draft Proposal has avoided potential double counting of ERUs and RECs, or disaggregation of RECs, by requiring that RECs must be retired for ERU creation,⁵ even without generating an ERU, avoided emissions at regulated units caused by RE that generates RECs would still be counted toward compliance in that these reduced emissions are reported by covered parties. This means that Washington RECs are not surplus to regulation (with respect to GHG emissions at regulated units) under the CAR without lowering the emissions limit for the regulated units on behalf of the VRE market.

³ See WAC 173-442-160 (5)

⁴ WAC 173-442-160 (5)(b)

⁵ WAC 173-442-160 (5)(b)(ii)

It is our understanding that Ecology has included in the Draft Proposal retirement of ERUs in the ERU Reserve on behalf of the VRE market specifically to address this and to restore regulatory surplus for the VRE market.⁶ We strongly support the intention behind this mechanism.

Based on the Draft Proposal, it not clear to us that the retirement of ERUs on behalf of VRE through the ERU Reserve as currently proposed will lower the emissions at regulated units and thereby restore regulatory surplus for the VRE market. We are seeking further clarification from Ecology.

As Ecology is aware, ERUs are not allowances; they are credits. In cap-and-trade, the total emissions equal the total number of allowances. So retiring an allowance reduces the total amount of emissions, and retiring an allowance on behalf of the voluntary market therefore reduces emissions beyond the cap—resulting in regulatory surplus for the voluntary market. Retiring an ERU, on the other hand, does not necessarily lower the amount of emissions from regulated units/covered parties.

In order for retirements of ERUs on behalf of the VRE market through the ERU reserve to work as intended to protect voluntary demand for RE, the ERUs retired on behalf of VRE must be generated by lowering the allowed emissions at regulated units. Only in that case does retiring an ERU restore regulatory surplus for the VRE market.

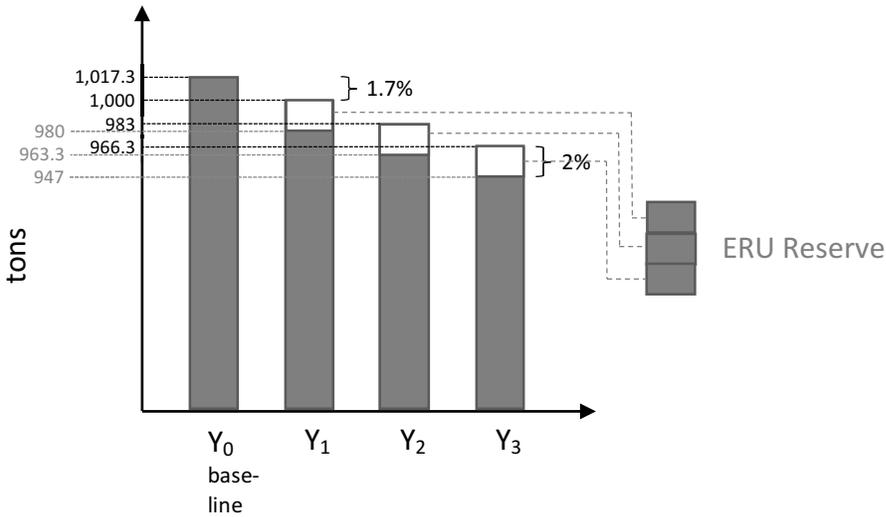
We understand that Ecology must allocate to the reserve 2% of “a covered party’s emission reduction pathway annual decrease” and 2% of EITE covered party’s contribution.⁷

Does this mean that a covered entity’s emissions are 2% below where they would be without the Reserve? Is the emissions trajectory after the ERUs are set aside in the Reserve equal to the new emissions limit (i.e. actual emissions)? In the example shown in Figure 1 below, if a covered entity’s emissions limit is 1,000 tons in Year 1 (Y_1) before the ERU Reserve, is that limit lowered to 980 in order to issue ERUs that are then retired for VRE? Are actual plant emissions (i.e. the regulatory target/limit) at 1,000 or 980 in Y_1 ?

⁶ WAC 173-442-240 (2)(c) and (4)(f)

⁷ WAC 173-442-240 (1)(a)(i)(A)

Figure 1. Example of Covered Party’s Emission Pathway with Allocation to the ERU Reserve



If the answer to these questions is yes, then retirement of ERUs in the ERU Reserve on behalf of the VRE market will be an effective mechanism to restore regulatory surplus for the VRE market and VRE. If not, then simply retiring ERUs on behalf of VRE does not restore regulatory surplus.

Our question can be rephrased as: Does the total amount of emissions reductions calculated for the state (i.e. emissions reductions at all covered parties combined) equal real emissions reductions at covered sources plus some amount of reductions from ERUs from projects and allowances? Or are ERUs from projects and allowances in addition to the total expected/targeted emissions reductions from combined covered entities? If the latter, then retiring them does not restore regulatory surplus for the voluntary market.

If the ERUs retired on behalf of VRE as described in section WAC 173-442-240 (2)(c) of the Draft Proposal are not generated by lowering the allowed actual emissions at regulated units, we recommend that section WAC 173-442-240 (1)(a) be amended to require this.

3. The ERU Reserve as proposed does not prevent RECs from Washington that are not used in the VRE market from potentially leaving the state and being used for compliance (e.g. for an RPS) in another state.

Other states with programs that currently allow RE from WA to be used for compliance (e.g. Oregon RPS) may wish to disallow those RECs if their programs are in part intended to reduce emissions in their state. We recommend communicating with neighboring states that accept Washington RECs in their programs in order to make them aware that the CAR effectively counts the emissions reductions associated with Washington RECs.

Other Comments

- 4. Notwithstanding Primary Comment 1 above, if section WAC 173-442-160 (5) in the Draft Proposal remains in the CAR, then we support sections WAC 173-442-160 (5)(b)(ii) and (5)(b)(ii)(C), which prevent potential double counting of ERUs and RECs.**

If alternative energy generation will continue to be permitted to generate ERUs, then we support that REC retirement in a tracking system is required for ERU issuance from RE⁸ and that RECs cannot also be used or RPS or voluntary program⁹ under the Draft Proposal.

These provisions prevent double counting of ERUs and RECs. However, the same potential for double counting could also be avoided by disallowing ERU generation from all alternative energy generation, per Primary Comment 1 above, and this would also prevent double crediting.

- 5. We also support section WAC 173-442-150 (1)(e)(i) of the Draft Proposal, though we recommend clarification of the specific language in the Draft Proposal.**

We support that ERUs from projects or programs must be additional to existing law or rule.¹⁰ However, the specific language in the Draft Proposal refers to the “emissions reduction” as that which must be required by law in order to be excluded (meet non-additionality), not necessarily the activity generating the emissions reduction (e.g. RE facility or generation): “If an emission reduction is required by another statute, rule, or other legal requirement, the emission reduction cannot be used in this program.” As a result, the RPS, for example, would not necessarily exclude reductions from RE generation used to meet the RPS from generating ERUs. The RPS is not included in section WAC 173-442-150 (1)(e)(ii) among the policies that result in emissions reductions that can be used to generate ERUs.

Assuming the intent is not to allow ERUs from RPS generation (this would be consistent with section WAC 173-442-160 (5)(b) of the Draft Proposal), we recommend that the language in section WAC 173-442-150 (1)(e)(i) of the Draft Proposal be amended to refer to both emissions reductions that are required by another statute, rule, or other legal requirement as well as emissions-reducing activities that are required by another statute, rule or legal requirement.

- 6. There appears to be an error at WAC 173-442-160(5)(c), which refers to ERUs generated from conservation and retiring RECs as per WAC 173-442-170(2)(a) and (2)(b), but these sections appear to pertain only to allowances. We believe WAC 173-442-160(5)(c) should instead refer to sections WAC 173-442-160(5)(a) and WAC 173-442-160(5)(b), respectively.**

⁸ WAC 173-442-160 (5)(b)(ii)

⁹ WAC 173-442-160 (5)(b) and (5)(b)(ii)(C)

¹⁰ WAC 173-442-150 (1)(e)(i)

7. We generally support sections WAC 173-442-240 (2)(c)(i) and (ii), though we recommend two minor language changes to meet the objectives of these sections and avoid unintended complications.

Sections WAC 173-442-240 (2)(c)(i) and (ii) currently read as follows in the Draft Proposal:

(i) Ecology, in conjunction with the departments of commerce and the utilities and transportation commission, will engage stakeholders and renewable energy market experts to estimate demand for voluntary renewable energy programs serving Washington customers.

(ii) Ecology may allocate a portion of the reserve ERCs for retirement as voluntary renewable energy purchases by Washington customers consistent with the estimate in (c)(i) of this subsection, after taking into account the availability of reserve ERUs.

As written, this will not accommodate purchasers of Washington VRE that are located outside the state, whose purchases are also affected by the CAR. As a result, we recommend that “for voluntary renewable energy programs serving Washington customers” in section (i) be replaced with “for voluntary renewable energy located in Washington,” and that “by Washington customers” in section (ii) be replaced with “from Washington generators.” Otherwise, the retirement of ERUs on behalf of VRE in the ERU Reserve will only cover Washington customers buying from Washington generators, since Washington customers buying from other states do not need it, and whereas customers outside Washington buying from Washington VRE do.

Thank you very much for the opportunity to comment. We would be happy to supply any other supporting or clarifying information that would be helpful.

Sincerely,



Todd Jones
Senior Manager, Policy and Climate Change Programs



**DEPARTMENT OF THE AIR FORCE
REGIONAL ENVIRONMENTAL COORDINATOR, REGION 10
50 Fremont Street, Suite 2450
San Francisco CA 94105**

20 July 2016

Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
Attn: Sam Wilson

Subject: DoD Comments on Washington State Proposed Clean Air Rule WAC 173-442

Dear Mr. Sam Wilson:

I am the Department of Defense (DoD) Regional Environmental Coordinator for EPA Region 10 and represent the military interests of the Services and installations on environmental matters within those four states, including Washington. I am responsible for coordinating responses to various environmental policies and regulatory matters of interest. The DoD appreciates the opportunity to provide comments on the Washington Department of Ecology (WDoE) proposal to adopt the Clean Air Rule, WAC 173-442.

Military installations in Washington have successfully reduced their GHG emissions in accordance with the 2005 Energy Policy Act, 2007 Energy Independence and Security Act, archived Executive Order 13514, and current Executive Order 13693, *Planning for Federal Sustainability in the Next Decade* which has resulted in a reduction of energy intensity and deploying renewable energy. Joint Base Lewis McChord (JBLM), which is the only military installation that WDoE anticipates triggering an emission threshold under the proposed rule, has reduced GHG emissions from 90,162 metric tons (MT) CO₂e in 2012 to 78,741 MT CO₂e in 2015, a 12.6% reduction. JBLM has achieved this through efficient fuel usage, and an aggressive energy conservation plan. If this trend continues, it is possible that no military installations in Washington, to include JBLM, would trigger the lowest threshold of 70,000 MT CO₂e/year.

Compliance with federal mandates are leading to demonstrable progress in reducing GHG emissions; in addition, it is imperative the military maintains flexibility to meet our national security mission which cannot be constrained by fixed measures to reduce consumption of energy or generation of power. For these reasons, the DoD requests an exemption from the rule.

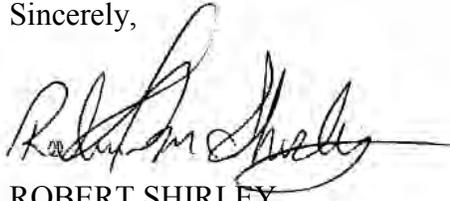
Even if none of the military installations in Washington trigger the lowest threshold for the cap-and-reduce proposal, an exemption from the rule is appropriate as the military may have an unforeseen requirement for increased operations such as a bed down of future missions, and/or training of our soldiers to meet the directives of the national command authority in a global environment that is constantly changing. We appreciate your engagement with the State of California in developing parts of the proposed Clean Air Rule (i.e., the proposed acceptance of

active accreditation or recognition of California third-party verifiers used in the California Air Resources Board's GHG emissions program). An exemption for military operations under the proposed Clean Air Rule in Washington would be consistent with the exemption California provided for the military from its cap-and-trade regulation [17 CCR §95852.2(c)(1)].

Therefore, we request the addition of a new section to the exemptions of the proposed rule "WAC 173-442-040 (1)(e) NAICS Code 92811" which would exempt military facilities from the rule. Lastly, we are not seeking an exemption from WAC 173-441, Reporting of Emissions of Greenhouse Gases.

Thank you again for this opportunity to provide comments on the proposed Clean Air Rule. If you have any questions or would like to discuss our comments in more detail, please contact Scott Dickinson at (415) 977-8890 or by email at bradley.dickinson@us.af.mil; and/or myself at (415) 977-8850 or by email at robert.shirley.2@us.af.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Shirley", with a long horizontal flourish extending to the right.

ROBERT SHIRLEY
DoD Regional Environmental Coordinator
Region 10



STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL
PO Box 43172 • Olympia, Washington 98504-3172

July 22, 2016

Stu Clark, Program Manager
Air Quality Program
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Subject: EFSEC Comments to Proposed Clean Air Rule Chapter 173-442 WAC

Dear Mr. Clark:

The purpose of this letter is to encourage the Department of Ecology (Ecology) to provide credit for early action to facilities that have implemented greenhouse gas (GHG) mitigation programs that predate the proposed Clean Air Rule (rule) programs. The Energy Facility Site Evaluation Council (EFSEC) regulates air emissions from its natural gas-fired power plants through the federal-delegated Prevention of Significant Deterioration and Title V/Air Operating Permit programs.

EFSEC issued the current Site Certification Agreement to Grays Harbor Energy, LLC (Grays Harbor Energy) for its Grays Harbor Energy Center (GHEC), (formerly named the Satsop Combustion Turbine Project) in 1996. GHEC was required by EFSEC to implement a GHG mitigation program before the Legislature adopted the GHG mitigation requirements, now found in chapter 80.70 Revised Code of Washington (RCW).

In 2003, as part of one of the SCA amendments, EFSEC required Grays Harbor Energy to develop a GHG mitigation plan. Grays Harbor Energy developed the "Satsop Combustion Turbine Project Greenhouse Gas Mitigation Plan," and EFSEC approved that plan on June 9, 2003. (See Attachment 1).

The GHEC began commercial operation in May, 2008. Since 2008, Grays Harbor Energy has provided nearly \$3 million in mitigation funds to the program administrator, The Climate Trust. (See Attachment 2).

Washington Administrative Code (WAC) 173-442-160(1) appears to make provision for 'certain EFSEC recognized emission reductions.' Ecology's proposed rule specifically also states: If an emission reduction is required by another statute, rule, or other legal requirement, the emission reduction cannot be used in this program ((WAC) 173-442-150(1)(e)(i)). The proposed rule does not appear to offer any credit for early action for Grays Harbor Energy's GHG mitigation efforts made since 2008.

EFSEC believes the Grays Harbor Energy GHG mitigation program is substantively consistent with the requirements of Ecology's proposed rule. This position is based on 1) EFSEC's interpretation of the requirements in the proposed rule, 2) the Council-approved 2003 GHG mitigation plan, 3) and the attached documents describing the funds provided by Grays Harbor Energy and the projects the funds were used for.

Furthermore, soon after chapter 80.70 RCW became law, The Climate Trust applied to EFSEC to be placed on the list of independent qualifying organizations, required by RCW 80.70.050. After careful consideration EFSEC found the business practices of The Climate Trust to be consistent with the statute and approved the addition of the organization to the IQO list. The Climate Trust continues to administer Grays Harbor Energy's GHG mitigation program.

EFSEC respectfully requests that Ecology acknowledge Grays Harbor Energy's past GHG mitigation efforts and supports Grays Harbor Energy's request for early action credit for its GHG mitigation efforts that predate Ecology's proposed rule.

Thank you for consideration of this request. Please contact Jim La Spina, EFSEC staff at jlaspina@utc.wa.gov or 360-664-1362 if you have any questions concerning this matter.

Sincerely,

A handwritten signature in cursive script that reads "William F. Lynch".

Bill Lynch
EFSEC Chair

cc: Pete Valinske, GHE

ATTACHMENT 1

SATSOP COMBUSTION TURBINE PROJECT

GREENHOUSE GAS MITIGATION PLAN

**SATSOP COMBUSTION TURBINE PROJECT
GREENHOUSE GAS MITIGATION PLAN**

APPROVED June 9, 2003

By

**STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL**

**SUBMITTED BY
DUKE ENERGY GRAYS HARBOR, LLC**

INTRODUCTION

In 1994, the Washington Public Power Supply System (now "Energy Northwest") filed an application with the Energy Facility Site Evaluation Council (EFSEC or "the Council") to construct a 490 MW combined-cycle combustion turbine project at the Satsop site. After holding an adjudicatory hearing, EFSEC recommended a Site Certification Agreement (SCA) for the Satsop Combustion Turbine Project, and the Governor executed that SCA on May 21, 1996.

The topic of greenhouse gas mitigation was addressed during the adjudicatory hearings in 1996. Evidence indicated that the facility would emit up to 1.778 million tons of greenhouse gases a year. During the hearings, the applicant and the Counsel for the Environment disagreed about whether the Council should require mitigation for those greenhouse gas emissions. Ultimately, the Council decided not to impose a mitigation requirement. The Council found that "the Satsop CT Project uses the latest reasonable technology and that it will produce lower emissions of greenhouse gases than older natural gas combustion turbine facilities or other fossil fuel facilities." Order No. 694 at 13-14.

Among other things, the Council concluded that "[b]urdensome greenhouse gas mitigation . . . could place the Applicant at a competitive disadvantage within the power producing market and deprive the market of a very efficient power producing facility. Balancing the respective interests, and recognizing that emission technology will advance and greenhouse mitigation measures may be enhanced as time passes, the Council will impose no fixed requirement upon the Applicant. . . . If a comprehensive federal or state mitigation program is implemented, the Council reserves the right to exercise its authority under that program . . ." Order No. 694 at 25. Accordingly, the original SCA provided that:

If a comprehensive federal or state mitigation program is implemented, the Council reserves the right to exercise its authority under that program, considering and appropriately crediting any measures that the Certificate Holder has accomplished. SCA Article VI.B.2.

In 2001, the Council added Duke Energy Grays Harbor, LLC ("Duke Energy"), to the SCA as a Certificate Holder, and together Duke Energy and Energy Northwest requested a technical amendment to the SCA to allow the use of currently available equipment in the CT facility. The equipment change resulted in an increase in the facility capacity from 490 MW to approximately 630 MW.

The Council granted the technical amendment on April 13, 2001, by Resolution No. 298. In Resolution No. 298, the Council acknowledged that the increase in the facility's capacity could result in an increase in the facility's carbon dioxide (CO₂) emissions, and stated that the Council had authority to compel the Certificate Holders to prepare and implement a carbon dioxide mitigation plan. Although the Satsop CT facility now has the potential to emit more than 1.778 million tons of CO₂ per year, under many likely operating scenarios, the actual annual emissions would not exceed the total volume of emissions that the Council and the Governor permitted in 1996 without any mitigation requirement. Both Resolution No. 298 and subsequent discussions with the Council

reflect the Council's intention to require the Certificate Holders to mitigate only those CO₂ emissions that exceed the previously-permitted amount.

Duke Energy has developed this Greenhouse Gas Mitigation Plan over the course of several months, in consultation with Council members and with careful consideration of comments provided by other interested parties. The mitigation plan set forth below is based upon the mitigation plan that the Council approved for the Sumas 2 Generating Facility, which in turn was based upon the mitigation requirements established by Oregon statute and regulations.

In evaluating the mitigation plan, however, it is important to keep in mind that the Satsop CT Project differs from the Sumas 2 project in one very important respect. EFSEC approved the vast majority of the CO₂ emissions from the Satsop CT Project in 1996 (those attributable to 490 MW of the now 630 MW facility), without imposing any mitigation requirement. In contrast, none of the Sumas 2 facility's emissions had been previously approved without mitigation. Nonetheless, to address EFSEC's concerns, Duke Energy proposes a mitigation plan that is relatively comparable to the plan approved for the Sumas 2 Project.

MITIGATION PLAN

Duke Energy proposes that the mitigation obligation be based upon the maximum potential CO₂ emissions that exceed a rate of 0.675 pounds of CO₂ per kilowatt hour (lb/kWh) over 30 years of the facility's operation. The mitigation requirement would be satisfied on an annual basis by providing a fixed amount of funding per ton of CO₂ emissions to be mitigated to an approved organization for use in implementing CO₂ mitigation projects. In addition, the Certificate Holders will provide a fixed amount of funding to cover the organization's expenses in administering the mitigation funding.

This Mitigation Plan is generally based upon the mitigation plan approved by the Council for the Sumas 2 Generation Facility, which in turn was based on the requirement in effect in Oregon on June 29, 2001, the date on which the application for the Sumas 2 project was submitted to EFSEC. However, this Plan differs from the Sumas 2 mitigation plan in three important respects: (1) funding will be provided on an annual basis, unlike the Sumas plan which funded the entire obligation over the first five years of operation; (2) the price per ton will increase over time according to the Producer Price Index, and (3) funding for administrative expenses will be provided.

A. Calculation of Emissions Subject to Mitigation Requirement

The Certificate Holders will mitigate potential CO₂ emissions from the facility that exceed the rate of 0.675 lb/kWh. The mitigation requirement will be based upon the facility's maximum potential emissions, rather than the actual emissions in any given year.

In order to determine the volume of emissions requiring mitigation, the Certificate Holders shall determine the facility's maximum potential annual CO₂ emissions and the corresponding maximum potential kilowatt-hours of electricity generated. The Certificate Holders shall then subtract from the maximum potential annual emissions the volume of emissions that would be associated with generating the same amount of electricity if the electricity were generated at a rate of 0.675 lb/kWh CO₂.

For example, if the facility's maximum capacity were 630 MW and its maximum potential annual CO₂ emissions were 2.2 million tons, the calculation would be made as follows:

Facility's Potential Annual CO ₂ Emissions	-	Annual Emissions if 630 MW Generated at Rate of 0.675 lbs CO ₂ per kilowatt hour	=	Emissions to Mitigate
2,200,000 tons	-	630,000 kw x 8760 hrs x 0.675 lb/kwhr	=	Emissions to Mitigate

		----- 2000 lbs/ton		
2,200,000 tons	-	1,862,595 tons	=	337,405 tons

Thirty days prior to the commencement of facility operations, the Certificate Holders will submit to EFSEC the calculation of the emissions subject to mitigation on an annual basis.

B. Funding for Mitigation

The Certificate Holders will satisfy the mitigation requirement by providing a fixed amount of funding for each ton of emissions to be mitigated to an organization approved by EFSEC, as well as funding for administrative expenses as described below.

The amount of mitigation funding will be initially be fixed at \$0.57 per ton of CO₂ emissions to be mitigated. On the first anniversary of the commencement of commercial operation of the facility, and on the anniversary of that date of each year thereafter, the amount of funding per ton will increase from \$0.57 in the same percentage as the Producer Price Index has increased during the same period. For example, if the facility began commercial operation on January 1, 2004, and if the Producer Price Index rose by 3% from January 1, 2004 to January 1, 2005, the amount of any funding due for 2005 would be based on a price of \$0.587 per ton, which is 103% of \$0.57.

C. Funding for Administrative Expenses

In addition to the mitigation funding described above, the Certificate Holders will provide the organization selected to administer the greenhouse gas mitigation funding with funding equal to seven and one-half percent (7.5%) of each annual payment of mitigation funding for use toward the payment of the organization's administrative expenses.

D. Timing and Duration of Funding Requirement

The mitigation requirement will be payable by the Certificate Holders on an annual basis at the start of each of the first 30 years in which the facility is operating. Thirty days after the facility begins commercial operation, and on the anniversary of that date in each of the following 29 years, the Certificate Holders shall submit documentation to EFSEC demonstrating that the mitigation and administrative funding required under this mitigation plan has been provided to the organization approved to administer the funds.

E. Approval of Organization to Administer Funds

A qualified organization, such as the Climate Trust, shall be selected by the Certificate Holders to administer the funds provided for greenhouse gas mitigation. At least thirty days prior to the commencement of commercial operations, the Certificate Holders shall propose, for EFSEC's approval, an organization to administer the mitigation funding. The Certificate Holders shall provide detailed information regarding the proposed organization, including documentation indicating the organization's willingness to administer the funds and a description of how the organization intends to administer the funds. If EFSEC does not approve the organization proposed by the Certificate Holders, EFSEC shall specify an alternative organization to receive funding required under this mitigation plan.

At any time while the mitigation requirement is in effect, the Certificate Holders may propose to designate a new organization to administer mitigation funds in future years. EFSEC must approve any change in the administering organization.

PREEMPTION AND SUNSET

If a new state or federal law imposes requirements on the Certificate Holders to limit, mitigate or offset greenhouse gas emissions, EFSEC will support the Certificate Holders in obtaining credit under any such new laws, regardless of preemption, for early action for offsets already funded under this Mitigation Plan.

If any new state or federal law pre-empts this Mitigation Plan, to the extent that any carbon offset or funding obligation hereunder has not been met at the time of such change in law, the Certificate Holders may meet any such obligation through compliance with the new program, and further obligations under this Mitigation Plan will terminate.

ATTACHMENT 2

CLIMATE TRUST DOCUMENTS

GHE CO2 MITIGATION PAYMENT SUMMARY

GHE CARBON OFFSET ACQUISITION PROGRESS REPORT

ATE ST

Annual CO2 Mitigation Payment Summary

ng	Project Management (20%)	Total Carbon Offset Funding	Administration (7.5% fee)	Total Mitigation Payment
4	\$58,607.69	\$293,038.43	\$21,977.88	\$315,016.31
5	\$56,556.42	\$282,782.08	\$21,208.66	\$303,990.74
3	\$62,124.21	\$310,621.03	\$23,296.58	\$333,917.61
2	\$62,006.93	\$310,034.65	\$23,252.60	\$333,287.25
9	\$60,600.35	\$303,001.73	\$22,725.13	\$325,726.86
1	\$59,310.98	\$296,554.89	\$22,241.62	\$318,796.50
3	\$59,545.41	\$297,727.04	\$22,329.53	\$320,056.57
9	\$58,138.82	\$290,694.12	\$21,802.06	\$312,496.18
1	\$58,549.08	\$292,745.39	\$21,955.90	\$314,701.29
8	\$535,439.88	\$2,677,199.36	\$200,789.95	\$2,877,989.31



Carbon Offset Acquisition Progress Report Satsop Combustion Turbine Project

July 1, 2016
Prepared for Invenergy
By The Climate Trust

Overview

The Washington Energy Facility Siting Council approved The Climate Trust in April 2008 as the implementing organization for Satsop Combustion Turbine Project's (Satsop) Greenhouse Gas Mitigation Plan (See [Chapter 80.70 RCW](#)). Invenergy established this plan to meet the Satsop site certificate requirements of the Washington Carbon Dioxide Mitigation Program. Since 2008, Invenergy has provided annual funding to The Climate Trust, a qualified nonprofit organization, to administer the monetary path option under the Washington Carbon Dioxide Standard.

This report provides information on how The Climate Trust has obligated the mitigation funds received under this plan, and updates on the performance of the carbon offset projects contracted on behalf of Invenergy's Satsop facility.

The Climate Trust has received offset project funding of \$1,907,563.17 from Invenergy as of March 31, 2016. Table 1 lists total funds received from Invenergy broken out by structure for each year. Project management funds enable The Climate Trust to provide support and data tracking for the duration of our project contracts. The administration fee is used for selection and contracting to enable The Climate Trust to identify, evaluate and execute contracts with quality projects on behalf of Invenergy.

Table 1. Carbon Offset Project Funding Received

Year	Project Funding (80%)	Project Management (20%)	Carbon Offset Funding (100%)	Administration (7.5% fee)	Total Payment
2008	\$234,430.74	\$58,607.69	\$293,038.43	\$21,977.88	\$315,016.31
2009	\$226,225.66	\$56,556.42	\$282,782.08	\$21,208.66	\$303,990.74
2010	\$248,496.83	\$62,124.21	\$310,621.04	\$23,296.58	\$333,917.61
2011	\$248,027.72	\$62,006.93	\$310,034.65	\$23,252.60	\$333,287.25
2012	\$242,401.39	\$60,600.35	\$303,001.74	\$22,725.13	\$325,726.86
2013	\$237,243.91	\$59,310.98	\$296,554.89	\$22,241.62	\$318,796.51
2014	\$238,181.63	\$59,545.41	\$297,727.04	\$22,329.53	\$320,056.57
2015	\$232,555.29	\$58,138.82	\$290,694.12	\$21,802.06	\$312,496.19
Total	\$1,907,563.17	\$476,890.81	\$2,384,453.98	\$178,834.06	\$2,563,288.03

Satsop Carbon Mitigation Project Portfolio

Since 2008, The Climate Trust has obligated funding from the Satsop Facility to the following projects:

- Farm Power Rexville Dairy Digester in Washington
- Revolution Energy Solutions (RES) Lochmead Dairy Digester in Oregon
- Cedar Grove Composting in Washington
- Environmental Credit Corp. Composting Portfolio in Delaware
- Camco Afognak Island Forestry in Alaska

Obligated funding is the amount The Climate Trust is contracted to purchase from carbon offset projects should the offsets be verified and delivered. The obligated funds fluctuate over time as a project’s performance changes and costs are incurred.

Table 2 on the next page lists the obligated funding and carbon offsets for each project through March 31, 2016. Figure 1 on the next page shows the obligation of project funding to projects by percentage. In the past year, The Climate Trust obligated \$112,626.33 for the purchase of offsets from the Afognak Island Forestry project. This amount was allocated to pay Camco, the seller of the Afognak offsets, and related registry fees associated with receiving and retiring the offsets through the Markit Environmental Registry, which is the electronic trading platform for this Verified Carbon Standard certified project.

Table 2. Satsop Project Portfolio Obligations and Offsets

Project	Obligated Funds	Anticipated Offsets (Metric Tons)	Retired Offsets (Metric Tons)
Farm Power Rexville Dairy Digester	\$529,998.00	50,476	50,476
RES Lochmead Dairy Digester	\$95,200.00	11,200	2,991
Cedar Grove Composting	\$132,475.50	17,996	17,996
Environmental Credit Corp. Composting	\$437,245.50	74,813	74,813
Camco Afognak Forestry	\$237,305.00	91,655	91,655
Cost of Goods Sold*	\$9,861.33	N/A	N/A
Total as of March 31, 2016	\$1,442,085.33	246,140	237,931

*Historically, The Climate Trust applied cost of goods sold charges to project management funds. These costs include electronic registry fees, verification costs, and project submission fees. All are essential to the purchase and retirement of verified carbon offsets. Upon internal review with our accounting department and auditor, The Climate Trust decided to start applying cost of goods sold against the project funding portion (the 80%) of funds received from a facility. The cost of goods sold data was gathered in 2014 and then applied to the obligations ledger of The Climate Trust’s internal registry as a “project” in early 2015. The costs for 2015 and 2016 were added as they were incurred. As of March 31, 2016, Invenergy funding paid \$9,861.33 in verification and external registry fees since January 1, 2014.

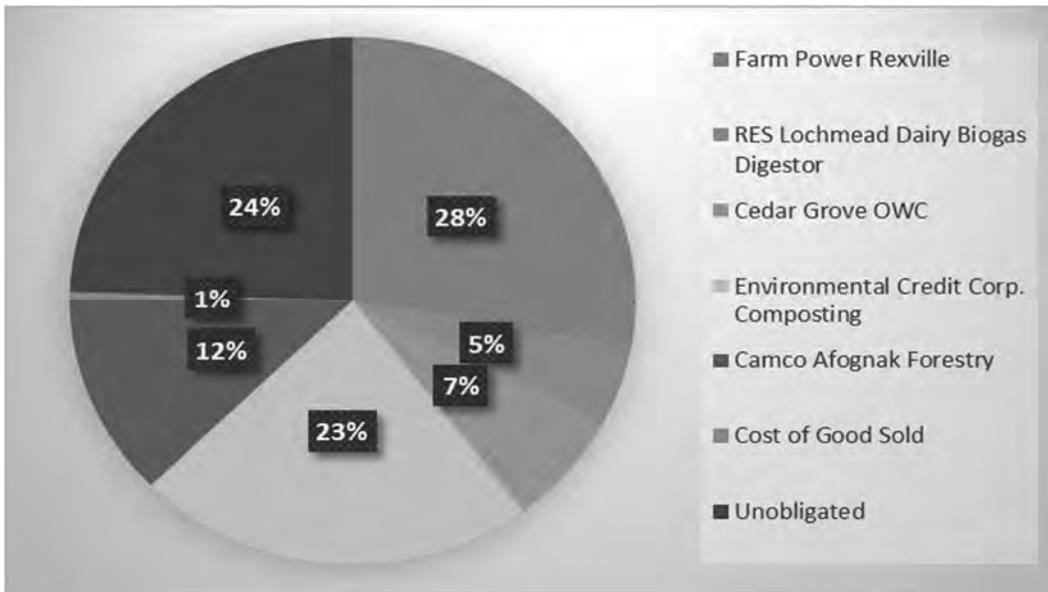
Table 3 on the next page shows the vintage of carbon offsets retired on behalf of Invenergy for each project. Under the Washington CO2 Standard the earliest vintage of offsets that are allowed is 2004.

Invest with purpose.

Table 3. Retirement of Project Offsets by Vintage

Project	2008	2009	2010	2011	2012	2013	2014	Total
Farm Power Rexville		883	6,184	9,321	11,069	10,586	12,433	50,476
RES Lochmead				810		900	1,281	2,991
Cedar Grove					17,996			17,996
ECC Composting	4,085		5,580		27,422	37,726		74,813
Camco Afognak				22,400	35,000	34,255		91,655

Figure 1. Project Funding Obligated to Projects by Percentage



Project Portfolio

The offset projects supported with Invenergy's funding utilize diverse approaches to achieve real, measurable, and verified emissions reductions. Project details may be found at [The Climate Trust's interactive portfolio map](#).

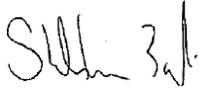
Conclusion and Looking Ahead

On April 26, 2016, The Climate Trust received Invenergy's annual funding payment for continued investments in Satsop's greenhouse gas mitigation portfolio. The Climate Trust shall obligate the funds to additional projects.

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The above annual report provides a snapshot of The Climate Trust's use of monetary pathway funds from Invenenergy's Satsop Combustion Turbine Project. The Climate Trust is available to answer any questions about Invenenergy's monetary pathway funds and the projects we're supporting through these funds. Thank you for your support of The Climate Trust.

Sincerely,

A handwritten signature in black ink, appearing to read "Sheldon Zakreski".

Sheldon Zakreski
Director of Carbon Compliance
The Climate Trust

Invest with purpose.

2200 WILSON BOULEVARD
SUITE 310
ARLINGTON, VA 22201

WWW.ENERGYRECOVERYCOUNCIL.ORG



July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Submitted Via E-mail: AQComments@ecy.wa.gov

Re: Chapter 173-442 WAC, Clean Air Rule

Dear Mr. Wilson,

Thank you for the opportunity to comment on the Department of Ecology's draft Washington Clean Air Rule ("Rule"). The Energy Recovery Council is deeply concerned with the treatment of waste-to-energy in the rule, as it fails to reflect greenhouse gas (GHG) science with respect to the waste management sector. We support the reduction of GHGs in the state of Washington, and we would like to offer our views on the rule in light of the role of waste-to-energy (WTE) plays in reducing those emissions.

The Energy Recovery Council is the national trade association representing companies and local governments engaged in the waste-to-energy sector. There are 77 WTE facilities in the United States, which produce clean, renewable energy through the combustion of municipal solid waste (MSW) in specially designed power plants equipped with the most modern emission control equipment.

The WTE facility owned and operated by the City of Spokane generates 26 MW of electricity from 800 tons of MSW per day remaining after recycling. Spokane is a model of a highly effective, integrated system of sustainable waste management. With a recycling rate greater than 50%, Spokane's program incorporates extensive recycling as well as curbside green waste, food waste, and food-soiled paper composting. Spokane's WTE facility is an important compliment to this program. Internationally, WTE facilities are recognized as reducing GHG emissions relatively to landfilling, and, when incorporated into an integrated system of sustainable waste management, lead to significant reductions in overall waste management sector emissions. The draft Rule will impose a financial burden on Spokane's program, jeopardizing its future, and penalizing what should otherwise be recognized as a significant achievement. The state should recognize the statutory obligations of local governments to manage their solid waste by exempting those activities.

We offer the following comments on the draft Rule:

1. In Recognition of Its Climate Benefits, WTE Should Not Be a Regulated Source Category under the Rule

A. WTE is a recognized source of GHG reduction

WTE facilities are an internationally recognized source of GHG emissions reduction, including by the U.S. EPA,^{1,2} U.S. EPA scientists,³ the Intergovernmental Panel on Climate Change (“IPCC”),⁴ the World Economic Forum,⁵ the European Union,^{6,7} CalRecycle,⁸ the California Air Resources Board,⁹ Joint Institute for Strategic Energy Analysis & NREL scientists,¹⁰ the Center for American Progress,¹¹ Third Way,¹² and other researchers.^{13,14} Further, WTE facilities generate carbon offsets credits under both the Clean Development Mechanism (CDM) of the Kyoto Protocol and voluntary carbon offset markets.^{15,16} Under CDM, more than 40 WTE projects have been registered, with a combined annual GHG reduction of 5 million metric tons of CO₂e per year.¹⁷

Many U.S. states have also recognized the GHG benefits of WTE through climate action plans and other policies. For example,

- Pennsylvania’s 2009 Climate Action Plan called for the expansion of WTE to help reduce GHG emissions by reducing landfilling and increasing WTE electricity generation.¹⁸
- New York State’s solid waste management plan prefers energy recovery over landfilling consistent with the waste hierarchy and concluded that WTE offers GHG benefits relative to landfilling.¹⁹
- The California Air Resources Board (CARB), in its environmental analysis supporting documentation for a potential renewable electricity standard, recognized a GHG emissions benefit of WTE of 1,200 to 1,700 lb CO₂e / MWh, greater than that achieved by geothermal, wind, and solar.²⁰
- California’s lead solid waste regulator, CalRecycle, concluded that the State’s WTE facilities reduce GHG emissions relative to landfilling, even excluding the additional electricity generation or the metals recovered for recycling.²¹
- Maryland’s GHG plan includes WTE within the state’s greenhouse gas mitigation strategy.²²
- WTE facilities are exempted from proposed GHG Emission Reduction Plan requirements, a precursor to the establishment of state-wide GHG emission caps, in Hawaii.²³
- Maine and Florida’s Climate Action Plans identify WTE as a GHG mitigation measure.^{24,25}
- WTE facilities also participate in the RPS programs in twenty-three states.²⁶

These GHG reductions are achieved by displacing grid connected fossil-fuel fired electricity, recovering metals from the waste stream for recycling, and most importantly, by avoiding landfill emissions of methane, a potent GHG over 30 times stronger than CO₂ over 100 years when all of its impacts are considered and over 80 times stronger over 20 years. As a result, WTE facilities avoid approximately 1 ton of carbon dioxide equivalents (CO₂e)

for every ton of municipal solid waste (MSW) processed on a life cycle basis when using national averages.²⁷

B. Cap and trade programs are poorly suited for achieving GHG emissions reductions from the waste sector.

While we support economic instruments, like that proposed in the Rule, such instruments must treat carbon emissions equitably, and must align the economic signal with the timing of, and responsibility for, decisions that affect GHG emissions. Cap and trade programs fail on both accounts for the waste management sector.

The proposed Rule relies on the emissions reported to the U.S. EPA under its Mandatory GHG Reporting Rule, 40 CFR §98 (EPA Reporting Rule). Landfill emissions under the EPA Reporting Rule are reported based on models, not actual measured emissions, and based on default factors which have been recognized as underreporting landfill GHG emissions by the EPA itself. For example, landfill operators are permitted to use a default collection efficiency of 95% for those parts of a landfill under final cap and cover meeting certain conditions, and then apply soil oxidation factors of up to 35%. In stark contrast, the U.S. EPA's own Office of Research and Development, after a multi-site two-year study of measured methane emissions from landfills found that “the data collected does not support the use of collection efficiency values of 90% or greater as has been published in other studies.”²⁸ Instead, the recent EPA Report found total *abatement* efficiencies of 38 – 88%, including the effects of soil oxidation of methane in landfill cover soils. The effects of soil oxidation are inherently covered, because the EPA study looked at methane concentrations above the landfill surface. This technique cannot distinguish between methane not emitted and methane oxidized in cover soils. Furthermore, the maximum collection efficiency used by the EPA in lifecycle modeling is only 90%, below the EPA Reporting Rule's maximum.²⁹

Even the 90% figure is likely too high. California's landfill early action measures, are the most stringent landfill gas control regulations in the nation. The California Air Resources Board determined that these requirements could be expected to achieve a gas collection efficiency of 83%, after final cap and cover.³⁰ The measured methane emissions from the Puente Hills landfill, a very well-managed landfill with a 6 foot thick clay cap located in a dry climate, fully in compliance with the CARB requirements, were indicative of a 73% collection efficiency.³¹ If such a well-controlled landfill operating under the most stringent landfill gas control regulations in the country can only achieve 73% efficiency when most of the landfill is under final cap and cover, is it reasonable to assume that Washington's landfills will be capable of attaining a 95% collection efficiency? The use of modeling itself is a problem: One study found the typical landfill emissions model used underestimated emissions.³² Such unrealistically high assumptions result in a distorted economic signal under cap and trade programs like that proposed in the Rule.

Adding to this distortion is a disparity between the treatment of WTE facilities and landfills with respect to the regulation of biogenic emissions. It is worth noting that the majority of WTE's CO₂ emissions is biogenic, stemming from the combustion of waste biomass. Waste

sources of biomass used for energy, as well as from composting, anaerobic digestion, and the CO₂ portion of landfill emissions are widely recognized as being low to zero carbon, including by EPA,³³ the Scientific Advisory Board (SAB) subgroup, prominent academics, and NGOs.³⁴ In fact, the Rule already exempts CO₂ from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals in section 173-442-040. However, under the proposed rule, both biogenic and anthropogenic CO₂ from WTE facilities would be regulated. Landfills are required to estimate and report, and subsequently be regulated for, methane emissions. However, while the CO₂ emissions from the combustion of landfill gas are reported, there is no requirement for landfills to report and regulate carbon dioxide from anaerobic digestion that occurs within the landfill or soil oxidation. Landfill gas is approximately 50% CO₂ by volume and this CO₂ is a biogenic emission just as much as the CO₂ that results from the combustion of methane. While we continue to believe that WTE facilities should not be regulated under the cap, the draft rule should not treat landfills more favorably than WTE facilities, given the preference to WTE facilities under the U.S. EPA's solid waste management hierarchy.

Lastly, a cap and trade program does not align the economic and policy signal of the need to acquire ERUs with the timing of, and responsibility for, decisions that affect waste-related GHG emissions. The most powerful mechanism to reduce GHG emissions from the waste management sector is to reduce landfilling, by reducing waste generation and diverting materials to recycling, anaerobic digestion, composting, and, for what's left over, WTE. However, these types of changes made to waste management practices take many years to be realized at the landfill, as gas generation at a landfill today is reflective of past waste management practices, not today's. Therefore, the Rule will not incentivize communities to divert more organic materials from landfills. In addition, the most significant GHG benefits achieved by recycling present themselves as GHG reductions at manufacturing facilities and other parts of the upstream supply chain. Therefore, most of what is beneficial about recycling from a GHG perspective, will never be realized under a cap and trade program by the entity with the most control over its implementation and success: the communities implementing recycling programs.

C. The reduction of methane emissions, one of WTE's key benefits, is a critical international and domestic priority in reducing GHG emissions

The latest scientific consensus finds methane to be more potent than previously thought. According to the IPCC's Fifth Assessment Report, methane's contribution to climate change is equivalent to over 40% of the total net drivers of climate change.³⁵ This latest data on methane's contribution to the increase in radiative forcing, a measure of the atmosphere's additional uptake of energy relative to pre-industrial times, and hence global warming of the earth's climate system, is over 75% higher than previously reported.

Fast action to reduce SLCPs, including methane, has the potential to slow down the global warming expected by 2050 by as much as 0.5 Celsius degrees.³⁶ A failure to address SLCPs, like methane, significantly increases the risk of crossing the 2°C temperature increase threshold widely discussed as most likely to limit severe climate change impacts.³⁷ The President's Climate Action Plan calls reducing emissions of methane "critical to our

overall effort to address global climate change” and initiated an interagency methane strategy. In 2012, the U.S. State Department, the United Nations Environmental Program, and a group of international partners announced the Climate and Clean Air Coalition (“CCAC”) to specifically focus on methane and other short-lived climate pollutants (“SLCPs”). For years, climate scientists have been calling for separate regulation of climate pollutants like methane owing to their potency and other differences relative to CO₂.^{38,39,40}

Unfortunately, the current draft rule downplays the importance of methane by using outdated methane global warming potentials (GWPs). The methane GWP (25) of the Proposal is from the IPCC 4th Assessment Report and is now out of date. Updating the GWPs will properly align reporting with the latest climate science. According to the IPCC’s 5th Assessment Report, the 100-year methane GWP is 34 when all of methane’s climate impacts are included and 84 times more potent over 20 years.⁴¹

2. To achieve the most significant GHG reductions from the waste management sector, the Department of Ecology should pursue alternative policy mechanisms already proven effective.

The only sure way of reducing landfill methane emissions is to prevent their generation in the first place through landfill diversion. In fact, this approach has been followed with great success by the EU, primarily through the Landfill Waste Directive, which calls for the reduction in landfilling of biodegradable wastes.⁴² The European Environment Agency (“EEA”) attributes considerable reductions in waste management GHG emissions to increased levels of recycling, including composting, and WTE.⁴³ In fact, the proactive waste policies of the EU have been an overwhelming success in Europe’s efforts to reduce GHG emissions: the waste sector achieved the largest relative reduction (34%) of any sector in the EU.⁴⁴ In addition, other states are moving away from landfilling to reduce the serious threat posed by methane. For instance, California recently set the goal to divert 90% of organics from landfills by 2025 in its newly proposed Short-Lived Climate Pollutant Reduction Strategy.⁴⁵

In response to the growing concerns about methane and in recognition of the limits of collecting landfill gas, the Obama administration, states like California, and cities like New York are taking steps to reduce GHG emissions through landfill diversion. Washington could be a leader in this area by more fully incorporating recycling, composting, anaerobic digestion and WTE into its waste management strategies and GHG strategies.

Unfortunately, the Rule does not properly recognize the GHG reductions already provided by WTE, and will actually place WTE at a competitive disadvantage relative to landfilling.

3. The Rule Should Treat WTE as a GHG Reduction Strategy

A. WTE should be added to the List of ERU generating technologies

Section 173-442-160 of the rule lists a number of technologies that are eligible generation emission reduction units under the rule. We believe that the rule should provide emission

reduction units to WTE facilities and other waste management strategies that divert waste from landfills. Landfill diversion through recycling, composting, anaerobic digestion, and energy recovery is the most effective means of reducing landfill methane emissions. Landfills are imperfect systems, and even the most effective gas collection systems still emit significant amounts of methane over their lifetime. Over the life of waste in a landfill, the lifetime collection efficiency at landfills that collect gas is estimated to be only 35 – 70%, leaving a significant amount of methane uncollected.⁴⁶⁻⁵⁰

Avoiding these emissions generates carbon offset credits in other programs, even after factoring in emissions from combustion of fossil-based waste components. WTE facilities generates carbon offsets credits under both the Clean Development Mechanism (CDM) of the Kyoto Protocol and voluntary carbon offset markets.^{51,52} Under CDM, more than 40 WTE projects have been registered, with a combined annual GHG reduction of 5 million metric tons of CO₂e per year.⁵³ To date, three WTE expansions have been validated as carbon offset projects in North America. The Lee and Hillsborough County facilities, operated on behalf of municipal owners in Florida, have been selling carbon credits into the voluntary market for several years. Viewed from the perspective of Benchmarking Process proposed in section WAC 173-442-050, WTE facilities are a significantly more GHG efficient means of delivering a post recycled waste management “product” than landfilling.

B. The Rule should rely on EPA’s Clean Power Plan as a model.

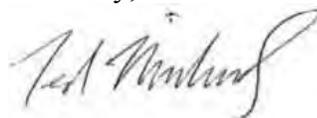
Not only are WTE facilities not regulated under the Clean Power Plan, WTE facilities are eligible to generate emission rate credits (ERCs) that can be used by affected sources for compliance purposes. Under section WAC 173-442-040 of the Rule, stationary sources in the Clean Power Plan can use the plan to demonstrate compliance with the Rule. As a result, since ERCs can be used to meet Clean Power Plan requirements if Washington pursues a rate based plan, an operator of new WTE capacity could find themselves in the paradoxical position of both having a compliance obligation under the Rule while at the same time helping an electric generating unit comply with the same Rule. Therefore, we strongly recommend that the Rule allow those technologies that may generate ERCs under the Clean Power Plan, including WTE, to generate ERUs under the proposed rule.

4. Conclusion

In summary, the Rule should recognize WTE, as many international and U.S. entities already have, for its important value in reducing GHG emissions through landfill methane avoidance, fossil fuel generation displacement and recycling of metals, as well as its vital contribution to sound local sustainable solid waste management. In addition, there are no technologically or economically viable approaches to limit stack CO₂ emissions from WTE facilities. The only practical solution to reduce CO₂ emissions is to decrease throughput, which would actually increase GHG emissions, since landfills would capture the waste that is being diverted from WTE facilities. Requiring WTE facilities to decrease throughput or acquire ERUs for compliance would place WTE facilities at a significant economic disadvantage, especially for local governments such as the City of Spokane, which has invested considerable capital and resources in building and operating a modern WTE facility

as a vital piece of the city's waste management program. If a WTE facility cannot remain economically viable, this will only serve to increase the amount of landfilling, and the resulting GHG emissions, contrary to the state's GHG reduction objectives which are driving implementation of the Rule.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted Michaels". The signature is written in a cursive style with a large, sweeping initial "T".

Ted Michaels
President

-
- ¹ U.S. EPA Clean Power Plan, 40 CFR 60 Subpart UUUU
- ² U.S. EPA (2016a) *Energy Recovery from the Combustion of Municipal Solid Waste (MSW)* webpage, last updated 6/5/2016, accessed 7/20/2016. <https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw>
- ³ Kaplan, P.O, J. DeCarolis, and S. Thorneloe, 2009, Is it better to burn or bury waste for clean electricity generation? *Environ. Sci. Technology* 43 (6) pp1711-1717. <http://pubs.acs.org/doi/abs/10.1021/es802395e>
- ⁴ WTE identified as a “key mitigation measure” in IPCC, “Climate Change 2007: Synthesis Report. Contribution of Work Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change” [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp. Available at: http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm
- ⁵ WTE identified as a key technology for a future low carbon energy system in World Economic Forum. Green Investing: Towards a Clean Energy Infrastructure. January 2009. http://www3.weforum.org/docs/WEF_IV_GreenInvesting_Report_2009.pdf
- ⁶ EU policies promoting WTE as part of an integrated waste management strategy have been an overwhelming success, reducing GHG emissions over 72 million metric tonnes per year, see European Environment Agency, Greenhouse gas emission trends and projections in Europe 2009: Tracking progress towards Kyoto targets http://www.eea.europa.eu/publications/eea_report_2009_9
- ⁷ European Environmental Agency (2008) Better management of municipal waste will reduce greenhouse gas emissions. http://www.eea.europa.eu/publications/briefing_2008_1
- ⁸ CalRecycle. 2012. CalRecycle Review of Waste-to-Energy and Avoided Landfill Methane Emissions. Available at: <http://www.calrecycle.ca.gov/Actions/PublicNoticeDetail.aspx?id=735&aiid=689>
- ⁹ See Table 5 of California Air Resources Board (2014) Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, Appendix C – Focus Group Working Papers, Municipal Solid Waste Thermal Technologies <http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm>
- ¹⁰ Funk, K., J. Milford, T. Simpkins (2013) *Waste Not, Want Not: Analyzing the Economic and Environmental Viability of Waste-to-Energy (WTE) Technology for Site-Specific Optimization of Renewable Energy Options*, Joint Institute for Strategic Energy Analysis. <http://www.nrel.gov/docs/fy13osti/52829.pdf>
- ¹¹ Center for American Progress (2013) Energy from Waste Can Help Curb Greenhouse Gas Emissions <http://www.americanprogress.org/wp-content/uploads/2013/04/EnergyFromWaste-PDF1.pdf>
- ¹² Third Way (2016) Getting it Right: The Next Fifteen Years of Energy. <http://www.thirdway.org/report/getting-it-right-the-next-fifteen-years-of-energy>
- ¹³ Weitz, K., Thorneloe, S., Nishtala, S., Yarkosky, S., and Zannes, M. (2002). “The impact of municipal solid waste management on greenhouse gas emissions in the United States.” *J. Air Waste Manage. Assoc.*, 52, 1000–1011.
- ¹⁴ Thorneloe, S., Weitz, K., and Janbeck, J. (2005). “Moving from solid waste disposal to materials management in the United States.” 10th Int. Waste Management and Landfill Symp., International Waste Working Group, Padova, Italy.
- ¹⁵ Clean Development Mechanism: Large-Scale Consolidated Methodology: Alternative waste treatment processes, ACM0022. Available at: <https://cdm.unfccc.int/methodologies/PAMethodologies/approved>
- ¹⁶ Verified Carbon Standard Project Database, <http://www.vcsprojectdatabase.org/> See Project ID 290, Lee County Waste to Energy Facility 2007 Capital Expansion Project VCU, and Project ID 1036 Hillsborough County Waste to Energy (WTE) Facility 2009 Capital Expansion Unit 4.
- ¹⁷ CDM Project Database, project methodologies AM0025, ACM0022, accessed 6/9/2015, <https://cdm.unfccc.int/Projects/projsearch.html>
- ¹⁸ See p8-2 of PA DEP (2009) Pennsylvania Final Climate Change Action Plan http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_001957.pdf
- ¹⁹ See p52 of NYS DEC (2010) Beyond Waste: A Sustainable Materials Management Strategy for New York State http://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf
- ²⁰ See Table D1-3 on page D-23 of California Air Resources Board (CARB 2010a) Proposed Regulation for a California Renewable Electricity Standard, Staff Report: Initial Statement of Reasons, Appendix D: Supporting Documentation for the Environmental Analysis, Available at: <http://www.arb.ca.gov/regact/2010/res2010/res10d.pdf>
- ²¹ CalRecycle. 2012. CalRecycle Review of Waste-to-Energy and Avoided Landfill Methane Emissions. Available at: <http://www.calrecycle.ca.gov/Actions/PublicNoticeDetail.aspx?id=735&aiid=689>
- ²² See p156 of MDE (2013) Maryland’s Greenhouse Gas Reduction Act Plan http://climatechange.maryland.gov/site/assets/files/1392/mde_ggrp_report.pdf
- ²³ HAR §11-60.1-204, proposed October 19, 2012. <http://health.hawaii.gov/cab/files/2013/05/ProposedRules.pdf>
- ²⁴ See Table 1 on p3 of Maine DEP (2004) A Climate Action Plan for Maine 2004. <http://maineghg.raabassociates.org/Articles/MaineClimateActionPlan2004Volume%201.pdf>
- ²⁵ See p6-11 of Governor’s Action Team on Energy & Climate Change (2008) Florida’s Energy & Climate Change Action Plan <http://www.broward.org/NaturalResources/ClimateChange/Documents/phase2report08.pdf>
- ²⁶ Energy Recovery Council 2016 Directory of Waste-to-Energy Facilities. <http://energyrecoverycouncil.org/wp-content/uploads/2016/05/ERC-2016-directory.pdf>
- ²⁷ Center for American Progress (2013)
- ²⁸ U.S. EPA (2012) *Quantifying Methane Abatement Efficiency at Three Municipal Solid Waste Landfills*. <http://www.epa.gov/nrmrl/pubs/600r12003.html>
- ²⁹ See Exhibit 6-9 of U.S. EPA (2016b) *Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM)* <https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-and-energy-factors-used-waste-reduction-model>
- ³⁰ California Air Resources Board (CARB 2009), Staff Report: Initial Statement of Reasons for the Proposed Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills, Appendix D: Evaluation of Landfill Gas Collection Efficiency, May 2009. Available at: <http://www.arb.ca.gov/regact/2009/landfills09/isor.pdf>

- ³¹ Peischl et al. estimated emissions from the Puente Hills Landfill to be 34 Gg / yr, comparable to the 2008 CARB inventory value of 38.8 Gg / yr. When the measured emissions of the Puente Hills landfill are compared against published data on landfill gas collection at the site [Shan et al. (2012) Estimation of Landfill Gas Emissions and Collection System Efficiency Using Surface Flux Chamber Technology – A Case Study of Puente Hills Landfill, SWANA 35th Annual Landfill Gas Symposium Proceedings.], the overall abatement efficiency inclusive of the effects of soil oxidation is 74.7%. Assuming soil oxidation of 10%, the resultant collection efficiency is 73%.
- ³² Amini, H.R., D. Reinhart, A. Niskanen (2013) Comparison of first-order-decay modeled and actual field measured municipal solid waste landfill methane data, *Waste Management* **33**: 12 (December 2013), 2720 – 2728.
- ³³ Letter from Janet McCabe, Acting Assistant Administrator, Office of Air and Radiation to Air Division Directors, Regions 1-10 dated November 19, 2014, Re: Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources. <https://www3.epa.gov/climatechange/downloads/Biogenic-CO2-Emissions-Memo-111914.pdf>
- ³⁴ Searchinger et al. "Fixing a Critical Climate Accounting Error" *Science* **326**: 527-528.
- ³⁵ Methane's contribution to the increase in radiative forcing relative to 1750 is 0.97 W / m², 42% of the total net increase in radiative forcing of 2.29 W / m². See Figure SPM.5 of IPCC (2013) Summary for Policymakers. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- ³⁶ Climate and Clean Air Coalition website, accessed 9/2/2014. <http://www.unep.org/ccac/Short-LivedClimatePollutants/BenefitsofMitigation/tabid/130286/Default.aspx>
- ³⁷ Shindell, D. et al., (2012) Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security, *Science*, **335**, 183-189.
- ³⁸ Jackson, S., (2009), Parallel Pursuit of Near-Term and Long-Term Climate Mitigation *Science*, **326**: 526-527
- ³⁹ Weaver, A., (2011), Toward the Second Commitment Period of the Kyoto Protocol *Science*, **332**: 795-796
- ⁴⁰ See p2 of UNEP, WMO, (2011), *Integrated Assessment of Black Carbon and Tropospheric Ozone: Summary for Decision Makers*. http://www.unep.org/dewa/Portals/67/pdf/Black_Carbon.pdf
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- ⁴² EU Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, Official Journal of the European Communities. L182, 42, 1–19 (1999).
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- ⁵⁰ See Exhibit 7-9 of U.S. EPA (2015) *Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM)*, http://www3.epa.gov/epawaste/conserva/tools/warm/pdfs/WARM_Documentation.pdf
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July 21, 2016

Ms. Sarah Rees
Special Assistant Climate Policy

Mr. Stuart Clark
Air Quality Program Manager

Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

RE: Formal Comments regarding the Washington Clean Air Rule

Dear Ms. Rees and Mr. Clark:

Thank you for providing us the opportunity to submit comments on the revised draft of the Washington State Department of Ecology Clean Air Rule that aims to cap global warming pollution in Washington State. These comments are submitted on behalf of Climate Solutions, Natural Resources Defense Council, NextGen Climate, Sierra Club, Union of Concerned Scientists, and Washington Environmental Council.

We commend Governor Jay Inslee for responding to legislative inaction and implementing Washington's Clean Air law by pursuing rulemaking to reduce Washington State's carbon pollution to protect current and future generations from the impacts of climate change and air pollution. Comprehensive, well-crafted action on climate will help transform Washington's economy into one that is more sustainable and equitable. It is imperative to pursue a bold policy that takes full advantage of authority that exists under the Clean Air Act and in judicial orders requiring the State to act on carbon emissions, though we recognize that the policy options offered through this path are more limited than those available with legislative cooperation or through an initiative to develop an economy-wide carbon policy.

SUMMARY

We acknowledge and appreciate the changes the Department has made to the previously released draft rule, including the addition of a reserve account, a registry, and initial steps toward an aggregate cap over all covered sectors of the economy. These changes have made this a stronger rule than the draft originally released. However, more work is required to strengthen the rule's ability to reduce carbon emissions and to better clarify its implementation. We remain deeply concerned that the proposed Clean Air Rule is insufficient as a means to achieve the state's carbon reduction goals and sets a concerning precedent for other jurisdictions to follow. The summary of our comments is as follows:

A. Program Architecture

As shared in [previous comments](#) and forums, the baseline-and-credit system is a flawed approach to regulating carbon emissions. Switching the Clean Air Rule to an aggregate cap with distribution of a limited and declining pool of allowances would reduce accounting and verification requirements, ensure integrity of reported emissions reductions, ensure liquidity of tradable compliance instruments, create

better opportunities for linkage with other markets (including those potentially created by the Clean Power Plan), and create a pathway to avoiding windfall profits, while reducing the extreme reliance on offsets as the primary compliance method and reducing the administrative burdens on State agencies. If the Department does not make this important change to the architecture of the Clean Air Rule, then it should pre-certify ERUs from on-site reductions ahead of the 3-year compliance deadline.

B. Aggregate Cap

While we appreciate that the Department took initial steps towards creating an implicit aggregate cap on economy-wide emissions, we do not believe that the Clean Air Rule goes far enough in articulating the overall limit. The rule should set an explicit and declining cap for carbon emissions and ensure that aggregate emissions from all regulated entities never exceed that limit. We also urge the Department to consider a more ambitious compliance pathway consistent with best available science.

C. Offsets

As a result of the rule's baseline-and-credit structure, the draft rule depends on emission reduction projects or programs, otherwise known as offset projects. Offsets, or projects to reduce emissions that do not directly result in emissions reductions at the regulated facilities, will likely be the primary means of compliance for some if not all sectors. This is an unprecedented approach that will cause a significant and ongoing verification and tracking burden on Ecology and could limit the impact of the rule. Furthermore, the fact that offsets can include projects within the regulated sectors raises significant issues of double counting and additionality that may cause the Clean Air Rule to fail to achieve real reductions consistent with state-mandated goals.

D. Reserve Account

The addition of the reserve was a key recommendation of the environmental community. While we appreciate that the updated draft incorporates this concept, we believe more work needs to be done to properly structure this account, including ensuring sufficient deposits, how credits are allocated to the account, and other considerations that we address in our detailed comments below.

E. Curtailment

Provisions to address curtailment of production from covered sources were other substantial issues with the first version of the Clean Air Rule. While the draft rule's new provisions are a step in the right direction, a number of significant loopholes remain as noted below.

F. Voluntary Participants

The inclusion of voluntary participants, as currently structured, does not meet the requirement of additionality in crediting emissions reductions. Voluntary participants that are not subject to ongoing reductions requirements and can leave the program at will, will likely be rewarded for business as usual activities, reducing emission reduction obligations for other facilities.

G. Electricity Sector Exemption for CPP Compliance

Because of other design decisions and statutory limitations, the Clean Air Rule will not be eligible as a compliance plan for the federal Clean Power Plan. However, Ecology should require that when the utility sector regulation shifts to the Clean Power Plan, its reduction pathway remains at least as ambitious as proposed in this rule and preferably is consistent with best available science.

H. Biofuels

Because of limitations on the use of lifecycle analysis in evaluating the carbon content of fuels, the Clean Air Rule does not accurately account for the greenhouse gas benefit of using biofuels versus fossil fuels. To address this shortfall, it would be preferable to follow the approach used by California to exempt the

carbon emissions associated with biofuels and work towards a more comprehensive assessment of the carbon attributes. This is also consistent with the biomass exemption currently in the rule.

I. Additional Recommendations

We provide additional recommendations to immediately incorporate EITE businesses into the reduction requirements and to ensure that the rule does not inadvertently lead to increased pollution that harms air- and water-quality, particularly in communities already impacted by contaminants.

RECOMMENDATIONS & CLARIFICATIONS

A. Program architecture

We remain very concerned with the decision to pursue a baseline-and-credit approach instead of the simpler, tested and well-understood economy wide cap. Fundamentally, a baseline-and-credit structure limits the creation of a transparent and liquid market that reduces costs through efficient distribution of emissions reductions while ensuring the state meets its emissions reductions target.

A summary of these concerns is included below. Please also find attached other memos we have previously shared for more detailed discussions of these issues and which we incorporate into these comments.

Liquidity concerns

An economy-wide cap requires a functioning trading system to address the varying costs of compliance at each regulated facility. This flexibility is important to reduce leakage risk for jobs and emissions—creating on-paper reductions that are merely replaced with pollution elsewhere. An allowance system—which provides legally verified emissions permits at the outset—allows companies to trade based on their projected need, provides incentives for early on-site reductions, and offers companies a compliance flexibility option that preserves the integrity of the pollution cap.

Because tradable emission reduction units (ERUs) are only issued following a compliance determination there will be significant uncertainty in market-wide availability and demand for ERUs. This will lead to boom and bust cycles—high demand prior to a compliance determination with low numbers of certified ERUs, followed by the issuance of credits with little immediate demand for them.

The baseline-and-credit design choice also undermines a core function of emissions trading—providing a financial reward for early movers that helps finance pollution-reduction projects. While a facility in an allowance system would be able to generate market revenue from emissions reductions immediately, under the proposed Clean Air Rule, the same facility would be unable to recoup costs for as much as three and a half years and would be unable to predict the revenue it can expect from trading. The result is that facilities will be incentivized to *avoid* on-site reduction projects, preferring instead the certainty of offsets. Fenceline communities, which would most immediately benefit from such projects, will instead see pollution mitigation funding leave their community and get spent elsewhere.

Linkage

A baseline-and-credit approach significantly limits the ability of the Washington Clean Air Rule market to link with external trading systems, such as the Western Climate Initiative (WCI), and is not compatible with the Clean Power Plan. This architecture is fundamentally incompatible with economy wide or sectoral emissions caps, exemplified by the Department of Ecology's proposed one-way linkage with California's emissions trading market and lack of connection with EPA's 111d rule. California allows any entity to purchase and retire allowances, and thus will likely not preclude Washington from allowing

regulated entities to do so for compliance, but California would not allow purchase of Washington ERUs for compliance in their program. Use of California allowances will likely only act as effective price cap for the WA program; i.e., in-state entities would likely only purchase California allowances if they were unable to purchase lower cost ERUs or offsets elsewhere.

Likewise, this architecture eliminates any possibility of creating a rule that coherently integrates with the Clean Power Plan. Instead of creating an avenue for a state measures approach, as California is pursuing, the Clean Air Rule proposes to regulate Washington's in-state power sector initially under the rule before shifting regulation to the Clean Power Plan. This inconsistency will make alignment with the Clean Power Plan more difficult and will mean that after the power sector phases out of the Clean Air Rule, there is an even smaller number of regulated facilities and an even less transparent and liquid ERU market.

Windfall Profits

The baseline and credit approach is identical to a free allocation of allowances under an economy wide cap in one respect: regulated entities are likely to attribute the market cost of carbon to all emissions. While we doubt the UTC would allow regulated utilities to pass these opportunity costs onto customers, other industries are likely to do so, and to pocket the resulting windfall profits. This is one of the reasons other jurisdictions, including California and RGGI, have auctioned allowances or conditioned any free allocation on output-based updating.

Recommendations

The Department has the opportunity to use a proven, straightforward, and legally sound approach but has instead chosen a path that is more uncertain, complicated, and likely fraught with error. We strongly urge the Department to replace the Clean Air Rule's baseline-and-credit structure with an allowance approach. Doing so would enable the state to benefit from learned experience from WCI, the European Union's Emission Trading System, RGGI, and a variety of non-carbon cap-and-trade systems.

If the Department does not make this important change to the architecture of the Clean Air Rule, then it should pre-certify ERUs from on-site reductions ahead of the 3-year compliance deadline. For example, should an industrial facility achieve significant on-site reductions following an efficiency upgrade, the facility could generate pre-certified ERUs that will be available for immediate sale to parties needing compliance instruments to meet their own reduction obligations. Doing so would increase the supply of non-offset ERUs between compliance periods, provide earlier financial reward for companies investing on-site and marginally increase liquidity for all covered facilities. However, we strongly maintain that there is *no substitute* for this significant fix to the architecture.

B. Aggregate cap

Explicit emissions limit

In addition to calling for an architectural overhaul, one of the principal requests of the environmental community following the initial draft rule release was the addition of an aggregate cap. This cap would provide greater clarity on emission trajectory and an overall limit for economy-wide pollution. With the benefit of this cap, the Department would be able to structure and properly allocate baselines to covered entities in a way that facilitates steady reductions and accommodates new entrants. A number of recommendations in this comment letter, including options for charging the reserve account, depend on an upfront declaration of overall reduction requirements.

While we appreciate that the Department added an implicit cap to this new draft rule (referenced in WAC 173-442-020 (1)(r) & (2)) by creating a set-aside from compliance pathways to allow for new entrants, the proposed rule still lacks an explicit statement of total reductions required.

Ambition of Emissions Reduction Goals

In 2009 Governor Gregoire issued an executive order, finding in part that “greenhouse gases are air contaminants within the meaning of the state’s Clean Air Act and pose a serious threat to the health and welfare of Washington’s citizens and the quality of the environment.” This finding follows the endangerment finding by US EPA that was affirmed by the US Supreme Court. These findings obligate the EPA and Washington’s Department of Ecology to regulate carbon emissions and, in doing so, to consider limits necessary to achieve protection of the global atmosphere in accordance with the best available science. The current rule adopts targets based only on the statutory goals for emissions reductions in Washington law in RCW 70.235.020. That section does not preclude deeper emissions cuts—since a more ambitious program would also achieve the minimum reductions codified in that section, it only precludes a less ambitious program.

Furthermore, we recommend that Ecology regularly review the effectiveness of the established emission reduction pathways. The rule should include the flexibility to adjust the caps as appropriate to ensure the reductions are aligned with state, national and international objectives for emission reductions. Several carbon markets have lowered their caps to more accurately account for the introduction of low cost emission reduction options and changing market conditions. Regular review of the program’s stringency at scheduled times will help to ensure that Washington’s emission caps continue to drive improvements over business as usual while providing businesses with the expectation to plan for future changes to the caps.

Recommendations

We believe that the Department should embrace the broadest interpretation of its authority under the Clean Air Act and judicial rulings in the King County Superior Court with regard to the Our Children’s Trust lawsuit. While we strongly support the Department submitting new emissions recommendations to the legislature, this rule is fundamentally a response to the legislature’s inaction in the face of crisis. Given this simple fact, the Department of Ecology should embrace its authority now, instead of waiting for further legislative action, by articulating an explicit cap and pursuing the emissions reduction trajectory that the scientific consensus demands.

C. Offsets

The baseline-and-credit system’s significant limitations led the Department to create artificial liquidity within the Clean Air Rule emissions market through the nearly unrestricted use of offsets, both in terms of quantity and type. This sets a deeply troubling precedent by allowing companies to buy their way out of compliance without making meaningful on-site reductions, while at the same time building in a massive risk of double-counting that will further reduce the accountability that a carbon cap system is intended to create. These fundamental flaws in the rule’s design must be addressed.

High proportion of allowed offsets

Offsets are intended to provide an external source of emissions reductions for facilities that cannot otherwise economically or logistically comply with a cap. Flexibility within trading systems is important to prevent leakage of jobs and emissions to areas with laxer standards, but the Clean Air Rule’s intention to allow offsets to serve 100% of compliance obligations (WAC 173-442-100) would be unprecedented among successful carbon cap regimes. Allowing this high level of offsets compliance seems to imply that

facilities have no ability to comply through improvements in efficiency, increased use of clean energy or reduction in fuel consumption within the covered sectors.

Reaching our state's climate goals will entail serious improvements at facilities themselves and within the regulated sectors. These investments and efficiencies in renewable fuels and clean energy will support local jobs and lead to critical air quality improvements for fence-line communities, which usually are communities of color and low-income communities that are most directly impacted by our economy's overwhelming dependence on health-compromising fossil fuels. Unfortunately, relying so heavily on offsets means it's likely that many of these benefits will not be realized.

Additionally, the reduction trajectories outlined under this rule only cover the portion of Washington State emissions for which covered entities are responsible, implying that additional policies and reductions will be required to address the reduction of uncovered emissions. However, the broad use of offsets in the CAR likely means that the easiest and least costly emissions reductions from *all* sources will likely be used to meet the compliance obligation of the covered CAR entities. While we might expect a rule like this to lead to reductions within the 60% of the economy it covers, with provision for a small fraction of reductions to come from outside in the form of offsets, while complimentary policies help the other 40% achieve pollution reductions, the Clean Air Rule will actually generate reductions from low-hanging fruit throughout the state. This delays but does not eliminate the need to reduce within covered sectors.

Double-counting risk

Emission reduction projects that are generated from within a regulated sector will, if successful, result in emission reductions while also generating a subsequent ERU. For example, a company investing in a truck stop electrification project will contribute to reduced diesel demand from long-haul vehicles that would normally idle overnight. The investor receives an ERU; and the reduced diesel usage will mean reduced diesel imports or refinement that will mean lower compliance obligations at oil refineries and importers —each one-ton reduction will thus be counted twice. Reduction of diesel usage is a laudable goal, but it should certainly not be double-counted within the Clean Air Rule market. This defect applies to other covered sectors and is present throughout the rule. As detailed in Renewable Northwest's comments, double-counting would also have negative impacts on Washington's existing clean energy policies, such as the Renewable Portfolio Standard and the voluntary renewable energy market.

Moreover, double-counting means that even as facilities file on-paper reductions that appear to comply with the Clean Air Rule, actual reductions may be substantially lower.

While we appreciate the rule's inclusion of an intent to retire ERUs from the reserve for offsets generated within the capped sectors, we are still wary that 1) significant resources will be required for sufficient tracking and verification to accurately account for the impacts of emissions reduction projects and 2) whether there will be a sufficient quantity of ERUs in the reserve available to be retired to eliminate double counting (see below).

Definition of "additionality"

In articulating the criteria for an acceptable offset ERU in the program, the rule states that a reduction must be "additional to existing law or rule" (WAC 173-442-150 (1)(e)). First, without addressing double-counting, onsite emissions reductions (or ERUs created as a result of a facility exceeding its baseline) that occur as a result of renewable energy used for I-937 compliance or the voluntary renewable energy market would not meet the definition of additionality. Second, this limited definition is out of step with broadly accepted principles of carbon reduction—a carbon reduction that would not exist but for this rule. Facilities may undertake reduction projects for many reasons beyond regulation, most especially

because doing so is cost effective over the life of the project. Crediting of offset ERUs should be limited only to projects that the Clean Air Rule is directly and solely responsible for, a key safeguard for ensuring new investments. We recommend expanding the definition of additionality to also include reductions that “exceed any greenhouse gas reductions that would otherwise occur in a conservative business-as-usual scenario.” This definition is consistent with the Western Climate Initiative design criteria and California’s cap-and-trade program’s definition of additionality.

In particular, and as discussed later in the letter, this correct application of the additionality principle is violated by the Clean Air Rule’s method of allowing voluntary entrants into the market.

Ecology-approved additional offset protocols

The Department has also reserved the power to approve additional, new offset protocols for a variety of different types of projects—combined heat and power explicitly, but also new approaches for all listed reduction activities (WAC 173-442-160 (10)). Because this rule will likely be administered with limited resources, it may be difficult for the Department to undertake the significant research and analysis necessary to truly understand if the new proposals are indeed real, permanent, enforceable, verifiable and, crucially, additional.

The rule also does not articulate any process for transparency or public input into the determination process. Given existing concerns with definitions and approach to offsets, we worry that this will lead to approval of new offset protocols that will not meet stringent requirements. Especially coupled with the issues raised above, this sets a problematic precedent.

Recommendations

A broad range of improvements and fixes are necessary to limit the significant potential for offset abuse in the current proposal. The simplest and most rigorous solution for these problems is to allow only dependable, existing protocols in the program and eliminate all regulated-sector offset opportunities. While the prospect of retiring ERUs from the reserve account to mitigate the effect of double-counting may help to partially alleviate the effects of this shortcoming, it is not likely to be sufficient. On the other hand, by allowing only a limited number of offsets from non-regulated facilities like agriculture and out-of-state projects that also meet additionality requirements through well understood and documented protocols, the rule can restore integrity to the cap and provide greater confidence that when offsets are used they are indeed additional to business as usual.

Furthermore, the Clean Air Rule should restrict reliance on offsets by allowing them to fulfill only a portion of total compliance obligation. Similar to the offset restrictions in California’s cap-and-trade program, this would reduce the need for such widespread use of in-sector instruments while compelling greater facility investment. We understand that Ecology chose to restrict the role of out-of-state compliance instruments to ensure that pollution reduction projects benefited Washington residents, a high-level goal we share. But doing so merely leads to reduced aggregate reductions through double-counting. It would be highly preferable to reduce the role and types of offsets while lifting restrictions on their geographic origin—thereby ensuring that any protocol used will ensure real and additional reductions while guaranteeing that Washington communities benefit from in-state reductions.

To the extent that the Department does approve new protocols, it is important that the rule identify a rigorous process with opportunities for public input to verify that offsets meet strict standards of emission reductions.

Additional recommendations for correcting potential issues related to emission-reducing activities or programs are outlined in Section 7 of the comments submitted by Stockholm Environment Institute (SEI) on June 28, 2016.

D. Reserve Account

The addition of a reserve account to the Clean Air Rule market is a substantial improvement over the previous rule draft. The account provides a mechanism for preserving the overall integrity of the emissions cap while creating space for new market entrants and addressing the risk of double-counting. While we believe the reserve account may help alleviate a number of concerns with the current structure of the Clean Air Rule, we are concerned that more work and clarification is needed to ensure that these goals are achievable.

Insufficient Charging Rate

While the addition of a supplementary compliance obligation to charge the reserve account on an ongoing basis is an appropriate way to distribute to all covered facilities the responsibility of creating room for new entrants and mitigate double-counting, the proposed amount for the charge is insufficient. In proposing the reserve account as a remedy for market entrances and exits, SEI's February 12, 2016 memo, recommended a set-aside of 3.5% of the *total market emissions*, an amount totaling approximately 750,000 tons annually and climbing to about 1,000,000 in the second compliance period. This amount is roughly consistent with the reserve design in California and the RGGI program, both of which arguably have fewer built in demands on the reserve than in this proposal. In the proposed rule, the Department has instead chosen to allocate 2% of *compliance obligation* to the account (WAC 173-442-240 (1)(a)(i)(A)) or about 17,211 tons in the first year. This rate will create a disproportionate reliance on curtailments to fill the reserve, which as we discuss below, will create other problems.

Comparing the expected initial deposits to just one of the account's intended purposes—facilitating new entrants - reveals the insufficiency of the current charging level. In the first compliance year, 2% of compliance obligation totals approximately 17,211 tons, climbing in the following years. At this rate, a single mid-sized new facility emitting 300,000 tons would require the total aggregate deposits for the first six years of the program to be fully covered. A larger facility would take even longer. This does not take into account the account's other important purposes—double-counting mitigation, Environmental Justice Advisory Committee (EJAC) allocations, and the voluntary renewable energy market.

Charging Mechanism

Beyond the charging rate, we are also concerned about the charging mechanism, which depends on setting aside a certain amount of facilities' compliance obligations. In the event that all or most facilities comply with offsets (a likely outcome in the proposed baseline-and-credit system), there is a substantial risk that the reserve account is never fully charged—each deposited offset from within the covered sector would need to be compensated with a retired ERU already in the account to eliminate double-counting.

Prioritization

While we understand the many goals assigned to the Reserve Account, we are concerned by the prioritization of goals (WAC 173-442-240 (4)), which implies that not all of them will be served. Of the first five goals listed for the account, failure to meet any one of them would mean that the state falls short on the Clean Air Rule goals and the emissions reductions required by statute. It would be unacceptable, for example, to accommodate new entrants while allowing widespread double-counting of emissions reductions, an outcome permitted by the current prioritization in the rule. While this would

result in addressing the impact of a new facility, the over-crediting of emissions reductions means that what looks like a reduction toward statutory goals is not actually realized.

Providing space for new and restarting entrants, double-counting mitigation, environmental justice support, and maintaining the integrity of the voluntary renewable energy market are all important goals for the Clean Air Rule to strive for and should not be prioritized. Instead the reserve account should be structured to enable it to serve each goal.

Fungibility of ERU sources

In the current proposal, ERU sources are not differentiated based on how each credit is generated—a reserve ERU deposited as a result of curtailment is treated equally to one deposited as a result of on-site pollution reduction at a compliance facility. This ignores the nature of curtailment and leakage. Treating every ERU source fungibly assumes that each one is real and additional, but curtailment reductions generally do not meet this test. A facility that shuts down in Washington will likely see its production replaced outside of the state, leading to an emissions increase elsewhere that offsets a significant fraction of the Washington reduction.

While this kind of leakage must be avoided, in the case that it does happen, these credits should be only applied to other reserve account purposes sparingly and carefully. Because of their limitations, these reductions should only be used to counteract growth in Washington that is likely causing emissions reductions elsewhere. Setting aside curtailment ERUs for the purposes of production restart or new market entrants—which would likely lead to a production reduction elsewhere—would be an acceptable way to apply these credits. Curtailment ERUs should not be used, for example, to mitigate for double-counting where the Department should retire a real emissions credit to preserve the integrity of the cap.

Over-counting of reductions from EJAC projects

We share the desire to invest in key environmental justice priorities to reduce the impact of fossil fuel combustion on vulnerable communities adjacent to facilities and mobile sources of pollution. As such it is important that the program maximize the opportunities to reduce emission of co-pollutants of fossil fuel combustion, such as criteria and toxic pollution, in vulnerable communities. We believe that the hybrid mechanism of offsets and ERU allocation could undermine these objectives and weakens the integrity of the cap (WAC 173-442-240 (3)(b)(iv)). Projects receiving ERUs will themselves generate emission reductions, leading to at a minimum double-counting of credits. If, as the rule suggests, ERUs are rewarded at a rate that is greater than one to one, it is possible instead of promoting improved public health outcomes in these neighborhoods, the EJAC allocations will lead to an even steeper level of over-crediting that will guarantee that the Clean Air Rule fails to achieve its stated objectives.

Limited definition of double-counting

The rule defines double-counting as a situation where more than one ERU is generated for an emission reduction project (WAC 173-442-240 (2)(b)). While addressing this is important, not all emissions reductions will yield an ERU. In cases where the second credited emission reduction helps a facility reach its baseline (as opposed to exceeding it), no ERU credit is generated, but double-counting has still occurred. Double-counting mitigation should address this concern as well. This concern is addressed at more length in Section 2 of SEI's comments submitted June 28, 2016.

Recommendations

We urge the Department to pursue the original recommendation in SEI's February 12, 2016 memo, which we have previously endorsed. Charging the account should be achieved by creating an initial set-aside of the total aggregate emissions level, preferably 3.5% of the total. The remaining unallocated

emissions can be subdivided and assigned to each entity required to comply with the rule. It would be preferable to then eliminate entirely facility-directed regulated-sector offset selection and instead allow the EJAC and the Department to allocate the full complement of reserve ERUs to selected projects. This will generate a higher level of investment in targeted projects, provide a degree of needed flexibility to complying facilities, and simplify the mechanism for double-counting mitigation. This ensures that the reserve account is fully charged with actual ERUs that are not double-counted.

In the event that the Department chooses not to follow this preferred pathway, we recommend adding a variable reserve charge to each compliance facility to ensure that the account has a steady and sufficient stream of ERU deposits. This can be achieved by allowing the reserve account to go into deficit following a compliance period if demand for its ERUs is greater than the supply. The Department would then increase the reserve charge evenly for all compliance facilities to a level necessary to bring the account into balance. While a less than ideal solution, this mechanism would contribute to restoring the integrity of the cap and lead to steadily increasing investments in clean energy and pollution mitigation projects.

E. Curtailment

We strongly support a mechanism to prevent windfall profits that reward companies for shifting production outside of Washington. This kind of incentive contributes to substantial risk of job loss and emissions leakage. While the introduction of curtailment protections in this draft rule is a welcome step, we believe that the definition used is too narrow and the exclusion is too broad to fully protect Washington workers and the environment from abuse.

Definition too narrow

The included curtailment definition (WAC 173-442-020 (1)(k)) includes three major loophole categories that may benefit companies but harm workers and affect overall emissions reductions. These loopholes—exemptions for production stoppage of less than four months, reduction in production rate, and facility investments— would allow facilities to retain their baseline and in some cases generate ERUs nonetheless.

For example, under the current proposal, a facility that shuts production for three months does not meet the definition of curtailment. This kind of shut-down would lead to a 25% reduction in annual emissions levels at that facility, generating substantial ERUs that could be sold into the market to decrease others' reduction obligations. A company with facilities in multiple states would thus be able to shift production out of state for that time period, costing jobs and productivity in Washington, resulting in emissions leakage that would increase total emissions compared to the rule's goal. Slowing rates while shifting production would lead to the same outcome.

Similarly, other exemptions from the curtailment definition could lead to the same result. Exemptions for capital improvements and facility maintenance may not lead to the same negative job impacts in state, but would ultimately reduce the ability of the rule to actually achieve reductions consistent with the statutory emissions goals.

Remedy too broad

For those facilities that do curtail, the emissions reduction pathway is eliminated for the relevant years (WAC 173-442-060 (1)(b)(ii)). While under the current system, curtailment should exclude the facility's emissions from eligibility in participation in the market. To continue the state on its path toward reaching final reduction goals, it is important that upon restarting production-covered entities continue on track with the preset reduction curve.

Power sector exclusion

The power sector is entirely excluded from the curtailment definition (WAC 173-442-020 (1)(k)(ii)). While in-state power plants will regularly meet the definition as a result of variability in the hydropower system, this blanket approach creates significant risk of gamesmanship. Because the Clean Air Rule does not cover out-of-state power generation, the current proposal would generate new revenue for utilities that shift generation to non-Washington (potentially higher emitting and more costly) resources—generating ERUs that will be used to allow others to comply without changing behavior. As before, the total emissions picture is therefore unchanged while creating the appearance of pollution reduction.

Recommendations

To address risks of windfall profits from market exits and production reductions, we urge the Department to consider expanding the EITE output-based mechanism to all covered facilities. Doing so would accommodate changes of production without providing unfair advantage or creating incentives to shift jobs and emissions out-of-state. An output-based allocation of emissions reductions obligations would create space for both business cycle reductions and capital investments pauses in all years, including those subject to curtailment, while also accommodating economic expansion.

In the event that the Department chooses not to pursue an output-based allocation economy-wide or for the power sector specifically, we recommend adding an additional definition of "market exit" for electric generating units. While not fully addressing the issue of incentivizing leakage, applying curtailment policies once an EGU is inactive for some extended time period, for example six consecutive months, would reduce this risk.

F. Voluntary Participants

While we recognize that some entities that are not covered by the program would like to contribute to the effort to cut emissions and participate voluntarily, care must be taken that this voluntary participation actually contributes to additional emission reductions beyond BAU. Allowing for voluntary participation under the rule, as currently structured, opens up the potential for facilities under the compliance threshold to profit from business-as-usual while reducing the compliance obligation for other covered facilities. With the current structure of the program, a voluntary participant may have little incentive to opt in to the market unless they were already planning an emissions reduction project or production reduction. Allowing such companies to generate credits through BAU actions that are then sold into the market, therefore, will not generate new reductions or ensure that voluntary participants help reduce total economy-wide reductions.

The proposed rule does not require voluntary participants to achieve emission reductions beyond the level at which they enter the program (WAC 173-442-030 (6)(a)). They are also allowed to *exit* the program at will. This means that any business decision to generate ERUs will yield revenue for the participant, including reducing production in ways consistent with loopholes outlined in the curtailment section. In this way, small facilities can opt in to the market, generate revenue for a project or production slow-down, and opt out again to increase their emissions. All such actions will, at best, reduce pollution reduction in the state and, at worst, facilitate a higher level of emissions compared to Clean Air Rule goals.

Recommendations

Voluntary participation in the proposed program should only be allowed if the deficiencies outlined are addressed because, as currently laid out in the rule, it would be extremely difficult to ascertain the additionality of their production changes. To the extent that the rule does allow for voluntary

participation, it should include a process for establishing whether reductions are truly additional to business-as-usual and participants must be restricted in their ability to exit the program at will to ensure that their reductions aren't subject to backsliding that compromise cap integrity. Voluntary participants should also be given an emissions reduction requirement and generate ERUs beyond their stated goals in order to ensure that they are contributing to market-wide reduction goals. Section 8 of SEI's June 28, 2016 comments provides more details for addressing concerns with voluntary participation.

Current economic circumstances may lead to the closure of TransAlta's coal facility ahead of agreed upon dates regardless of this or any other regulation. While a positive development, without determining whether this closure resulted from Clean Air Rule incentives, as discussed in the about section additionality, these facilities should not be credited with ERUs as voluntary participants.

G. Electricity Sector Exemption for CPP Compliance

In response to feedback from utilities on conflicts between the Clean Air Rule and the federal Clean Power Plan (CPP), the Department chose to exempt electricity from Clean Air Rule compliance once an EPA-approved plan begins to cover the sector (WAC 173-442-040 (4)). While we would have preferred a rule that could have been used as a state-measures plan under the CPP, given the decision to pursue an incompatible baseline-and-credit architecture and Clean Air Act limitations on out-of-state generation, this exemption may help resolve some of the layered compliance issues.

Given this exemption, however, it would be unacceptable to use the federal CPP to loosen restrictions on Washington's utility sector. While the draft says that the final plan submitted to the EPA must have more stringent requirements than found in federal rulemaking, we urge the Clean Air Rule to specify that any CPP plan must be at least as ambitious as the requirements for other in-state sectors covered under the Clean Air Rule. More importantly, a compliance pathway for the Clean Power Plan should not be limited to the current Clean Air Rule reduction of 1.7 percent/year and rather be based upon stronger science-based targets for emissions reduction.

H. Biofuels

The proposed rule does not include biofuels under the list of exempted sources of GHG emissions. Achieving maximum GHG emission reductions in Washington state will require using a range of abatement tools, including cleaner transportation fuels. While best practice would require employing a life-cycle analysis of fuels covered by the rule, we understand that this is not an option in the current legal framework. Treating biofuel emissions the same as fossil fuel emissions, however, is not accurate and misses a key opportunity to support a low carbon solution.

We recommend that biofuels be treated as they are in [California's](#) cap-and-trade program, which exempts carbon dioxide emissions from biomass from both facilities and mobile sources from the GHG market. This would ensure that biomass used for fuels is treated consistently with biomass for industrial sources. Ultimately, lifting both of these restrictions in state law and allowing a more comprehensive analysis of their carbon attributes is the superior approach.

I. Additional Recommendations

Immediate inclusion of EITE facilities

We strongly support accommodations for energy intensive and trade exposed businesses to ensure that they continue thriving in Washington state. In particular, assigning to these businesses an output-based baseline provides flexibility for business growth and expansion that remains consistent with the

imperative to reduce carbon emissions, while also reducing the incentive to shift production to other jurisdictions. We recommend, however, eliminating the three-year compliance exemption for these facilities, which merely serves to delay urgently needed pollution reduction.

Prevention of adverse impacts

Ecology should consider the impacts of its draft design concepts on local air quality across Washington, particularly in communities that are already adversely impacted by air pollution. Depending on how an entity chooses to meet the cap, its use of credits might result in increased emissions of harmful air and water co-pollutants. To avoid this outcome, we recommend that the Rule require monitoring its impact on local air quality, particularly around existing pollution hot spots, to ensure that it does not create or exacerbate pollution hot spots and result in back-sliding on air and water quality.

CONCLUSION

As always, we remain committed proponents of state action to tackle climate change and reduce carbon pollution. We commend the work of the Department of Ecology and Governor Inslee in pursuing this regulation. Done right, the Clean Air Rule has the potential to make a significant contribution to carbon pollution reduction in Washington and set a national example for climate action. We acknowledge the improvements from the previous draft rule, and we urge you to consider the suggested changes offered above, and those provided by our partners at SEI, to craft the strongest possible rule.

We recognize that the Clean Air Rule relies on limited authority and cannot be the comprehensive carbon reduction package Washington needs and we all want. Regardless of the final form of the Clean Air Rule, we remain committed to continued partnership with you to draft policy through both regulation and legislation. In partnership, we can realize the benefits of the clean energy transition for Washington and all of its residents.

As you consider changes to the Clean Air Rule over the coming weeks, we stand ready to lend our expertise and counsel. Thank you for your hard work.

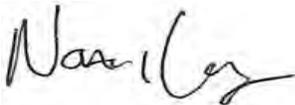
Sincerely,



Vlad Gutman
Climate Solutions



Bill Arthur
Sierra Club



Noah Long
Natural Resources Defense Council



Jamesine Rogers Gibson
Union of Concerned Scientists



Colin Murphy
NextGen Climate



Sasha Pollack
Washington Environmental Council

July 20, 2016

Gary (Wolf) Lichtenstein
Evergreen Carbon
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206-923-2656

Comments on the Draft Clean Air Rule – WAC 173-442

Evergreen Carbon (<http://evergreencarbon.com/>) is a Washington based consulting practice helping organizations access their GHG emissions. The principal, Wolf Lichtenstein, has had a variety of technical, managerial and customer-focused roles in almost 30 year-long environmental science and services career. This includes time working as a Lead GHG Verifier and as a member of the American National Standards Institute (ANSI) in their GHG accreditation program. Having provided GHG assessments for industrial and land use scenarios, Wolf provides an informed perspective. He has worked under a variety of GHG reporting regimes, carbon offset projects registered with various GHG offset registries. These includes The Climate Registry, Climate Action Fund, Colombia GHG reporting and Cap and Trade rule, Ontario and Quebec reporting regimes, the Verified Carbon Standard, a Pacific Climate Trust and Chicago Climate Exchange. He also has expertise in the American Carbon Registry and the Gold Standard. Wolf firmly believes in a strong GHG reporting regime (imposed internally or externally) and a robust Carbon Offset market for mitigation for unavoidable emissions. Carbon Offset projects provide some of the finest examples of Sustainable Development in Washington and Worldwide. Projects can produce clean energy, provide health benefits to communities, preserves water and other valued benefits.

General Comments on Rule: Evergreen Carbon commends the efforts by the Department of Ecology in crafting a rule that fulfill its responsibility to manage and reduce GHG emissions generated in the state. We appreciate the spirit of the rule-making challenge it is to craft a cap on carbon emissions. Our comments are designed to be supportive to the rule-making process.

	Section of Rule	Rule Text	Evergreen Carbon Comments
1	WAC 173-442-010	This rule establishes GHG emissions standards starting in 2017 for:	This is a limited Scope of participation. We encourage inclusion of all participants. Currently, facilities who generate 25,000 MtCO2e emissions have to report to both Ecology and the USEPA, and facilities who generate 25,000 MtCO2e to Ecology only. We encourage inclusion of all facilities.

		<ul style="list-style-type: none"> • Certain stationary sources. • Petroleum product producers and importers. • Natural gas distributors. 	that currently are mandated to report to Ecology participate in will be able to reduce our state's emissions further, reduce the businesses. The Scope Ecology has defined has focused on only and we encourage a wider shared opportunity to participate in This will allow the state to more aggressively tackle GHG emissions
2	WAC 173-442-030	(2) Exception. Applicability to this chapter begins no earlier than 2020 for EITE covered parties and petroleum product importers.	The delay of the inclusion of EITE facilities will only endanger our reduction commitments. It is not new to EITE companies and other reductions are coming. The rule would be better served by instead years of planning by these companies before they have to start compliance obligation, that a modest 1% commitment in the first reasonable, increasing this reduction goal in successive Compliance this delay to petroleum product importers, specifically benefits located in WA state, where Business As Usual is extended another action, whatsoever. The climate crisis we are facing demands action as usual, implemented as soon as possible.
3	WAC 173-442-030	Table 1 Compliance Threshold	See (1). The Compliance Threshold isn't sufficient to meet scientific reduction limits. Science demands an annual reduction far greater
4	WAC 173-442-030	(5) A covered party is not subject to the requirements in this section: (a) After three consecutive years of covered GHG emissions less than 50,000 MT CO ₂ e;	We encourage the use of a scientifically based compliance threshold a lower reporting limit of 25,000 or even 10,000 CO ₂ e, of which are already reporting to Ecology.
5	WAC 173-442-050	(a) Category 1. A covered party with covered GHG emissions averaging greater than or equal to 70,000 MT CO ₂ e per year during	In line with previous comments, additional categories for baselines and >25,000 MtCO ₂ e, and baselines <25,000 and >10,000 MtCO ₂ e considered for inclusion.

		intensity distribution for a sector, then EITE covered parties in that sector will be assigned an efficiency reduction rate at a level that would reduce emissions at a rate consistent with meeting the GHG emission reduction pathway that would have been required by WAC 173-442-060 (1)(a).	outcome, while the goal of the Clean Air Rule is clearly articulated
8	WAC 173-442-100 (2)	(2) ERUs must originate from GHG emission reductions occurring within Washington unless derived from allowances under WAC 173-442-170.	Limiting ERUs to only from Washington will put unknown and a carbon credits generated within state borders. The price of carbon is inflated for WA projects, while similar projects located elsewhere in the Northwest may be deflated, unnecessarily, due to losing potential customers. The intersection of the voluntary and compliance markets may be artificially perturbed due to the Clean Air Rule. This puts project developers through unknown returns on new project development and demand in the state. Institutional buyers (Seattle City Light, PSE) purchasing offsets, will be facing an artificial and unknown base price. This limitation will perturb the statewide and international Carbon credit market. This limitation will perturb the statewide and international Carbon credit market. Contrasting to the California compliance market, Washington has the potential to offset (8% of compliance) and the ability to source compliant projects from outside CA, as well as an allowance price that tends to stabilize and provide a basis for a return on investment for project developers providing CARB compliance offset projects.
9	WAC 173-170 (1) (a)	(1) A covered party may use allowances from external GHG emission reduction programs to generate	This indicates that Allowances issued by the California Air Resources Board are an allowable compliance mechanism for WA based companies. This is an option and should not be part of the Clean Air Rule. Allowances were created by the gov't through AB32. When a company purchasing such an allowance to offset their California facility's compliance to AB32, the fee for the a

		ERUs when Ecology determines: (a) The allowances are issued by an established multisector GHG emission reduction program;	CA gov't. The funds raised in the CA Cap and Trade go to the de located in CA that are designed to lower the state's overall emis speed rail line between L.A. and Sacramento). For a WA based CA or other program allowances is essentially paying a fee/tax t WA at all is an inappropriate option, given WA's budget deficits economy. This idea of a WA company paying a tax to CA, to cor face of reason (and in clause WAC 173-442-100 (2) of this Clean
10	WAC 173-442-160 (3) (b)	Exceed workplace goals for the commute trip reduction program as required by RCW 70.94.527	This clause equates a commuter transportation program, already (commute trip reduction goals) with Carbon Offsets generated Registry and Climate Action Reserve programs. GHG programs, provide for well-defined tests for additionality and project perfor Validation and verification by an accredited (by ANSI)3rd party, thousands of dollars is also part of GHG program registries. The generated and verified are exacting and conservative. These off domestically and internationally. Contrasting, commuter trips a GHG report. Scope 3 is always voluntarily reported when report like The Climate Registry and CDP. The transportation goals bei meeting and beating these goals are quite subjective (surveys) a rigorous as a true Carbon Offset project. Evergreen Carbon urge this option as these are Scope 3, not verifiable (surveys aren't v additional in the sense of ISO 14064-2. Finally, Evergreen Carbo inclusion of an additional offset protocols, such as the American "Improved Efficiency of Vehicle Fleets" to be included under (b)
11	WAC 173-442-160 (4)	Combined heat and power projects demonstrating GHG emission reductions through a methodology submitted to and approved by Ecology.	This provides no guidance. Does a new CHP added to existing in included? Most, if not all new natural gas turbines are combine where is the additionality and how will Ecology make this deter method, VM0002, requires that old inefficient equipment be re be additional. What are Ecology's plans around CHP? This need the rule, and not in some back-room conversation between an Ecology. ERUs should be auditable, therefore, the rules/protoco clearly defined and spelled out in the regulation. Furthermore, US's natural gas supply is being generated via a mining process Because national regulations are not strong enough, or enforce is fraught with uncontrolled fugitive methane emissions, from v

			be called as "dirty" as coal. Also, fracking has been known to contaminate groundwater drinking supplies. Evergreen Carbon recommends that emissions to be generated from activities fueled by US pipeline in Natural
12	WAC 173-442-160 (5) (a)	(a) The acquisition of conservation and energy efficiency in excess of the targets required by the Energy Independence Act per RCW 19.285.040 and any additional acquisition targets established by the Utilities and Transportation Commission by rule or order may generate ERUs.	One of the ways companies are going to meet their commitment will be to conduct energy efficiency upgrades to their facility. The company to purchase another company's "spare" reductions has been counting those reductions. What other incentives are there for companies to meet Ecology mandated efficiency goals? Many companies develop targets based on market pressures, as it's good business to be more efficient and lowering energy costs. The Clean Air Rule encourages the devolution of the aspirations of good corporate citizenship and smart business practices by selling their efficiency achievements for money, and in the process, lowering GHG footprint, statewide. If a company's upgrades achieve a modest commitment to the WA Clean Air Rule, these companies should be recognized. Perhaps an annual award for reductions beyond compliance can be established.
13	WAC 173-442-160 (6)	(6) Livestock and agricultural activities.	It is curious as to why the Climate Action Reserve (CAR) landfill protocol and not the American Carbon Registry's Methodology for Landfill and Combustion is not - being very similar to the CAR methodology - referenced in the registry to another? In addition, in (a-c) the statement, "as of March 2013" is not clear. The latest version of the CAR Landfill protocol was in June 2011. The statement "as of March 2013" means needs to be clarified in the Clean Air Rule. Current reference is unclear.
14	WAC 173-442-160 (7)	(7) Waste and wastewater activities. GHG management activities addressing waste and wastewater infrastructure and activities using: (a) U.S. Landfill	A methodology related to wastewater activities is not indicated in the current draft. It is recommended that this section be revised, and indicate only waste disposal, and not include wastewater in this section, without a methodology referenced.

		<p>protocol from the Climate Action Reserve (as of May 1, 2016);</p> <p>(b) Organic Waste Composting protocol from the Climate Action Reserve (as of May 1, 2016); or</p> <p>(c) Organic Waste Digestion protocol from the Climate Action Reserve (as of May 1, 2016).</p>	
15	WAC 173-442-160 (8)	(8) Industrial sector activities	<p>This is a limited list from only ACR. Evergreen Carbon encourages CAR Nitric Acid protocol. There are some Chemical Fertilizer plants where this methodology has been demonstrated as additional, and from which only implemented at a very limited number of plants. The latest Nitric Acid Production Project Protocol is version 2.1 (June 2016). Other based carbon offset project protocols should be considered by the state online in WA. Such flexibility should be written into the rule. Per WAC 173-442-160 (10), as this language is unclear to the intent.</p>
16	WAC 173-442-160		<p>Additional sectors including land use and forestry should be included. Washington's forests have been hit hard by the timber industry. The Climate Action Reserve US Forest Protocol should be considered. A relatively new protocol from the Verified Carbon Standard, VM001 Seagrass Restoration, is an exciting development for WA. It has shown carbon sequestration in the estuarial environment is more concentrated than terrestrial carbon sequestration. If there is an insistence to keeping offsets limited to WA, including these 2 important protocols will provide additional opportunities for landholders, tribes and others to promote strong ecological stewardship and building the resiliency of Washington's coastal and forest habitats. Mine methane projects as a way to control fugitive emissions from coal mines.</p>
17	WAC 173-442-160		Evergreen Carbon encourages the inclusion of additional carbon

			locally and world-wide. Carbon offset projects provide some of sustainable development that provide great community benefit international Gold Standard Foundation projects, as well as VCS Climate, Community and Biodiversity (CCB) standard.
18	WAC 173-170 (1) (c)	(c) The allowances are derived from methodologies congruent with chapter 173-441 WAC.	The writers of the clean air rule seem to have miss-construed what is allowed under the California/Quebec compliance regimes. An Allowance mechanism that allows payment to the state for GHG's above a cap that any one facility may produce. Allowances are auctioned quarterly and the tax/fee set by the state. Allowances issued in the CA/Quebec compliance regime are a tax/fee paid to the state or province. The reference to WAC 173-441 (emissions of Greenhouse Gases) in this clause is not making sense. GHG reporting in WA state is not related to CARB issuance of allowances. Allowances aren't generated from the activities associated with reporting a GHG inventory.
19	WAC 173-442-220 (6) (a) (i)	(i) Demonstrating to Ecology's satisfaction that the third-party verifier has sufficient knowledge of the relevant methods and protocols in this chapter. Ecology may limit certification to certain types or sources of emissions.	This clause references verifier competency. This issue is addressed in ISO 14065 section 6.2 and in ISO 14066. Ecology, if using the accreditation process for 3rd party verifiers should explicitly identify the requirements that will be used by Ecology, so verifiers can understand the requirements to demonstrate competency to Ecology. The rule is unclear on what constitutes competency to potential V/VBs operating in the US. American National Standards Institute (ANSI) is being used as the standard. Ecology staff can have an opportunity to participate in the ANSI Validation/Verification Accreditation Committee (GVAC). This accreditation process will allow Ecology staff participants to question and understand the how a V/V body demonstrates competency to the state (ANSI).
20	WAC 173-442-220 (6) (b) (iii)	(iii) Active accreditation or recognition as a third-party verifier under at least one of the following GHG programs: (A) California Air Resources Board's	The California system is a closed system. Training is administered by CARB. Though the criteria CARB uses is based on international standards, it is administered by CARB, without any external oversight. Having 2 accreditation bodies (CARB and ANSI) active in the marketplace is expensive and inhibits the number of bodies who want to participate in the WA marketplace. Evergreen recommends that Ecology pick only one accreditation body - ANS member of the International Accreditation Foundation (IAF) and whose program is regularly audited by IAF. California has no outside oversight.

		<p>mandatory reporting of GHG emissions program; (B) The Climate Registry; (C) Climate Action Reserve; (D) American National Standards Institute (ANSI); or (E) Other GHG verification program approved by Ecology.</p>	<p>opportunities for Ecology staff to contribute to the accreditation does in the GVAC process. Choice (B) and (C) are not accreditation ANSI accreditation. Listing (B) and (C) in this area of the rule is confusing as The Climate Registry and Climate Action Reserve do accreditation of verification bodies. TCR and CAR do actively participate with ANSI in the Accreditation process.</p>
21	WAC 173-442-230		<p>This section fails to address how offset credits are moved or transferred from the Climate Action Reserve, American Carbon Registries to the Ecology ERU system and accounting for the retirement of ERUs coming from these systems to these systems that affirm the uniqueness and retirement of (Climate Reserve Tonnes) or ACR ERTs (Emission Reduction Tonnes).</p>



July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia,
WA 98504-7600

Re: Proposed Clean Air Rule, Chapter 173-442 WAC

Dear Mr. Wilson,

Food & Water Watch (FWW), a non-profit organization with 36,984 supporters in Washington, hereby submits these comments on the Department of Ecology's ("Ecology") Proposed Clean Air Rule, Chapter 173-442 WAC ("Proposed Rule"). While FWW applauds Ecology's efforts to regulate greenhouse gas ("GHG") emissions for some of the state's pollutant sources, the Proposed Rule should be strengthened in several regards.

Foremost, the goals of the Proposed Rule are simply not aggressive enough to meet the GHG reductions needed to protect our planet and the citizens of Washington and it omits several industrial polluters from regulation that contribute to our ongoing climate crisis. The Proposed Rule also embraces an irresponsible and ineffective market-based approach — via cap-and-trade and the use of offsets — for achieving reductions from GHG emitting industries that will only obstruct the rapid emission reductions we need in order to stave off the worst effects of climate change. We strongly encourage Ecology to create a final rule that contains more meaningful reduction goals that can only be achieved by abandoning pay-to-pollute approaches like cap-and-trade and offset programs.

The Proposed Rule does not represent a serious attempt by Ecology to tackle our current climate crisis, but instead lays out a path of least resistance for the state's industrial GHG emitters. That fact is evident in many provisions of the Proposed Rule and throughout Ecology's supporting materials. Ecology's approach allows polluting industries to profit from GHG reduction practices that should, instead, be mandated on a source-by-source basis. For example, while the Proposed Rule fails to require any reductions of GHG emissions from the state's agricultural sector, livestock and manure handling operations are allowed to generate emissions allowances for sale to other industries that seek to avoid their own reductions. Similarly, if a polluting facility covered by the Proposed Rule makes efficiency improvements resulting in GHG emission reductions below the levels set by Ecology for that facility, they are then free to sell the extra allowances to other polluters.

If Ecology was truly looking to decrease GHG emissions in the state, there would be no surplus allowances and polluters could not profit by taking voluntary steps to stop poisoning our airsheds and threatening our communities. Instead, each and every facility in the state would be required to achieve the minimum GHG emission reductions possible and those minimum standards should be mandated and enforced. That is the approach contemplated by the Clean Air Act that has resulted in cleaner air in many ways, and the approach needed if we are going to save the planet from catastrophic climate change.

FWW also notes that the Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis (“Analysis”) that accompanies the Proposed Rule is fundamentally flawed. First, although cap-and-trade programs never been proven to cause GHG reductions anywhere they’ve been implemented, as detailed below, the Analysis improperly presumes that the Proposed (cap-and-trade) Rule will result in reductions sufficient enough to achieve the required goal of “maintain[ing] levels of air quality that protect human health...” as expressed in RCW 70.94.011. There is simply no support for Ecology’s position that its Proposed Rule approach will protect human health or communities from the impacts of climate change.

Second, the analysis rejects out-of-hand the alternative of “No offsetting (require all emissions be on-site)” with the conclusory statement that such an approach would be “more burdensome,” presumably to regulated, polluting industries. The analysis fails to provide any statistics regarding what that alleged increased burden might be, and it does not compare this increased burden with the potential emissions reductions from a no offsetting, source-by-source emission reduction scenario. Even if one were to blindly adopt Ecology’s “more burdensome” allegation, it does not support the Proposed Rule’s approach that allows those industries making voluntary efficiency improvements to sell pollution credits on the open market. If industry can adopt GHG emission reduction approaches, then it is not too burdensome for them to do so on site, without the use of offsets.

As stated, this is not a Proposed Rule that is designed to achieve the GHG emission reductions needed to save our planet and safeguard Washington’s citizens. Instead, it will only perpetuate business as usual for GHG emitting polluters in the state. As such, it will do nothing to remedy the many climate change problems that Ecology itself acknowledges throughout this rulemaking.

Ecology Must Adopt More Aggressive Reduction Goals

With communities now experiencing the immediate impacts of global climate change, elected officials and policymakers must take affirmative and meaningful steps to protect their constituents, resources and our planet. Yet while Ecology recognizes that ongoing climatic conditions are presently resulting in hotter and dryer weather in Washington and acknowledges that 2015 was the worst year on record for wildfires in the state, the reduction goals as set forth in the Proposed Rule and state legislation will do nothing to remedy this ongoing threat. Without more aggressive goals at the state, national and international level, Ecology’s prediction that wildfire incidents will double by 2040 is very likely to occur. Washington should be one of the states leading the way in reducing GHG emissions, not leading from behind with weak market-based approaches.

In various presentations on the Proposed Rule, Ecology sets forth a goal of achieving GHG emission reductions of 25 percent below 1990 levels by 2035. That goal is to be achieved, in part, with the implementation of the approaches contemplated in the Proposed Rule. Unfortunately, that goal is nowhere near the reductions needed to safeguard our communities. As world leaders acknowledged at the United Nations Climate Change Conference in December 2015, Ecology and other regulators should be seeking ways to prevent temperatures from rising more than 1.5 degrees Celsius. This will only be achieved with a shift to 100 percent clean

renewable energy and zero GHG emissions by 2035. Furthermore, as articulated in the comments filed by the Western Environmental Law Center, which are incorporated by reference herein, in order to protect our planet's climate system and vital natural resources on which human survival and welfare depends, and to ensure that young people's and future generations' fundamental and inalienable human rights are protected, the Clean Air Rule must be based on the best available climate science. There are numerous scientific bases for setting 350 parts per million ("ppm") as the uppermost safe limit for atmospheric CO₂ concentrations.

We implore Ecology to be more aggressive in setting the state's GHG emission reduction goals and to support the science-based limits requested by the Western Environmental Law Center and Our Children's Trust. Ecology must adopt a more effective final Clean Air Rule that surpasses the goals set out by the state legislature and is designed to meet this needed limit on temperature rise.

Cap-and-trade Will Not Help Washington Achieve its Reduction Goals

State environmental agencies, including Ecology with its Proposed Rule, are increasingly looking to implement cap-and-trade as an industry-friendly mechanism to control pollutants even though these approaches have never been proven to be successful anywhere, in any context. Market-based approaches to pollution control have consistently been plagued with a significant lack of transparency, as well as manipulation and fraud, and do not result in the kind of real, additional and verifiable GHG emission reductions needed to avoid the worst impacts of climate change.

Certainly, there has been no carbon cap-and-trade program in place that has been shown to cause meaningful GHG reductions anywhere. And even though some claim that past air trading programs, like the Acid Rain Program of the 1990s, were successful, as explained below, that program was only a success if you ignore what could and should have been achieved under a non-market regulatory approach.

California's Failed Experiments in Market-based Solutions

Many cap-and-trade proponents are looking to the current California system of GHG emissions control as a model to replicate. It was implemented in 2013 to allow a number of the state's GHG-emitting industries to take advantage of allowance swapping and offset credits to achieve reductions. However, despite some trading supporter's claims that the program is a success, California's Air Resources Board (ARB) has not conducted an analysis on the cap-and-trade system's effect on overall GHG emission reductions in the state.

The state's recently released 2016 GHG Inventory report, which contains emissions data through 2014, indicates that that state has achieved 9.4 percent emissions reductions from its peak emissions year of 2004. These reductions have been achieved largely without the benefit of the 2013 cap-and-trade program. In fact, the latest emissions data in the state, just released last month, casts significant doubt on whether cap-and-trade has had any beneficial impact on statewide reductions; while only two years of emissions data coinciding with when the cap-and-trade program has been in effect — 2013 and 2014 — are currently available, so far the

emissions reduction trend in California has continued largely as it was before cap-and-trade approaches were implemented.

But the current carbon cap-and-trade approach is not California's first foray into market-based systems for air pollution control. In the 1990s, while Congress enacted Title IV of the Clean Air Act, the city of Los Angeles was experimenting with its own air trading approaches to cut down on several pollutants. Rule 1610 was approved in 1993. It allowed stationary sources of air pollution (typically LA's oil refineries) to purchase emissions credits from scrapyards operators who were removing older, highly polluting cars off the roads. The pollutants traded were volatile organic compounds, or VOCs.

The Rule 1610 program underscored many of the inherent problems with trading programs. Scrapyards were removing engines from old vehicles before demolishing them and selling both the engine and the emissions credits to increase profits. The oil refineries, all located in clusters among communities of color, continued to emit VOCs, along with many other co-pollutants such as benzene, a known carcinogen. These increases in stationary source emissions led to localized hotspots of increased impairment.

The early 1990s also saw Los Angeles introduce the Regional Clean Air Incentives Market, or RECLAIM, to try to reduce smog in the region. Pre-RECLAIM regulatory approaches showed dramatic reductions in many smog-related pollutants, including nitrogen oxides (NO_x). These reductions stopped abruptly with the implementation of the new market system. In fact, for the first two years of RECLAIM, emissions actually increased, with only minor reductions (3 percent) in the years following. RECLAIM never did reach its goals. According to an April 2001 article in the Los Angeles Times, one month before the program was scrapped:

Manufacturers, power plants and refineries have reduced emissions by a scant 16 percent — much less than was anticipated by this time. Businesses were given 10 years to eliminate about 13,000 tons of pollution annually, but as the program nears its end they have eliminated just 4,144 tons....

RECLAIM also shares a major problem with all trading programs: it de-motivated technological advances to pollution control, allowing industries to rely on credit purchasing instead of innovation to reduce emissions. The 10 years of RECLAIM were, in effect, a decade lost on making any significant inroads on LA's air problems.

European Union Emissions Trading System: Another Failed Experiment in Market-Based Solutions

While we still may not know what impact California's cap-and-trade initiatives have had on actual GHG reductions in the state, we do know that the largest existing carbon market in the world – the European Union's – has, like RECLAIM and Rule 1610, been an abject failure in many ways. With a total value of \$4 billion as of 2014, the biggest pollution marketplace experiment is the ongoing European Union Emissions Trading System (EU ETS). It was included as one of the mechanisms for meeting national emissions targets under the Kyoto

Protocol to reduce climate-altering greenhouse gas emissions from industries around the globe

Thirty one countries are part of this regional cap-and-trade system. The EU ETS only covers certain sectors, such as power generation and steel manufacturing, but not others, such as transport and agriculture. The EU ETS aims to reduce CO₂ emissions in these sectors 20 percent by 2020. Trading started in 2005. It has been fraught with significant problems and, at times, seems to be teetering on the edge of complete collapse. As was recently the case in the California allowance market, the price for carbon in the EU ETS has been incredibly volatile. It reached €30 in 2008, languished below €10 for most of 2012, hitting a low of €5.99 in April of that year. This kind of volatility undermines economic planning, while allowing some companies to reap a windfall with over-allocation.

As one recent EU ETS [commentator](#) states: “The price of carbon is less than €7 per permit, way below an impactful threshold. Only around 45% of emissions in the EU are currently covered by the ETS, with a number of exceptions, and up to half of all the permits are being given away for free. The result is plain and simple — it is cheaper to pollute. Not only that, but the low carbon price makes it hard, if not impossible, for certain new technologies to emerge.”

The EU ETS has also attracted hackers and outright fraud, culminating in shutting down the spot market in 2011 after a group of Eastern European hackers cost EU governments up to €5 billion in an attack. From stolen and fraudulent credits to stockpiling, plunging demands and miscalculated caps, the carbon cap-and-trade program has more problems associated with it than any traditional regulatory program could.

The Acid Rain Program is not a Cap-and-trade Success Story

Even where cap-and-trade systems have, arguably, resulted in decreased emissions, they have proven to be less effective than source-by-source, command and control approaches. Title IV of the 1990 Clean Air Act Amendments, known as the Acid Rain Program, or ARP, has become the poster child for pollution trading proponents. It was enacted to address the main causes of acid rain — the emission of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) from coal-fired power plants — through a system of buying and selling emission allowances. The goal of ARP was to reduce annual SO₂ emissions to about 9 million tons by 2010, down from the 15.7 million tons emitted in 1990.

While recent modeling indicates that this reduction target was reached by 2007, it remains far from clear whether the reductions were due to pollution trading or in spite of trading. For example, we know that the U.S. Environmental Protection Agency (EPA) now attributes at least 1 million tons of SO₂ reductions during ARP to factors unrelated to trading, namely the increased availability and switch to low-sulfur coal sources from the Powder River Basin in the early 1990s.

Prior to the enactment of Title IV, an assessment projection indicated that reductions in SO₂ as great as those achieved under a market-based ARP could be attained if older coal-fired power plants simply complied with the Clean Air Act’s New Source Review (NSR) technology retrofitting requirements. But with the introduction of trading, those technological modifications

fell by the wayside. As one 2005 report indicates, “Experience since 1990 has shown that most of these facilities have managed operations to avoid triggering NSR, resulting in facility life being extended longer and adoption of new control technologies being slower than many analysts predicted in 1990.”

While we may never know the real impact of substituting trading mechanisms for technological upgrades on U.S. SO₂ emissions, results from Europe’s contemporaneous acid rain approach indicate that we would have done much better sticking with regulatory approaches. A 2004 comparative study of the U.S. trading approach to SO₂ with the European Union’s and Japan’s regulatory “command and control” systems show a much greater reduction without trading. While the United States attained a 39 percent reduction in SO₂ during Phase I of the ARP program, the EU achieved a 78 percent reduction. Japan’s emissions fell by 82 percent.

The ARP could only be considered a successful trading program if you ignore the reductions we would have achieved had we continued to force these industries to comply with the law and upgrade their reduction technology, without allowing trading.

Offsets Do Not Achieve Real, Permanent or Additional Emission Reductions

Perhaps one of the most troubling aspects of the current market-based system, and one that is contemplated in Ecology’s current Proposed Rule, is the use of emission reduction unit offsets in lieu of at-source reductions. Regardless of whether the proposed offsets occur within or outside of Washington, any kind of offset is a legitimate threat to achieving real, additional or permanent emissions reductions. Offsets allow polluters to avoid the urgent need to stop polluting at the source and instead allow them to pay to continue their harmful activities with impunity, while claiming that emissions have been reduced elsewhere. Moreover, the agenda behind offsets, as is clear here, too often places priority on cost containment, market efficiency and making it easier for polluters to comply, disregarding the true climate change priority of reducing GHG emissions.

The issue of permanence presents one of the most egregious problems with offsets. The dictionary defines permanence as “the state or quality of lasting or remaining unchanged indefinitely.” However, offsets obtained from a variety of sources — manure digesters, forestlands, etc. — are never truly permanent. For example, trees can be harvested, burnt down in wildfires or killed by disease and drought. Although Ecology purports to have taken steps in the Proposed Rule to compensate for these kinds of flaws in the offset program, the use of third party verifiers, many of whom profit from the generation and sale of offset credits, adds a high degree of unreliability to any offset verification system. This is especially exacerbated when out-of-state offset sources are used, where Ecology regulatory authorities will have virtually no method to independently verify offset reductions.

Many pollution trading systems, from the EU ETS to the U.S. Renewable Fuels Standard RIN program, have been riddled with documented instances of fraud because of the reliance on third party verification systems and government agencies’ inability to oversee credit generation processes. With its offset approach, the Proposed Rule is inviting similar issues with regard to GHG emission reductions and the generation of offset credits. The lack of clear GHG reduction

measurements and methodology for many offset sources — for example, the exact amounts of carbon dioxide (CO₂) stored in forests — also leaves the program open to fraud and manipulation. With these highly variable reduction estimates, offsets are then sold for exact amounts of avoided emissions. A modeled estimate does not equal an exact amount of emissions. It doesn't add up.

Ecology also claims that any offset allowances must represent “real” GHG emission reductions. Again, looking at California's current offset program, which is very similar to the one proposed by Ecology, there is major concern for the offset program in the Proposed Rule. For example, California's regulations hold that, "A registry offset credit must represent a GHG emission reduction or GHG removal enhancement that is real, additional, quantifiable, permanent, verifiable, and enforceable” (Health and Safety Code §38562(d)(1) and (2)). Yet time and again, approved offsets do not meet these requirements.

In 2011, Brubaker Farm in Pennsylvania built a manure digester using taxpayer funding to provide electricity for the farming operation. The owner of the farm is on record as saying he originally built the digester not for credits, but for electricity. Yet, in 2015 California's ARB retroactively certified the Brubaker digester as a GHG emissions offset generator, and California industries can now take advantage of this facility to continue their own emissions even though the digester was already in place, and operating.

Likewise, ARB recently approved the 704-acre Pungo River Forest Conservation Project in North Carolina as a source of GHG emission offsets even though this stand of forest was put into permanent conservation easement in 2003. Seeking out already existing projects across the country to generate GHG emission reductions and subsequent offset credits for use in the state of California means that no additional GHG reductions are happening.

The lack of accountability in offset approaches is not restricted to California. A recent study of a European Union offset program found that 80% of credits were unverifiable. This means that polluters were able to buy offset credits to pollute more from sources that may or may not have actually reduced emissions.

There is nothing in Ecology's Proposed Rule that gives FWW any comfort that similar non-real, non-verified and non-additional offset reductions will not also regularly occur as they have in all other GHG emissions offset systems. In fact, given the complexity of the system contemplated in the Proposed Rule and the inability of Ecology to adequately oversee such a convoluted method of emissions reduction, it is virtually inevitable that the approach will not achieve the reductions projected, much less the ones needed to protect our planet and communities. With the Proposed Rule, Ecology has simply outsourced its responsibility to profit-driven third party verifiers and self-interested industries that are highly motivated to game the system for their own benefit.

The probable manipulation of the allowance approach contained in the Proposed Rule is even more troubling given the fact that it allows covered state GHG sources to offset 100 percent of their emissions with allowances through 2022, five years after the reduction plan takes effect. This is not a plan designed to result in decreased emissions from instate industries, but a plan to allow instate industries to avoid having to reduce their own emissions for many more years as the

damaging impacts of climate change continue to increase. Ecology's irresponsible approach in allowing five years of potentially very limited reductions will not stop the dry weather and wildfires that are currently plaguing the state.

Cap-and-trade Undermines the Clean Air Act

The offsetting approach is not the only problem. Cap-and-trade is a regulatory framework that seeks to eliminate one of the most important tenets of the Clean Air Act, which is that companies do not have an inherent right to pollute. Under cap-and-trade policies, polluters are being given a right to threaten public health and the environment, as long as they pay for it. These schemes essentially create loopholes that allow polluters to continue dumping and discharging rather than holding them accountable for their pollution.

Trading creates a mechanism where profits determine who is able to pollute and can actually lead to an overall increase in pollution along with regional pollution hot spots, as larger and well-financed polluters will often opt to purchase credits rather than run pollution control equipment. This happened with the Los Angeles air pollution trading programs under the Rule 1610 and RECLAIM programs in which communities of color near the city's refinery district suffered from increased air pollution when these facilities purchased emissions credits instead of installing reduction technologies.

While proponents of cap-and-trade and offsets tout the regulatory flexibility benefits of these policies, in reality these policies allow polluting industries to put profit above the interests of public health and the environment. We need to strengthen protections under the Clean Air Act that have worked for decades to help hold polluters accountable, rather than rolling back some of the most important public health laws for decades.

Conclusion

The threats posed by climate change to our public health, environmental health, communities and livelihoods are lasting and real, and our efforts to stop these threats must be swift, substantial, permanent and real — cap-and-trade and offsets cannot accomplish this. The fact that they require loopholes, distortions and exceptions to even “work” shows that these approaches are not a solution to our climate problem, but simply exist as conveniences for industries that wish to avoid taking the steps necessary to limit their own pollution emissions.

We urge Ecology to abandon this irresponsible approach to GHG emissions control and, instead, implement a source-by-source system that rejects any market mechanisms like cap-and-trade and offsets and supports the science-based limits requested by the Western Environmental Law Center and Our Children's Trust.

Sincerely,

Julia DeGraw
Senior Northwest Organizer
Food & Water Watch



Ms. Maia Bellon, Director
Ms. Sarah Rees, Special Assistant - Climate policy
Mr. Stu Clark, Air Quality Program Manager
c/o Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

July 22, 2016

Dear Maia Bellon, Sara Rees and Stu Clark,

Thank you for the opportunity to comment on the newest draft of the Clean Air Rule. Front and Centered is a statewide coalition of sixty organizations and groups rooted in communities of color and people with lower incomes; we are on the frontlines of economic and environmental change. As thought leaders and organizers our agenda and strength are built with our grassroots communities. We work together to build power and capacity for a Just Transition that centers equity and is led by people of color.

We are pleased to see some elements of the Draft Clean Air Rule that advance climate and environmental justice, and address the needs articulated to the Department by communities of color in Washington State. We also see greater opportunity to reduce emissions, improve the health, and create jobs for communities on the frontlines of air pollution and climate change. These opportunities are outlined in the remainder of this letter.

A Stronger Greenhouse Gas Emissions Reduction Pathway

Front and Centered is pleased to see the creation of an aggregate emissions reduction limit that would cover new entities and a slightly steeper emissions reduction rate, compared to the previously filed draft rule. An annual reduction rate of 1.7% on large fuel producers and distributors, power and waste facilities and manufacturers will bring Washington State slightly closer to meeting our greenhouse gas reduction goals. However, it will not do enough to meet requirements of RCW 70.235.020 - Washington's current statutory greenhouse gas limits – nor will it come close to meeting higher goals identified by best available science. Per the recent King County Superior Court ruling and the reality that more significant emission reduction goals are long overdue, we encourage Ecology to structure the Clean Air Rule to meet or exceed existing goals and to accommodate updated goals consistent with the most current and best available science. The rule should also cover all sectors, including agriculture.

Define “Sensitive Members of the Population” per the Clean Air Act

The Washington State Clean Air Act specifically empowers Ecology “to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population” (RCW 70.94.011). This language accurately suggests that some Washingtonians will be more negatively impacted by a given air contaminant than others, and that the characteristics responsible for these disparities ought to inform the design of programs intended to fulfill the Department's obligations under the Clean Air Act. However, the law fails to define “sensitive members of the population.” Front and Centered recommends that Ecology, through the Clean Air Rule, create a definition that includes environmental justice criteria identified using an analysis of cumulative impacts. This analysis should include consideration of 1) aggregate pollution hazards or burdens and 2) health, social and economic indicators, and vulnerability to climate disruption. Specifically, the definition of sensitive members of the population should include, but not be limited to: a) people living in areas disproportionately

affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation and areas with concentrations of people that earn low incomes, suffer high unemployment, have low levels of homeownership, high rent burden, or low levels of educational attainment.

Accountability and Monitoring through the Environmental Justice Advisory Committee

Front and Centered advocates for policies with strong accountability and transparency measures, and we find the credit registry created in WAC 173-442-230 to be an important tool for those ends. However, accountability should also pertain to air contamination and be achieved with the participation of highly impacted communities. Front and Centered has advocated for an Environmental Justice Advisory Committee as an important step toward a more equitable rule with broader, more community-based oversight. We are very pleased to see its inclusion in this current draft of the Clean Air Rule. However, we encourage Ecology to expand the Committee's responsibility beyond the use of reserve ERUs; the Committee should have the capacity and responsibility to evaluate the impact of the rule on highly impacted communities and make recommendations to address disparities in air quality, should they persist. The Committee should use the aforementioned cumulative impacts analysis to monitor levels of pollutants regulated by the Clean Air Rule in highly impacted communities, or those areas across the state that are home to "sensitive members of the population." Using this analysis as a guide will better inform the committee's decisions on the allocation of environmental justice reserve ERUs. Additionally, it is critical that committee members should live, work, and/or have grown up in those communities.

Front and Centered does not support the inclusion of voluntary participants per WAC 173-442-030(6). As written, the rule allows for facilities that were already planning to reduce emissions to get credit for them. In addition to allowing polluters to profit from participation under the rule, the provision for voluntary participation potentially compromises the carbon cap in the following ways: by not requiring that their reductions are additional, and; by allowing them to exit, thereby creating the possibility for backsliding. We encourage the Department of Ecology to eliminate the option for voluntary participation.

Assure Emission Reductions Benefit Highly Impacted Communities, Address Compliance Exemptions:

Compliance activity that occurs inside Washington, and specifically in disproportionately impacted communities, has the potential to improve air quality and create economic opportunity for the people of Washington. While the rule offers some compliance options beyond reducing onsite that could improve air quality in highly impacted communities, the rule fails to realize the further benefits in health and jobs that could be achieved by *requiring* emissions reductions in communities home to "sensitive members of the population." We, however, are pleased to see new provisions for the gradual limitation of credit for emission reduction activities outside of the State of Washington. While we would prefer that less than 100% of an entity's obligation were eligible for out-of-state compliance instruments to begin with, we understand the Department has chosen a phased in approach. By reducing the amount of an entity's obligation accounted for through the purchase of out-of-state compliance instruments, the rule increases beneficial activities closer to home over time.

We are concerned that the additional relaxation of compliance requirements for certain entities may reduce the potential for real air quality benefits in highly impacted communities. In addition to failing to cover all emissions sources, the rule's efficiency-based approach to regulating EITEs may allow for industry growth, but does not guarantee job retention and significantly lessens the opportunity for air quality near stationary sources in this category to improve under the Clean Air Rule. By requiring a lower rate of reduction for EITEs that are more efficient than industry average [per WAC 173-442-070 (3)(D)(ii)], Ecology diminishes the likelihood that actual total emissions and their criteria pollutants will reduce through compliance. This must be addressed.

Make Environmental Justice the Top Priority for the Reserve:

Front and Centered acknowledges the value and intent of the Environmental Justice Advisory Committee’s ability to award reserve ERUs to stimulate emissions reductions projects in disproportionately impacted communities. However, this mechanism should be additional to requiring entities to reduce emissions in disproportionately impacted communities, as noted previously, and it is not an adequate substitute for that need. Moreover, the amount ERUs likely to be available to the Environmental Justice Advisory Committee is likely insufficient relative to the need, and the ranking of reserve, as it is written, prioritizes the use of reserve ERUs to accommodate industrial growth ahead of environmental justice. This should be reordered, and rather than a two for one system, Front and Centered recommends Ecology guarantee a majority of the reserve be allocated by the Environmental Justice Committee to meet Ecology’s obligation under RCW 70.94 to protect and enhance air quality in the State. In addition, Front and Centered recommends the following additions to WAC 173-442-240 (2)(c)(i):

Ecology, in conjunction with the departments of commerce and the utilities and transportation commission and the Environmental Justice Advisory Committee created in subsection (3)(b) of this section, will engage stakeholders and renewable energy market experts to estimate demand for voluntary renewable energy programs serving Washington customers and identify and design ways to reach customers with lower incomes and wealth in renewable energy programs.

We appreciate this important effort to address the urgent issue of climate change and recognize Ecology’s commitment to creating a tool that both cuts Washington State’s share of global greenhouse gas emissions and targets emissions reductions in communities that need it most. However, overall this rule does not do enough to reduce environmental and economic threats posed by fossil fuel pollution and climate change nor recognize address their disproportionality toward low-income communities of color. We look forward to continuing to work with you to strengthen this rule to adequately meet the shared goal of climate justice in Washington State.

Sincerely,

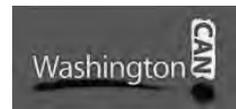
The Front and Centered Steering Committee


Rosalinda Guillen
Community to Community
Development


Jill Mangaliman
Got Green


Rebecca Saldaña
Puget Sound Sage


Mauricio Ayon
Washington CAN




Rich Stolz
OneAmerica


Tony Lee
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De'Sean Quinn
De'Sean Quinn





July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600
aqcomments@ecy.wa.gov

Dear Mr. Wilson,

The Industrial Customers of Northwest Utilities (ICNU) has participated in the Clean Air Rule (CAR) process from the outset and appreciates the effort you and your staff have put into developing the draft rule (CR-102) for public comment. We respectfully submit these comments on the new sections proposed to WAC 173-442.

As a regional trade association representing large load, electric energy consumers, ICNU's focus is on cost-effective, reliable power. Many of our member company facilities will be required to make reductions to their direct, on-site emissions (CO₂e). Many of these same members are identified as energy intensive, trade exposed (EITE) manufacturers who will have great difficulty complying with the rule. We endorse the comments submitted by AWB and others in this area, but will focus our comments on the indirect economic impacts to our members related to CAR's effect on the cost of electricity provided to ICNU's Washington members.

According to Ecology's Greenhouse Gas Inventory Report, Washington State emits approximately 92 million metric tons of CO₂e per year. While this may seem like a lot, it compares to approximately 47 billion tons emitted globally, according to the Intergovernmental Panel on Climate Change. In other words, Washington accounts for less than two tenths of one percent of global greenhouse gas emissions. While this is not to say that Washington should do nothing to address the issue of climate change, it does mean that the State must be thoughtful in the approaches it takes and should carefully consider the cost of programs it implements.

Energy-intensive businesses are highly sensitive to the cost of their electricity, and mandates that drastically increase that cost risk driving these businesses out of the state or influencing them to expand elsewhere. If that happens, these relocated or expanded operations will almost certainly be conducted with far greater carbon intensity than they would if they were located in Washington. While a PacifiCorp, Puget Sound Energy (PSE), or Clark PUD customer pays in its rates costs associated with coal- or gas-fired generation, those customers do not necessarily receive electricity from these resources. The actual kilowatt-hours a customer consumes is dictated by the generation resources that are capable of reaching that customer through available transmission and distribution paths, not by what is included in their rates. Thus, the carbon content of the electricity a PSE customer, for instance, consumes is no greater than that of customers served by other Washington utilities, and is far less than the carbon content of the electricity mix almost anywhere else in the world. The majority of the electricity

Washington customers actually consume, regardless of their utility, is carbon-free hydroelectric power. Unnecessarily increasing the cost of electricity for select customers in the State, then, is arbitrary and, if it forces these customers to expand or relocate elsewhere, is in no one's best interest. CAR's necessarily state-specific focus, however, helps promote these conditions particularly with respect to electricity generation by increasing costs for customers of affected utilities without any certainty of emissions reductions from this sector.

Indeed, CAR is being promulgated just as the western electric grid is experiencing increased regionalization through the Energy Imbalance Market and steps to expand the California Independent System Operator into a regional entity. A driving force behind these efforts is to maximize the potential of variable renewable generation through its efficient integration. The CAR takes the opposite approach. The consequence is likely to be arbitrary impacts on electric customers for little if any meaningful environmental benefit. ICNU highlights six points for your consideration and then provides its recommendations:

First, only three of the State's 63 electric utilities — PSE, PacifiCorp, and Clark PUD — will be regulated under the initial emissions threshold of 100,000 metric tons. The cost of compliance will be borne ultimately by customers in their rates, not the utilities required to comply, even though most customers have little or no control over their serving utility or, as noted above, the carbon content of the electricity they receive. The CAR, therefore, arbitrarily impacts electric customer rates – some customers will see no impact, while we predict that others will see a 4% or higher increase based merely on the utility from which they take service. As discussed below, those cost impacts increase if in-state generation is required to close to comply with the CAR and be replaced by out-of-state generation.

Second, although proposed Section 173-442-030(2) provides a three-year delay in compliance for EITE-covered parties, such parties served by PSE, PacifiCorp, and Clark PUD likely will feel these electric rate impacts during this three-year period. The near-term electricity rate impacts these parties will experience undercuts the purpose of this delay, specifically to avoid GHG leakage and job losses in these vulnerable industrial sectors.

Third, natural gas-fired generation is a necessary component of the transition away from coal-fired power serving Washington, and despite our strong emissions performance standard, CAR will make it virtually impossible to site and efficiently operate new combined-cycle or simple-cycle gas turbines in Washington close to the load they serve. This will impact baseload generation, grid reliability and the need to firm and shape additional intermittent resources (wind and solar) as they come online. It also may increase the cost of transmission and increase emissions to cover line losses as more out-of-state gas-fired generation is required to be transmitted to load pockets in Washington. The siting and construction of new transmission to accomplish this also will have significant environmental impacts.

Fourth, as a combined electric and gas utility, PSE may be forced to close existing electric generation as a compliance pathway to continue to provide its customers with reliable natural gas service that the law requires. This would have a disproportionate impact on the utility's electric customers, including those not otherwise required to comply with provisions in CAR. Additionally, because PSE must also reliably serve its electric customers, it may need to

replace gas-fired generation it closes in this State with new gas-fired generation it builds out-of-State. This would accomplish nothing but to increase costs and harm economic development in the state.

Fifth, it is unclear in new Section 173-442-150 how opportunities to generate emissions reduction units (ERUs) in the energy sector will interface with requirements under the federal Clean Power Plan (CPP) and existing statutory requirements in Washington. While the CAR allows emissions reductions resulting from compliance with the CPP to count toward CAR compliance as well, Washington is already effectively in compliance with the CPP, so opportunities to “double-leverage” this federal rule with the CAR appear limited. The other opportunities for electric utilities to generate ERUs other than over-compliance (which, as noted above, would seem to require the closure of existing gas-fired generation in the state, an uneconomic and ineffective carbon reduction strategy if it means merely importing more gas-fired generation into the state), appear largely limited to acquiring energy efficiency in excess of statutory requirements and retiring renewable energy credits (RECs) not used for compliance with the Energy Independence Act (EIA). The EIA, however, already requires utilities to “pursue all available conservation that is cost-effective, reliable, and feasible.” RCW 19.285.040(1). Thus, the ability of utilities to acquire more than “all available” conservation is necessarily limited. Additionally, RECs eligible for generating ERUs must be from in-state generation under the CAR and additional to the renewable energy requirements of the EIA. With nearly all of the economically viable sites for renewable generation in the State already developed, the ability to significantly expand renewable energy for the purpose of creating ERUs to comply with CAR is severely limited.

Sixth, many ICNU members will have a compliance obligation under the rule, but their ability to plan for and meet CAR’s CO₂ emissions standard could not be more uncertain or cost-prohibitive due to the design of the rule. ICNU has concerns with Ecology’s analysis to demonstrate that the supply of ERUs necessary to meet covered sources’ compliance obligations will be available. This is particularly important because the rule arbitrarily limits the use of out-of-state allowances for compliance over time, which increases the reliance on in-state ERUs. The supply of ERUs will also be restricted due to the CAR not providing credit for early action, despite the fact that the state has had emission reduction goals in place since 2008 and Washington businesses and utilities have been among the most aggressive in the nation with respect to reducing their carbon footprint. These two factors unnecessarily constrain the supply of ERUs. As the emissions cap becomes more stringent, this will create unstable, volatile prices for ERUs. The effect on ICNU members will be compliance costs that are essentially impossible to predict and may significantly exceed Ecology’s cost estimates.

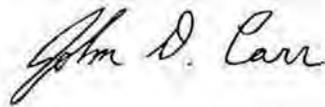
Given these concerns, ICNU recommends that Ecology reconsider issuing a final CAR. Short of this, however, ICNU has the following recommendations:

1. Given reliability concerns and the arbitrary impacts the CAR would have on electric customers, the final CAR should exempt the electricity sector from its requirements. Alternatively, at the very least, the rule should contain a reliability provision that would prevent the closure of gas-fired generation in the state merely for CAR compliance.

2. Lift the geographic restriction on ERUs – carbon emission reductions in other states matter to Washington just as much as emission reductions within the state.
3. Include additional pathways for creating ERUs to ensure an adequate supply.
4. Provide credit for early action by allowing affected entities to demonstrate emissions reduction actions they have taken since Washington established GHG emission reduction goals in 2008 and providing ERUs based on these activities.
5. Compliance with the CAR should be subject to a cost cap.
6. Increase the percentage of CARB allowances eligible for compliance to 25%. Alternatively, if the cost of Washington ERUs exceeds the cost of CARB allowances by 25%, covered entities should be able to use 100% CARB allowances for compliance.
7. Modify the REC-to-ERU conversion rate. The rate should be based on the weighted average of the carbon content of coal and gas-fired electricity included in the rates of Washington utilities.

In closing, ICNU understands that Ecology's regulatory authority is necessarily limited by the State's boundaries, but failing to recognize the realities of electric generation and transmission, which has been sited and operated on a region-wide basis, creates an unwieldy and unnecessary set of compliance problems for electric utilities, and which will likely impact the costs and reliability of electric service to their customers, including ICNU's members.

Sincerely,



John Carr
Executive Director
Industrial Customer of Northwest Utilities

cc: Chris Davis, Governor's Office
Keith Phillips, Governor's Office
Stuart Clark, Air Quality Manager



Industrial Energy Consumers of America

The Voice of the Industrial Energy Consumers

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July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
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Olympia, WA 98504-7600
AQComments@ecy.wa.gov

Re: Comments on Washington Department of Ecology's Proposed Clean Air Rule

Dear Mr. Wilson:

The Industrial Energy Consumers of America (IECA) provides the following comments on the Washington Department of Ecology's (Ecology) proposed Clean Air Rule (CAR). IECA members are energy-intensive trade-exposed (EITE) companies from every sector and the very stakeholders from which you seek comments. IECA has several member companies in Washington State. IECA supports cost-effective actions to reduce GHG emissions that do not negatively impact competitiveness.

I. INDUSTRIAL ENERGY CONSUMERS OF AMERICA

IECA is a nonpartisan association of leading energy-intensive trade-exposed manufacturing companies with \$1.0 trillion in annual sales, over 2,900 facilities nationwide, and with more than 1.6 million employees worldwide. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: chemical, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, automotive, brewing, independent oil refining, petroleum refiners (petroleum product producers and importers), and cement.

II. EXECUTIVE SUMMARY

To address the threat of climate change and GHG emissions, CAR must recognize and account for the significant GHG emissions that are being imported in manufactured goods, especially from countries like China, whose carbon intensity is four times that of Washington manufacturers. Imported industrial emissions dwarf the emissions that are emitted by the manufacturing sector. Washington manufacturers have substantially reduced GHG emissions by more than any other sector of the state economy. CAR must hold imported products to the same GHG standards. If they do not, industrial GHG leakage will occur, driving high paying jobs and the GHG emissions offshore or to other states, accomplishing nothing environmentally. For example, there have been six countries, regions, or states that have organized, or tried to

organize, cap and trade programs. They are the EU ETS, California’s AB 32, Australia’s carbon pollution reduction scheme, Canada, China, and the U.S. American Clean Energy and Security Act of 2009 (H.R. 2454)¹. While each differ, they all have one thing in common – they recognize that GHG leakage from manufacturing industries is not economically or environmentally desirable, and could significantly undermine efforts to reduce global CO₂ emissions.

We also urge the CAR to not use the social cost of carbon (SCC) to calculate costs and benefits. Doing so is to implode “global costs” of climate mitigation upon the “domestic” manufacturers. No other country in the world imposes global costs on its manufacturing sector, placing them at a disadvantage. The SCC also inflates the environmental benefits of a particular rulemaking, which contributes to the CAR being more advantageous than it is in reality. Consistent with the comments of the Association of Washington Business (AWB), which raise serious legal issues with the CAR, IECA does not support the rule. However, if the state does move forward then IECA recommends that the rule exempt EITE industries, which include:

NAICS Code	Description
311411	Frozen fruit, juice, and vegetable manufacturing
311423	Dried and dehydrated food manufacturing
311611	Animal (except poultry) slaughtering
322110	Pulp mills
322121	Paper (except newsprint) mills
322122	Newsprint mills
322130	Paperboard mills
324110	Petroleum refineries
325188	All other basic inorganic chemical manufacturing
325199	All other basic organic chemical manufacturing
325311	Nitrogenous fertilizer manufacturing
327211	Flat glass manufacturing
327213	Glass container manufacturing
327310	Cement manufacturing
327410	Lime manufacturing
327420	Gypsum product manufacturing
327992	Ultra high purity silicon manufacturing
331111	Iron and steel mills
331312	Primary aluminum production
331315	Aluminum sheet, plate, and foil manufacturing
331419	Primary smelting and refining of nonferrous metal (except copper and aluminum)
334413	Semiconductor and related device manufacturing
336411	Aircraft manufacturing
336413	Other aircraft parts and auxiliary equipment manufacturing

¹ “Climate Change Trade Measures: Considerations for U.S. Policy Makers,” U.S. Government Accountability Office, July 8, 2009, <http://www.gao.gov/new.items/d09724r.pdf>

III. KEY POINTS

a. IECA supports the filing of the Association of Washington Business (AWB).

According to the Association of Washington Business (AWB), the Washington Department of Ecology lacks statutory authority to adopt the CAR. Washington state agencies have only the authority granted to them by the state legislature. In 2008, the Washington legislature enacted RCW ch. 70.235 and it contains no new authority for Ecology to adopt a GHG reduction program.

b. The industrial sector has already reduced GHG emissions 20.3 percent since 2000, substantially more than any other sector, which clearly demonstrates that it does not need the CAR to reduce GHG emissions. The industrial sector should be exempted from the CAR.

The industrial sector has reduced more GHG emissions than any other sector as illustrated in Figure 1 and has demonstrated that it does not require regulations to reduce GHG emissions. Because the industrial sector competes globally, and because energy, especially for energy-intensive trade-exposed (EITE) industries is a significant cost, reducing consumption of energy through energy conservation initiatives and demand reduction projects is a priority. In order to be competitive (and stay in business) with other domestic and global competitors, we have every incentive to reduce energy use. Because of this, the industrial sector is very unique and should be exempt from the CAR.

Figure 1 illustrates that the industrial sector CO₂e emissions have decreased by 20.3 percent since 2000, substantially surpassing the CO₂ reduction performance of other sectors. Furthermore, Figure 2 shows how the industrial sector has substantially contributed to GDP, increasing from \$35.3 billion in 2000 to \$58.2 billion in 2015, a 64.0 percent increase. This is a remarkable performance in decreasing large quantities of CO₂e, while increasing economic growth. This is further justification as to why the industrial sector should be exempt from the CAR.

**FIGURE 1: WASHINGTON CARBON DIOXIDE EMISSIONS FROM FOSSIL FUEL CONSUMPTION
 (Million Metric Tons of CO₂)**

Year	Residential	Commercial	Industrial	Transportation	Electric Power
2000	5.2	3.5	15.8	44.5	14.1
2001	6.0	3.9	13.3	42.5	14.0
2002	5.5	3.3	11.5	41.2	11.4
2003	4.9	3.3	11.4	41.2	14.1
2004	4.9	3.1	12.0	42.7	14.0
2005	5.0	3.3	12.8	43.0	14.0
2006	5.1	3.4	13.8	43.9	9.6
2007	5.2	3.4	13.8	46.5	11.9
2008	5.6	3.9	14.4	41.2	12.7
2009	5.6	3.7	13.3	40.3	12.6
2010	5.1	3.7	12.7	39.7	13.1
2011	5.6	3.8	12.5	39.6	7.4
2012	5.1	3.7	13.0	41.1	6.2
2013	5.3	3.8	12.6	39.8	11.7

Year	Residential	Commercial	Industrial	Transportation	Electric Power
% decrease	1.9%	8.6%	-20.3%	-10.6%	-17.0%

Source: EIA, Washington Carbon Dioxide Emissions from Fossil Fuel Consumption

**FIGURE 2: WASHINGTON GDP
 (Million Dollars)**

Year	Manufacturing
2000	35,319
2001	32,754
2002	32,836
2003	31,237
2004	31,475
2005	40,464
2006	42,881
2007	47,449
2008	45,878
2009	47,555
2010	49,976
2011	50,768
2012	53,488
2013	55,143
2014	57,229
2015	58,224
% increase	64.9%

Source: BEA, Gross Domestic Product by State

- c. The industrial sector has reduced electricity consumption by 20.9 percent and natural gas consumption by 8.5 percent, the only sectors of the Washington economy to do so. Further evidence that the industrial sector should be exempt from the CAR.**

Consistent with comments referenced above, the industrial sector consistently strives to reduce energy consumption. Figure 3 and 4 illustrate that the industrial sector is performing well and is not responsible for increased Washington GHG emissions. The combination of the use of industrial energy efficiency and due to plant closures in Washington, the industrial sector has decreased both purchases of electricity and natural gas which in turn has lowered GHG emissions for this sector.

**FIGURE 3: WASHINGTON ELECTRICITY CONSUMPTION
 (Megawatthours)**

Year	Residential	Commercial	Industrial
2000	33,035,778	23,990,574	35,409,826
2001	31,608,471	23,840,525	19,338,924
2002	32,065,997	24,309,634	15,791,500
2003	31,872,045	28,039,324	18,180,029
2004	32,454,682	28,225,786	19,259,409
2005	33,212,197	28,099,583	22,111,773
2006	34,438,565	28,580,249	22,013,391
2007	35,388,779	29,599,032	20,752,603

Year	Residential	Commercial	Industrial
2008	36,335,847	29,878,288	21,117,186
2009	36,768,184	30,068,674	23,370,520
2010	34,906,926	28,833,281	26,632,814
2011	36,376,143	29,408,904	27,932,787
2012	35,510,961	29,239,604	27,578,904
2013	35,983,486	29,658,670	27,234,626
2014	35,082,958	29,040,310	28,012,775
% decrease	6.2%	21.0%	-20.9%

Source: EIA, Electricity Sales to Ultimate Consumers

**FIGURE 4: WASHINGTON NATURAL GAS CONSUMPTION
 (Million Cubic Feet)**

Year	Residential	Commercial	Industrial	Transportation	Electric Power
2000	71,779	50,462	83,748	228	74,400
2001	84,416	57,160	75,017	283	86,184
2002	73,347	46,455	67,717	288	39,552
2003	71,110	47,845	65,884	352	57,880
2004	70,932	48,455	67,812	395	66,068
2005	73,626	49,745	66,874	526	65,809
2006	75,491	51,292	70,758	501	58,800
2007	80,152	53,689	73,572	505	57,294
2008	84,509	56,205	75,748	493	74,580
2009	84,143	55,697	71,271	510	91,308
2010	75,554	51,335	71,280	436	79,535
2011	85,393	56,487	76,289	510	39,265
2012	79,892	53,420	78,196	512	43,336
2013	83,365	55,805	80,889	418	87,671
2014	78,750	54,457	79,439	491	84,950
2015	71,577	50,048	76,607	524	97,300
% decrease	-0.3%	-0.8%	-8.5%	129.8%	30.8%

Source: EIA, Natural Gas Volumes Delivered to Consumers

d. The industrial sector should receive “GHG credits” for its reductions of electricity consumption and for CHP.

Figure 3 illustrates that the industrial sector has substantially reduced its consumption of electricity by 20.9 percent. This is not by accident. IECA energy efficiency surveys have consistently shown that industrials invest in energy efficiency projects to reduce electricity use more often than reducing natural gas. Because it is the industrial companies that are investing their own capital in energy efficiency projects to reduce electricity consumption, they should be awarded the “avoided” CO₂ emissions. Electric generators should not be given GHG credit for electricity reductions by the industrial sector.

Industrials also invest in combined heat and power (CHP) facilities that avoid GHG emissions. CHP facilities can produce electricity with energy efficiency rates up to 80 percent versus conventional power generation at 35 percent. In this case, industrials should be awarded GHG credits for the difference between the CO₂e emissions per megawatt-hour versus the regional

generation average for non-baseload facilities. This should be done regardless of when the CHP was installed, as it is fundamentally unfair to treat new versus existing CHP facilities differently.

e. The most cost-effective way to reduce global GHG emissions is to produce more manufacturing products in Washington and import less from places like China.

If Washington is serious about reducing global GHG emissions, the low-cost way to do so is to support the manufacturing sector, produce products in Washington, and import less from places like China.

Figure 5 illustrates this point by comparing the carbon intensity of manufactured products of the U.S. versus China. In this case, Chinese imported products emit four times more CO₂e emissions versus products manufactured in the U.S. These figures do not include CO₂e related to overseas transportation. The U.S. manufacturing product trade deficit was \$627 billion in 2015 and 61 percent is with one country, China. The point is that increasing production of U.S. products and reducing imports of foreign products reduces global CO₂ emissions. The CAR completely misses this vital point.

FIGURE 5: U.S. VS CHINA MANUFACTURING CO2 EMISSIONS – 2013

Country	Manufacturing – Value Added (\$Billions)	Manufacturing Industries and Construction (Million tonnes of CO ₂)	Million Tonnes of CO ₂ /Manufacturing Value Added
U.S.	1,943.8	422.1	0.22
China	2,856.9	2,813.1	0.98

Source: International Energy Agency (IEA), The World Bank, <http://data.worldbank.org/indicator/NV.IND.MANF.CD>

f. EITE electricity cost shifting impacts to the Washington economy has not been considered.

EITE industries typically operate 24/7, providing critically important base load electricity demand. If EITE industries move their facilities out of state or to a foreign country because of the CAR resulting in industrial leakage, the fixed electricity costs that they are paying will be shifted to the remaining retail consumers of electricity, thereby increasing their electricity costs. This cost shifting factor has not been considered in any of the costs and is a significant additive public policy issue that should be overlaid on the CAR policymaking.

g. Hold imported manufacturing goods to the same GHG standards as Washington manufacturers. Include imported GHG emissions in Washington GHG inventory.

Addressing GHG reductions realistically cannot be achieved without considering imported GHG emissions. As illustrated in Figure 5, imported manufacturing goods can be substantially more carbon-intensive than goods manufactured in Washington. Washington has not included the increased GHG emissions through imported manufactured products in its inventory. We believe these imported GHG emissions dwarf the reductions that will be achieved through the CAR. This ignores the sizable global GHG emissions that are caused by not holding imported products to the same GHG standards as Washington-produced manufactured products.

h. The CAR should not use the social cost of carbon (SCC) to calculate costs and benefits.

The social cost of carbon places U.S. manufacturing at a distinct disadvantage.

An important glaring problem with the SCC is that, to the extent the highly uncertain estimated costs are factual, it imposes “global” carbon costs on “domestic” manufacturers, which further damages the industry’s ability to compete with foreign competitors, even when U.S. manufacturers are more efficient. No other country in the world imposes global carbon costs onto their manufacturers.

U.S. Government Accountability Office report highlights severe uncertainties in SCC values.

The U.S. Government Accountability Office (GAO) report entitled, “Development of Social Cost of Carbon Estimates”² highlights that the SCC cost estimates have great economic and scientific uncertainty.

On page 12 it states, “The Technical Support Document (TSD) states that reported domestic effects should be calculated using a range of values from 7 to 23 percent of the global measure of the social cost of carbon, although it cautions that these values are approximate, provisional, and highly speculative due to limited evidence.” The quote illustrates that when applying the SCC on domestic manufacturers, 77-93 percent of the estimated climate benefits will flow to entities outside of the U.S.! In other words, the TSD guarantees that domestic application of the SCC will harm the U.S. economy, to the benefit of others around the world. Taking such action is clearly inconsistent with the purpose of the U.S. government and every federal agency. The TSD inappropriately ignores longstanding guidance from OMB to analyze only domestic cost-benefits. If CAR wishes to continue applying the SCC, it must revise downward the range of benefits by 77-93 percent.

On page 14 it states, “The TSD states that the working group decided to calculate estimates for several discount rates (2.5, 3, and 5 percent) because the academic literature shows that the social cost of carbon is highly sensitive to the discount rate chosen, and because no consensus exists on the appropriate rate.” Clearly this means that the cost of carbon is not based on reasonable economic analysis to accurately reflect the cost of capital. The TSD inappropriately ignores longstanding guidance from OMB under Circular A-4 to analyze cost benefits using a 7% discount rate, a rate much greater than the range suggested by the TSD.

On page 17 it states, “Some of the participating agencies have incorporated discussions of these limitations into regulatory impact analyses using social cost of carbon estimates. For example, in a 2012 rule setting pollution standards for certain power plants, EPA noted that the social cost of carbon estimates are subject to limitations and uncertainties.”³

² U.S. Government Accountability Office, Development of the Social Cost of Carbon Estimates, July, 2014, <http://www.gao.gov/products/GAO-14-663>

³ National Emissions Standards for Hazardous Air Pollutants from Coal-and Oil-Fired Electric Utility Steam Generation Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial – Commercial –Institutional, and Small Industrial –Commercial-Institutional steam generating Units, 77 Fed. Reg. 9304 (Feb. 16, 2012)

GAO confirms that the only changes made for the 2013 SCC were due to increased global costs of sea level rises and associated damages. This means that U.S. manufacturing companies are paying for damages to 372,000 miles of coastline globally.⁴

On page 16 of the GAO report it states, “According to many participants and the 2013 update to the TSD, the only changes made to the models used for the 2013 revisions were those that the model developers incorporated into the latest versions of the models and that were subsequently used in peer-reviewed academic literature. Specifically, the developers updated the academic models to reflect new scientific information, such as in sea level rise and associated damages, resulting in higher estimates. The working group did not make changes in the modeling inputs that it used for the 2010 estimates.” The GAO report said that, “In 2013, the group issued revised estimates that were about 50 percent higher than in the 2010 estimates, which raised public interest.”

The social cost of carbon value is unrealistically high.

The SCC for 2016 is \$36 per metric ton (in \$2007), while other carbon trading prices are far lower. Some of those include: RGGI’s auction clearing price is \$5.25 per metric ton (on March 11); California’s cap and trade price is \$12.69 per metric ton (on May 10); and the EU ETS price is \$6.86 per metric ton (on May 11). And, throughout the overwhelming majority of the world, the price is even lower. These stated real-time carbon market prices raise serious questions about the validity and appropriateness of the SCC. As manufacturers who compete globally, the unrealistic SCC price puts the domestic economy at a competitive disadvantage, which encourages companies to produce products offshore, in other countries that do not impose these unrealistic costs.

Due to the importance of the SCC estimate, it is important to examine the CAR’s application of the SCC in this analysis. There are two problems: 1) The CAR has ignored the energy costs (and corresponding SCC estimate) required to comply with its rulemaking, and 2) the CAR’s application of the SCC does not correct for the numerous procedural and methodological flaws in the Interagency Working Group’s (IWG) SCC approach.

According to the Financial Post, equations “that connect CO₂ emissions to temperature change depend on a parameter called equilibrium climate sensitivity (ECS), which is the amount of warming in degrees Celsius from doubling the amount of CO₂ in the air, after the atmosphere and oceans have fully adjusted. The equations that connect temperature change to economic impacts make up what is called the damage function. The IWG made updates to the damage functions that boosted the costs, but it did not change the ECS even though the ECS has dropped in recent years. The higher the ECS, the longer it takes the climate to adjust to higher greenhouse gas levels. Under a high-ECS case the damages occur much farther in the future and need to be discounted more heavily. But the IWG does not take this into account; instead it allows high-ECS and low-ECS scenarios to occur on the same time scales, biasing the SCC

⁴ NASA: <http://science.nasa.gov/earth-science/oceanography/living-ocean/>

upwards.”⁵ The IWG’s refusal to change the ECS in SCC calculations is another reason to doubt the accuracy of the SCC in the first place.

If Washington moves forward with the CAR, then the state must take industrial GHG leakage into account for EITE industries. GHG leakage from manufacturing industries is not economically or environmentally advantageous. The benefits of environmental regulations are overstated and the SCC is a poor indicator of potential benefits. No other country in the world imposes global costs onto its manufacturing sector. The CAR would be a risk to manufacturing in the state, if EITE industries are not exempt. We urge Ecology to not negatively impact our competitiveness.

Respectfully,

Paul N. Cicio
President

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales, over 2,900 facilities nationwide, and with more than 1.4 million employees worldwide. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: chemical, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, brewing, independent oil refining, and cement.

⁵ “What’s the right price for carbon? Take a guess (everyone else is),” Financial Post, <http://business.financialpost.com/fp-comment/junk-science-week-whats-the-right-price-for-carbon-take-a-guess-everyone-else-is>

July 22, 2016

Washington Dept. of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Subject: Comments of Inland Power and Light on proposed Rule 473-442 WAC to establish emission standards for greenhouse gases

To Whom It May Concern:

Inland Power and Light appreciates the opportunity to comment on the Clean Air Rule (CAR). Our utility is headquartered in Spokane, WA serving electricity to over 40,000 meters in 10 eastern Washington counties with a fuel mix that is over 95% carbon free.

First and foremost, our request is that Ecology combines this rulemaking and the development of the proposed federal 111(d) rule State Implementation Plan (SIP) (also known as the Clean Power Plan, CPP) into one forum. The CPP covers both the exact same natural gas combined cycle (NGCC) facilities in the state as the CAR, and the CPP adds the lone coal steam generating facility located in the state. Combining all of the NGCCs into the CPP would provide clarity and consistency for operating those units. Synchronizing state and federal regulation will minimize the costly regulatory burden that is ultimately passed on to our ratepayers.

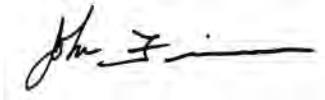
Second, the CAR should remain technology agnostic and not seek to take a stance on means of compliance, rather it should state a reduction target that is within the legal authority of Ecology. In the proposed rule, energy generating technologies are limited to those defined as “eligible renewable resources” in RCW 19.285.030, when the menu of options for low, or zero, emitting means of power generation should be much broader; including hydroelectric generation and nuclear. Those entities covered by the rule are well equipped to identify the least cost and/or best resources for use in compliance with the rule.

Lastly, all parties, whether participants or not, should be allowed to generate and transfer any ERUs from either renewables or energy efficiency in excess of requirements for compliance under RCW Chapter 19.285 to participants. All other comparable markets allow this option and we strongly encourage it be allowed in Washington to provide compliance flexibility to participants, value to non-participants and broad regional collaboration in efforts to mitigate carbon on a least cost path to ratepayers. Additionally, energy efficiency ERUs should be generated for each year energy savings persists for an implemented measure. Energy efficiency clearly generates no incremental carbon, has

been historically the least cost path and should be treated on equal footing with other low and zero emitting carbon generation.

Thank you for the opportunity to comment and I urge Ecology to work diligently to get this rule right rather than rushing to a deadline that is arbitrary and far in advance of compliance deadlines identified under the Clean Power Plan.

Respectfully,

A handwritten signature in black ink, appearing to read "John Francisco", with a long horizontal flourish extending to the right.

John Francisco
Chief of Energy Resources
Inland Power and Light

Sam Wilson
Environmental Planner
Department of Ecology, Olympia Washington
AQComments@ecy.wa.gov

IETA COMMENTS ON PROPOSED RULEMAKING CR-102: CHAPTER 173-442 WAC - CLEAN AIR RULE & CHAPTER 173-441 WAC - REPORTING OF EMISSIONS OF GREENHOUSE GASES

The International Emissions Trading Association (IETA)¹ appreciates this opportunity to share business input on Washington Department of Ecology (DoE)'s proposed Clean Air Rule establishing greenhouse gas (GHG) emissions standards (the Proposed Rule). On behalf of our 150+ multi-sector business membership worldwide, we believe that flexible market instruments – **including trading, broad access to offsets, and cross-border cooperation** – must form the backbone to any jurisdiction's successful climate policy effort.

We welcome Washington State's climate leadership and support for flexible market instruments. **However, while the Proposed Rule is a move in the right direction, we believe that overall environmental and economic effectiveness could be improved in several areas.** Adopting several program design modifications, particularly related to enabling broader trading and regional market linkages, will best position the state to meet its climate goals at least-cost to Washington businesses and consumers.

KEY MESSAGES: BUILDING AN EFFECTIVE CARBON PRICING PROGRAM IN WASHINGTON

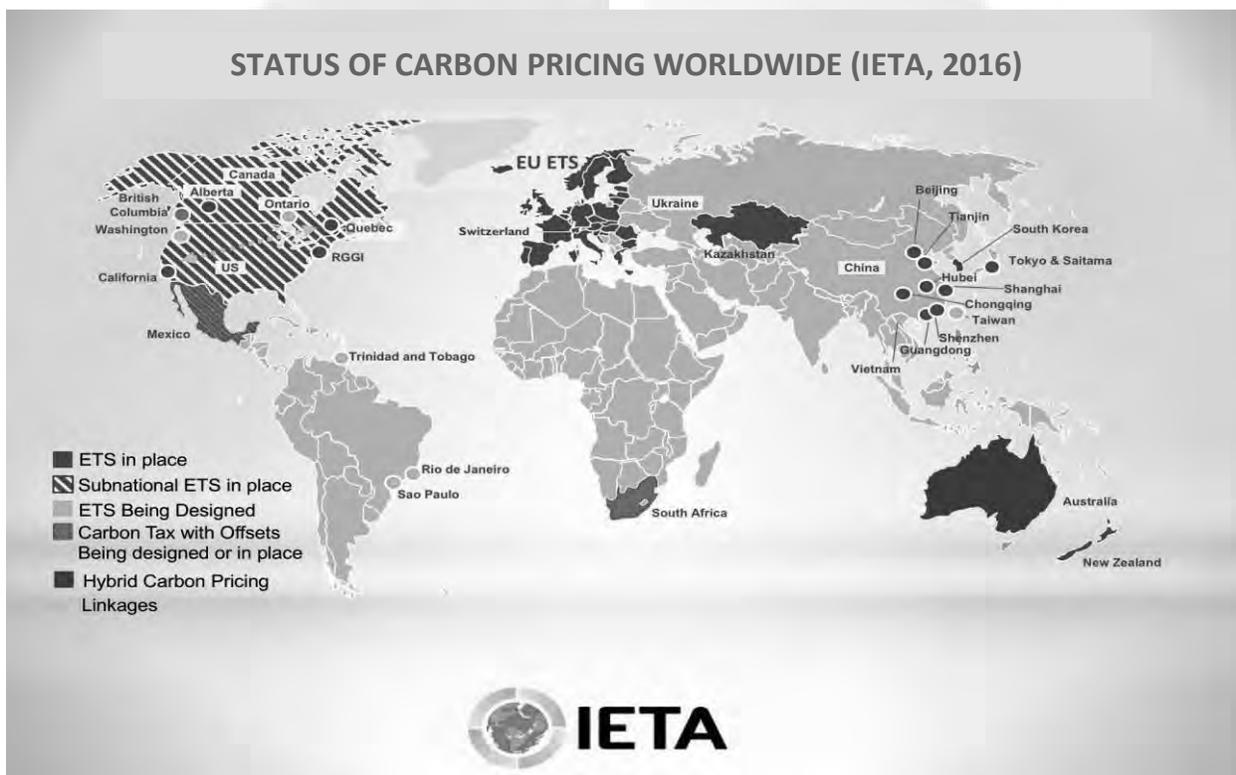
1. Emissions trading, specifically cap-and-trade, **ensures emissions reduction certainty.**
2. Emissions trading achieves **measurable emission reductions at least-cost.**
3. Emissions trading enables **cross-border program linkages, cooperation, and partnerships.**
4. Emissions trading can **most effectively respond to macro-economic fluctuations.**
5. Emissions trading drives **economically-rational, low-carbon innovation solutions.**
6. Emissions trading can best **support low-carbon transitioning for business and consumers.**
7. Emissions trading can **address industry competitiveness and leakage concerns.**
8. Emissions trading provides a **global response to a global challenge.**
9. Emissions trading is **more effective than a carbon tax for creating real reductions in carbon.**

The following input to DoE is structured around three main sections: 1) global carbon pricing trends & outlooks; 2) priority business input; and 3) detailed input on proposed program design elements.

¹ IETA is the leading global business voice on the design, evaluation, and expansion of greenhouse gas markets and climate finance. IETA's 150+ member companies include some of the world's largest power, industrial, manufacturing and financial corporations. Learn more about IETA at www.ieta.org.

1. GLOBAL CARBON PRICING TRENDS & OUTLOOKS

As shown in IETA’s map below, over 40 national and 20 subnational jurisdictions – representing 25% of global GHG emissions – currently use some method of carbon pricing. Since 2009, **cap-and-trade programs have predominantly driven this growth of carbon pricing worldwide**. Delving further into the global landscape, the International Carbon Action Partnership (ICAP)’s Status Report 2016,² shows that **40% of global GDP is now covered by emissions trading systems**. This figure is projected to increase to ~50% of GDP by 2017, once China implements its national cap-and-trade system.



Spurred by **Article 6 of the Paris Agreement** (or, informally known as the “markets article”),³ this bottom-up carbon pricing momentum, particularly regarding international trading and market linkages, will continue to build. Detailed considerations about the implementation of Article 6 are shared in IETA’s May 2016 report, “**A Vision for Market Provisions of the Paris Agreement**” and IETA-EDF’s April 2016 Joint Report, “**Carbon Pricing: The Paris Agreement’s Secret Ingredient**”.⁴ The international, national and sub-national trends are clear: **emissions trading, specifically cap-and-trade, has become the climate policy tool of choice to keep costs reasonable while inspiring greater levels of ambition going forward.**

² See ICAP’s “Status Report 2016”, <https://icapcarbonaction.com/en/status-report-2016>.

³ See UNFCCC ‘Paris Agreement’ <https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>.

⁴ All referenced reports can be accessed via the IETA homepage: www.ieta.org.

2. PRIORITY BUSINESS INPUT

Leveraging two decades of business experience across global environmental markets, IETA offers several priority business insights to inform a vibrant climate program in Washington State.

Measurable Environmental Outcomes Matter. For reasons described throughout this submission, emissions trading contains numerous socio-economic, innovation, linkage and efficiency benefits. This is particularly true in relation to taxation and more prescriptive “non-complementary” climate policy measures. The **hallmark feature of cap-and-trade – which unfortunately, is not the design being proposed by DoE – is a results-based approach that leads to measurable environmental outcomes.** Under this preferred design, the “cap” effectively represents a carbon “budget”, or the total number of allowances that are available to the market and compliance entities. These budgets *never exceed a given limit of emissions, and decline over time as measurable GHG targets become more ambitious.* The cap is critical to defensibly and demonstratively achieving environmental policy success and meeting reduction commitments. In contrast, a carbon tax simply cannot guarantee environmental outcomes. Nor is it capable of timely emissions measurement and results-oriented adjustments to ensure climate targets are met.⁵ A prime example of a jurisdiction that implemented a carbon tax, but is now failing to meet its projected 2020 climate target is the province of British Columbia.⁶

Ability to Respond to Macro-Economic Shifts & Trends. Historical price data shows that flexible market pricing systems respond to economic downturns with lower prices on carbon – this ability to respond to economic shocks is unique to emissions trading. Unlike the politicized nature of a tax, particularly in California and the U.S., enabling the open market to set the price of carbon allows for better flexibility and avoids price shocks or undue burdens.

Cost-Effectiveness & Containment as Guiding Principles. Cap-and-trade programs not only deliver outcome certainty and respond to macro-economic shifts, but they do so at least-cost to consumers and businesses. Washington State’s ambitious post-2020 climate targets will require significant, economy-wide accelerations in deep GHG reductions. **Cost-containment and achieving targets/reductions at the lowest possible cost should serve as core guiding principles as the Proposed Rule is finalized.** DoE’s policy evaluations and decision-making efforts should identify (and ultimately enable) least-cost abatement opportunities, including cost-benefits of full-scale market trading scenarios, a vibrant offsets market, and achieving program alignment and linkage.

⁵ *With a carbon tax, the price is known (and subjectively set by government) but the expected quantity of GHG reductions achieved is unknown year over year. The policy, political and industry risks associated with the tax vs. quantity approach to pricing carbon is captured in E. Haites’ June 2016 report, [Carbon Pricing Options for Canada](#).*

⁶ *British Columbia implemented a carbon tax in 2008, but while much-acclaimed, it has failed to effectively reduce greenhouse gas emissions. Instead, after 8 years in existence, B.C.’s emissions are projected to increase +30% by 2030, while Alberta, Quebec, and Ontario are each expected to reduce emissions in excess of 20% in the same period. This gives an evidence-based, clear and poignant story in support of flexible market-based systems.*

Enable Near & Longer-Term Market Linkages. Throughout the remainder of the rule-making process, a top priority for DoE should be the pursuit of a flexible system, **capable of effectively linking – fully or partially – to existing or soon-to-be launched regional markets.** Structuring Washington’s future program to gradually ratchet-up climate ambition while ratcheting-down emissions, will prove critical if deep, broad and sustainable linkages are to flourish. The benefits of cooperative approaches and regional linkage are clear: the bigger and broader the market, the wider the range of abatement opportunities and improved efficiencies, thereby driving-down program costs while driving-up clean projects, jobs, and market opportunities.

Enable Policy Harmonization & Alignment. Moving forward, DoE must look across its borders to ensure that program rules and processes, once adopted, are complementary and readily adaptable to rapidly-changing carbon policy and market landscapes. We urge officials to closely track developments that will – or could potentially – affect the state program design and *de facto* dynamics in Oregon, California and beyond. Now is the best time to be aware of, and account for, any challenges that could emerge down the line. IETA is well-positioned to support this information exchange and can help ensure that DoE has the latest policy and market information and outlooks relevant to the Washington carbon landscape.

Recognize Early Action. Businesses that have been proactive in reducing GHG emissions prior to the development of the Proposed Rule should be recognized and rewarded under the Rule. These proactive actions must be clearly defensible and supported by documentation, as may be mandated by the program. Under a flexible market mechanism, “early action” can be recognized through a variety of design options, such as allowance allocations or dedicated offset issuances.

Borrow, Learn and Leverage Existing Programs. Moving forward, DoE should rely *heavily* on the experiences, lessons learned and best practices from existing carbon pricing programs – across North America and beyond. Building on – or at least **ensuring complementarity** with – established programs **will enhance efficiencies, cross-border harmonization, and broader program integrity** (e.g. avoid double counting), while strengthening climate cooperation and potentially deepening policy ambitions.

Avoid Duplicative & Non-Complementary Measures. Non-market measures – such as government incentives, standards, R&D support etc. – can play roles in helping to meet climate goals. However, **complementary measures can also create inefficiencies and increase overall program costs if not designed to ensure true and transparent “complementarity” with the carbon market.** DoE’s rule, once final, must align with existing state legislation (e.g. 2007 Act creating GHG performance standard for in-state fossil generation, Ch. 80.70 RCW) and prepare to complement future climate and energy measures.⁷ We urge officials to take meticulous care and be painstakingly thorough to ensure that all existing and future environmental policies facilitate, rather than impede, Washington’s ability to realize GHG reductions at least-cost.

⁷ Additional insight into the contradictions between the Proposed Rule and Ch. 80.70 RCW can be found in the July 2016 comments submitted to DoE by The Climate Trust.

3. DETAILED INPUT ON PROPOSED PROGRAM DESIGN ELEMENTS

A. TRADING PROVISIONS & MAXIMIZING REGIONAL CONSISTENCY

Proposed Rule is artificially constrained by its approach to trading and should be broadened. A more robust mechanism that allows for fulsome trading of compliance instruments (designated as ERUs or otherwise) should be explored. Initially, this could be pursued at a state level, then later compatible with other existing non-state programs. We strongly encourage DoE to reconsider some of the limitations in its proposal, and IETA offers its deep cross-border and market expertise to help inform these trading provision modifications.

Non-Compliance Entity Market Participation. IETA strongly encourages DoE to revisit the provision in the Proposed Rule denying third-party (or non-compliance entity) ERU ownership and trading opportunities. This proposed participant constraint is a major concern that could lead to potentially dramatic implications on the future success and expansion of Washington's program. All existing compliance markets, including RGGI, California-Quebec (WCI), Alberta, and the EU ETS, expressly allow trading of compliance instruments amongst compliance and non-compliance (or voluntary/third-party) participants. All successful markets, including environmental commodity markets, rely on broad market participation that drives liquidity, transparent price discovery, and capital. Without broad participation by financial intermediaries and other third party participants, ERU trading will most certainly be limited to a small number of compliance entities. Limited participation could stifle market efficiency and other potential benefits, including linkage prospects. It could also effectively drive market power into the hands of only a few entities, leading to unintended consequences around market manipulation and barriers to linkage with other jurisdictions.

Ensuring Common Nomenclature & Standards. We urge DoE to use existing standards, including across both systems (e.g. CITSS, SGER) and terminology (e.g. Allowances, Offsets, EPCs etc.). This would pre-empt future confusion among market participants, while keeping a watch on future linkage opportunities. DoE should continue to work closely with partner jurisdictions to the fullest extent possible, so Washington's program can easily be integrated in accord with future market developments.

B. BUILDING & LINKING BEST-IN-CLASS OFFSETS PROGRAM

Washington is extremely well-positioned to develop a strong, best-in-class offsets system. IETA applauds DoE for its expansive recognition of activities and programs recognized as generating ERUs, as well as the criteria that such initiatives must result in real, permanent, enforceable, and verifiable emissions reductions. The following underscores the important role and merits played by offsets.

Offsets Reduce Costs While Preserving Environmental Integrity. Offsets provide an alternative for regulated emitters to substitute real GHG emission reductions made outside capped sectors, presumably at lower cost, for emission reductions in their own facility. This provides the same benefit to the environment as an emission reduction at the regulated facility but at a lower cost. It is of paramount importance, as DoE appreciates, to ensure that each compliance offset issued and entering a system represent a real, discrete, additional and verifiable tonne of GHG emissions reduced or sequestered.

Offsets Drive Innovation. By their very definition, offsets act as an innovative and direct financing tool, driving the implementation of new technologies and practices that would not have happened under business as usual. The tool provides a new way for technologies and resource management practices to progress from the lab to the field – providing fertile opportunity for partnerships between the research community and business. Years of industry experience across multiple programs and regions have demonstrated that properly designed offset systems drive clean innovation and entrepreneurialism by providing a clear price signal upon which to invest. A well-designed offset system builds and sustains an ecosystem of “clean” innovators and entrepreneurs who help us reach our de-carbonization goals.

Offsets Provide Economic Benefits & Preserve Competitiveness. Trading and access to offset reductions provide necessary compliance and policy flexibility. These measures can help drive low-carbon innovative solutions and investments, keep compliance and program costs to a minimum, capitalize on new revenue streams, manage competitiveness concerns, and pursue clean investments on a logical timescale. Flexibility also gives regulated industries the ability to gradually transition and meet compliance obligations, while adopting new low-carbon strategies, technologies and processes that work best for their operations, human resource capacity, supply chains, and consumers.

Offsets Help Drive Levels of Ambition & Linkages. Across today’s fragmented carbon pricing landscape (see Section 1), eligible, least-cost offsets will become more important least-cost compliance tools to meet climate targets and increase levels of ambition. Carbon programs will need more – not fewer – eligible GHG projects and associated reductions to 2030 and beyond. The full or partial linking of jurisdictional efforts through mutual recognition of tradable units, including offsets, provides greater certainty that units will have value into the future and be adequately financed.

C. EMPOWERING THIRD-PARTY REGISTRY (OR REGISTRIES)

Empowering Third-Party Registry (or Registries): Given DoE’s ambitious timeline to finalize and implement its Rule, we encourage the state to consider empowering third-party registries to administer Washington’s registry. Such decisions should be guided by the need to encourage program and market efficiencies and transparency, while also building program credibility and confidence. Third-parties can provide immediate, trusted offsets infrastructure to reduce state burdens, as well as facilitate the most efficient use of scarce resources. Third-party registries can also simplify the process for “on-boarding” early action credits, as existing projects are already registered on third party registries.

ERU Registry Unknowns. Washington’s proposed ERU registry requires more details on design, governance, operationalization, interface with market participants, and more. Presumably, the registry will track all tradeable units (EPCs and imports/exports of allowances and offsets) and therefore be the most vital piece of Washington’s program infrastructure. Additional information and stakeholder engagement is required as Washington’s rule is finalized and the registry moves from concept to operationalization.

Transparency & Engagement. The registry (or registries) must publicly display ERU – including EPC/offset-type – project documents and ownerships. For offsets, it must ensure access and viewing by the general public in order to draw links between offset projects and credits used for compliance. The tracking of offset credits also allows for traceability and accountability around offsets credits, thereby increasing transparency, heightening program integrity, and providing necessary access for the public.

Common & Compatible Market Infrastructure and Oversight. Washington’s registry should support and manage all (or some, depending on its future relationship to CITSS) administrative efforts associated with the communication and display of offset projects, credit transfers, and retirements. DoE should develop clear guidance and operational/performance level agreements or contracts for registry service(s). These clear “rules of the game” and contractual arrangements should only help to strengthen program confidence, clarity and participation.

Compatibility & Linkage with Existing Registries. As DoE moves forward with offset program design and core infrastructure decisions, compatibility and potential linkage to WCI partner jurisdictions should be kept front-of-mind. Prioritizing these two considerations will help increase program efficiencies and reduce costs/burdens to business complying or investing across jurisdictions. Harmonized infrastructure enables linkage and broadens markets, thereby containing costs, addressing competitiveness, heightening market efficiencies, and achieving broader climate benefits and co-benefits across Washington State and beyond.

Avoid ERU/Offset Usage Limits. IETA believes that all market-based programs, including Washington’s, should avoid limiting the use of eligible offsets for compliance purposes to a specific percentage of an entity’s overall obligation. These subjective quantitative limits restrict cost-containment opportunities and other benefits (e.g. linkage, socio-economic co-benefits, etc.) that underpin a broad and vibrant offset market.

Offset Protocol Development. We applaud DoE’s proposal to adopt a broad and diverse range of eligible, economically-viable, and potentially scalable offset protocols. However, we would urge Washington to avoid the imposition of artificial geographic constraints, as proposed. Building a compliance offset system that allows a diversity of protocols and project types, as well as freedom of use by covered entities, will invigorate Washington’s program while effectively containing compliance and program costs.

D. ADDRESSING COMPETITIVENESS & LEAKAGE

Carbon leakage occurs when direct and indirect costs produced by an asymmetrical climate policy has a material impact on competitiveness that results in industrial production and new investments moving outside a regulated region together with the associated emissions.

We strongly believe and advocate for compensation at an “appropriate level” to be provided to industry sectors facing “front-running” climate policies that are essential to avoid leakage as a result of competition with international – or in the Canadian context, interprovincial – competitors not facing similar costs.

Determining “appropriate compensation” should be guided by IETA’s key principles for carbon leakage protection, a process that should reward the cleanest and most efficient entities. While adequate protection for competitiveness must be ensured, the appropriate compensation must not result in unintended consequence of discouraging the switch to economically competitive low-carbon products. Further, Washington’s carbon leakage provisions should avoid “locking-in” carbon intensive technologies and penalizing the development of low-carbon technologies or alternative solutions. **We believe that an ideal protection method for addressing carbon leakage should:**

- Be as targeted, sufficient, predictable, fair and proportionate as possible;
- Be harmonized across jurisdictions;
- Compensate for both direct and indirect costs;
- Encourage overall emissions reductions by all traded sectors;
- Ensure the most efficient facilities do not face undue carbon costs vs. international competition;
- Not affect the trading system goal to cost-effectively reduce emissions;
- Not affect the trading system goal in stimulating clean investments and innovation;
- Not put into question the trading system’s functionality, including its principles of efficiency, cost-effectiveness, and ensuring liquidity;
- Be fully rational, transparent and defensible;
- Be based on evidence not theory; and
- Be transitional and linked to achieving a “level-playing field” for industrial competitiveness, particularly as more jurisdictions adopt climate policies and programs.

Accounting for International Trends & Approach. While making program design decisions to combat competitiveness and leakage concerns, Washington account for carbon developments transpiring in other priority jurisdictions. These quickly-evolving policy landscapes speak to treatment of both direct and indirect costs affecting industries, as well as the net effect after comparing one system versus other national and regional compensation schemes. At the same time, Washington must also dedicate time to carefully evaluating whether the potential asymmetry is of a permanent nature.⁸

⁸ See IETA’s 2015 *Addressing Competitiveness & Leakage Concerns* for further analysis and details.

E. ELECTRICITY IMPORT & EXPORT PARITY DESIGN OPTIONS

DoE should explore how best to ensure parity between electricity imports and exports. Requiring in-state electric power generation to bear carbon costs not faced by power delivered into Washington will simply cause leakage, raising prices within the state with no net carbon reduction. Other states and provinces within the region, including California, have successfully imposed carbon costs on imported electricity and there is nothing preventing Washington from doing so as well. Similarly, in-state power generation that is delivered into one of these other programs should not be required to pay multiple times for the same ton of carbon.

CONCLUSION

IETA appreciates this opportunity to record our joint comments related to Washington State's proposed Clean Air Rule. Our collective, diverse membership remains committed to supporting the successful creation, launch, and growth of market-based carbon pricing in Washington to help achieve the state's future climate targets at least-cost. If you have questions, or require further information about our comments, please contact IETA's Director of the Americas, Katie Sullivan (sullivan@ieta.org).

Sincerely,



Dirk Forrister
IETA President and CEO

**SATSOP COMBUSTION TURBINE PROJECT
GREENHOUSE GAS MITIGATION PLAN**

**APPROVED June 9, 2003
Amended June 9, 2009**

By

**STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL**

**2009 AMEMDMENT SUBMITTED BY
GRAYS HARBOR ENERGY, LLC**

INTRODUCTION

In 1994, the Washington Public Power Supply System (now "Energy Northwest") filed an application with the Energy Facility Site Evaluation Council (EFSEC or "the Council") to construct a 490 MW combined-cycle combustion turbine project at the Satsop site. After holding an adjudicatory hearing, EFSEC recommended a Site Certification Agreement (SCA) for the Satsop Combustion Turbine Project, and the Governor executed that SCA on May 21, 1996.

The topic of greenhouse gas mitigation was addressed during the adjudicatory hearings in 1996. Evidence indicated that the facility would emit up to 1.778 million tons of greenhouse gases a year. During the hearings, the applicant and the Counsel for the Environment disagreed about whether the Council should require mitigation for those greenhouse gas emissions. Ultimately, the Council decided not to impose a mitigation requirement. The Council found that "the Satsop CT Project uses the latest reasonable technology and that it will produce lower emissions of greenhouse gases than older natural gas combustion turbine facilities or other fossil fuel facilities." Order No. 694 at 13-14.

Among other things, the Council concluded that "[b]urdensome greenhouse gas mitigation. . . could place the Applicant at a competitive disadvantage within the power producing market and deprive the market of a very efficient power producing facility. Balancing the respective interests, and recognizing that emission technology will advance and greenhouse mitigation measures may be enhanced as time passes, the Council will impose no fixed requirement upon the Applicant. . . . If a comprehensive federal or state mitigation program is implemented, the Council reserves the right to exercise its authority under that program . . ." Order No. 694 at 25. Accordingly, the original SCA provided that:

If a comprehensive federal or state mitigation program is implemented, the Council reserves the right to exercise its authority under that program, considering and appropriately crediting any measures that the Certificate Holder has accomplished. SCA Article VI.B.2.

In 2001, the Council added Duke Energy Grays Harbor, LLC ("Duke Energy"), to the SCA as a Certificate Holder, and together Duke Energy and Energy Northwest requested a technical amendment to the SCA to allow the use of currently available equipment in the CT facility. The equipment change resulted in an increase in the facility capacity from 490 MW to approximately 630 MW.

The Council granted the technical amendment on April 13, 2001, by Resolution No. 298. In Resolution No. 298, the Council acknowledged that the increase in the facility's capacity could result in an increase in the facility's carbon dioxide (CO₂) emissions, and stated that the Council had authority to compel the Certificate Holders to prepare and implement a carbon dioxide mitigation plan. Although the Satsop CT facility now has the potential to emit more than 1.778 million tons of CO₂ per year, under many likely operating scenarios, the actual annual emissions would not exceed the total volume of emissions that the Council and the Governor permitted in 1996 without any mitigation requirement. Both Resolution No. 298 and subsequent discussions with the Council

reflect the Council's intention to require the Certificate Holders to mitigate only those CO₂ emissions that exceed the previously-permitted amount.

Duke Energy has developed this Greenhouse Gas Mitigation Plan over the course of several months, in consultation with Council members and with careful consideration of comments provided by other interested parties. The mitigation plan set forth below is based upon the mitigation plan that the Council approved for the Sumas 2 Generating Facility, which in turn was based upon the mitigation requirements established by Oregon statute and regulations.

In evaluating the mitigation plan, however, it is important to keep in mind that the Satsop CT Project differs from the Sumas 2 project in one very important respect. EFSEC approved the vast majority of the CO₂ emissions from the Satsop CT Project in 1996 (those attributable to 490 MW of the now 630 MW facility), without imposing any mitigation requirement. In contrast, none of the Sumas 2 facility's emissions had been previously approved without mitigation. Nonetheless, to address EFSEC's concerns, Duke Energy proposes a mitigation plan that is relatively comparable to the plan approved for the Sumas 2 Project.

EFSEC approved the Satsop Combustion Turbine Project Greenhouse Mitigation Plan in June 2003. In April 2005 EFSEC approved the transfer of the Satsop Site Certification Agreement from Duke Energy to Grays Harbor Energy LLC a subsidiary of Invenenergy Development Company LLC. With the transfer of the Satsop Site Certification Agreement, Grays Harbor Energy LLC accepted the responsibility of implementing this plan.

MITIGATION PLAN

The Certificate Holder proposes that the mitigation obligation be based upon the maximum potential CO₂ emissions that exceed a rate of 0.675 pounds of CO₂ per kilowatt hour (lb/kWh) over 30 years of the facility's operation. The mitigation requirement would be satisfied on an annual basis by providing a fixed amount of funding per ton of CO₂ emissions to be mitigated to an approved organization for use in implementing CO₂ mitigation projects. In addition, the Certificate Holder will provide a fixed amount of funding to cover the organization's expenses in administering the mitigation funding.

This Mitigation Plan is generally based upon the mitigation plan approved by the Council for the Sumas 2 Generation Facility, which in turn was based on the requirement in effect in Oregon on June 29, 2001, the date on which the application for the Sumas 2 project was submitted to EFSEC. However, this Plan differs from the Sumas 2 mitigation plan in three important respects: (1) funding will be provided on an annual basis, unlike the Sumas plan which funded the entire obligation over the first five years of operation; (2) the price per ton will increase over time according to the Producer Price Index, and (3) funding for administrative expenses will be provided.

A. Calculation of Emissions Subject to Mitigation Requirement

The Certificate Holder will mitigate potential CO₂ emissions from the facility that exceed the rate of 0.675 lb/kWh. The mitigation requirement will be based upon the facility's maximum potential emissions, rather than the actual emissions in any given year.

In order to determine the volume of emissions requiring mitigation, the Certificate Holder shall determine the facility's maximum potential annual CO₂ emissions and the corresponding maximum potential kilowatt-hours of electricity generated. The Certificate Holder shall then subtract from the maximum potential annual emissions the volume of emissions that would be associated with generating the same amount of electricity if the electricity were generated at a rate of 0.675 lb/kWh CO₂.

For example, if the facility's maximum capacity were 630 MW and its maximum potential annual CO₂ emissions were 2.2 million tons, the calculation would be made as follows:

Facility's Potential Annual CO ₂ Emissions	-	Annual Emissions if 630 MW Generated at Rate of 0.675 lbs CO ₂ per kilowatt hour	=	Emissions to Mitigate
2,200,000 tons	-	630,000 kw x 8760 hrs x 0.675 lb/kwh	=	Emissions to Mitigate

		----- 2000 lbs/ton		
2,200,000 tons	-	1,862,595 tons	=	337,405 tons

Thirty days prior to the commencement of facility operations, the Certificate Holder will submit to EFSEC the calculation of the emissions subject to mitigation on an annual basis.

B. Funding for Mitigation

The Certificate Holder will satisfy the mitigation requirement by providing a fixed amount of funding for each ton of emissions to be mitigated to an organization approved by EFSEC, as well as funding for administrative expenses as described below.

The amount of mitigation funding will be initially be fixed at \$0.57 per ton of CO₂ emissions to be mitigated. In May 2009, the first anniversary of the commencement of commercial operation of the facility, and on the anniversary of that date of each year thereafter, the amount of funding per ton will increase from \$0.57 in the same percentage as the Producer Price Index has increased during the same period. For example, if the facility began commercial operation on January 1, 2004, and if the Producer Price Index rose by 3% from January 1, 2004 to January 1, 2005, the amount of any funding due for 2005 would be based on a price of \$0.587 per ton, which is 103% of \$0.57.

To clarify, the Certificate Holder will use the 12-month rolling average from the appropriate March "PPI Detailed Report" produced by the U.S. Bureau of Labor Statistics. The PPI value used will be the "Finished Goods – Change in Finished goods

from 12 months ago (unadj.)". An example of this can be found in Table A in the March 2009 PPI Detailed report.

C. Funding for Administrative Expenses

In addition to the mitigation funding described above, the Certificate Holder will provide the organization selected to administer the greenhouse gas mitigation funding with funding equal to seven and one-half percent (7.5%) of each annual payment of mitigation funding for use toward the payment of the organization's administrative expenses.

D. Timing and Duration of Funding Requirement

The mitigation requirement will be payable by the Certificate Holder on an annual basis with the first payment occurring in May 2008 and the last payment in May 2037. Each year, the Certificate Holder shall submit to EFSEC documentation to demonstrate that the mitigation and administrative funding required under this mitigation plan has been provided to the organization approved to administer the funds.

E. Approval of Organization to Administer Funds

The Certificate Holder shall select a qualified organization from the list of third party Independent Qualified Organizations maintained by EFSEC to administer the funds provided for greenhouse gas mitigation. If the Certificate Holder chooses to change the organization administering the mitigation funding the Certificate Holder shall notify EFSEC during the first quarter of the year. At any time while the mitigation requirement is in effect, the Certificate Holder may propose to designate a new organization to administer mitigation funds in future years from the third party Independent Qualified Organizations maintained by EFSEC.

PREEMPTION AND SUNSET

If a new state or federal law imposes requirements on the Certificate Holder to limit, mitigate or offset greenhouse gas emissions, EFSEC will support the Certificate Holder in obtaining credit under any such new laws, regardless of preemption, for early action for offsets already funded under this Mitigation Plan.

If any new state or federal law pre-empts this Mitigation Plan, to the extent that any carbon offset or funding obligation hereunder has not been met at the time of such change in law, the Certificate Holder may meet any such obligation through compliance with the new program, and further obligations under this Mitigation Plan will terminate.



Carbon Offset Acquisition Progress Report Satsop Combustion Turbine Project

July 1, 2016
Prepared for Invenergy
By The Climate Trust

Overview

The Washington Energy Facility Siting Council approved The Climate Trust in April 2008 as the implementing organization for Satsop Combustion Turbine Project's (Satsop) Greenhouse Gas Mitigation Plan (See [Chapter 80.70 RCW](#)). Invenergy established this plan to meet the Satsop site certificate requirements of the Washington Carbon Dioxide Mitigation Program. Since 2008, Invenergy has provided annual funding to The Climate Trust, a qualified nonprofit organization, to administer the monetary path option under the Washington Carbon Dioxide Standard.

This report provides information on how The Climate Trust has obligated the mitigation funds received under this plan, and updates on the performance of the carbon offset projects contracted on behalf of Invenergy's Satsop facility.

The Climate Trust has received offset project funding of \$1,907,563.17 from Invenergy as of March 31, 2016. Table 1 lists total funds received from Invenergy broken out by structure for each year. Project management funds enable The Climate Trust to provide support and data tracking for the duration of our project contracts. The administration fee is used for selection and contracting to enable The Climate Trust to identify, evaluate and execute contracts with quality projects on behalf of Invenergy.

Table 1. Carbon Offset Project Funding Received

Year	Project Funding (80%)	Project Management (20%)	Carbon Offset Funding (100%)	Administration (7.5% fee)	Total Payment
2008	\$234,430.74	\$58,607.69	\$293,038.43	\$21,977.88	\$315,016.31
2009	\$226,225.66	\$56,556.42	\$282,782.08	\$21,208.66	\$303,990.74
2010	\$248,496.83	\$62,124.21	\$310,621.04	\$23,296.58	\$333,917.61
2011	\$248,027.72	\$62,006.93	\$310,034.65	\$23,252.60	\$333,287.25
2012	\$242,401.39	\$60,600.35	\$303,001.74	\$22,725.13	\$325,726.86
2013	\$237,243.91	\$59,310.98	\$296,554.89	\$22,241.62	\$318,796.51
2014	\$238,181.63	\$59,545.41	\$297,727.04	\$22,329.53	\$320,056.57
2015	\$232,555.29	\$58,138.82	\$290,694.12	\$21,802.06	\$312,496.19
Total	\$1,907,563.17	\$476,890.81	\$2,384,453.98	\$178,834.06	\$2,563,288.03

Satsop Carbon Mitigation Project Portfolio

Since 2008, The Climate Trust has obligated funding from the Satsop Facility to the following projects:

- Farm Power Rexville Dairy Digester in Washington
- Revolution Energy Solutions (RES) Lochmead Dairy Digester in Oregon
- Cedar Grove Composting in Washington
- Environmental Credit Corp. Composting Portfolio in Delaware
- Camco Afognak Island Forestry in Alaska

Obligated funding is the amount The Climate Trust is contracted to purchase from carbon offset projects should the offsets be verified and delivered. The obligated funds fluctuate over time as a project’s performance changes and costs are incurred.

Table 2 on the next page lists the obligated funding and carbon offsets for each project through March 31, 2016. Figure 1 on the next page shows the obligation of project funding to projects by percentage. In the past year, The Climate Trust obligated \$112,626.33 for the purchase of offsets from the Afognak Island Forestry project. This amount was allocated to pay Camco, the seller of the Afognak offsets, and related registry fees associated with receiving and retiring the offsets through the Markit Environmental Registry, which is the electronic trading platform for this Verified Carbon Standard certified project.

Table 2. Satsop Project Portfolio Obligations and Offsets

Project	Obligated Funds	Anticipated Offsets (Metric Tons)	Retired Offsets (Metric Tons)
Farm Power Rexville Dairy Digester	\$529,998.00	50,476	50,476
RES Lochmead Dairy Digester	\$95,200.00	11,200	2,991
Cedar Grove Composting	\$132,475.50	17,996	17,996
Environmental Credit Corp. Composting	\$437,245.50	74,813	74,813
Camco Afognak Forestry	\$237,305.00	91,655	91,655
Cost of Goods Sold*	\$9,861.33	N/A	N/A
Total as of March 31, 2016	\$1,442,085.33	246,140	237,931

*Historically, The Climate Trust applied cost of goods sold charges to project management funds. These costs include electronic registry fees, verification costs, and project submission fees. All are essential to the purchase and retirement of verified carbon offsets. Upon internal review with our accounting department and auditor, The Climate Trust decided to start applying cost of goods sold against the project funding portion (the 80%) of funds received from a facility. The cost of goods sold data was gathered in 2014 and then applied to the obligations ledger of The Climate Trust’s internal registry as a “project” in early 2015. The costs for 2015 and 2016 were added as they were incurred. As of March 31, 2016, Invenergy funding paid \$9,861.33 in verification and external registry fees since January 1, 2014.

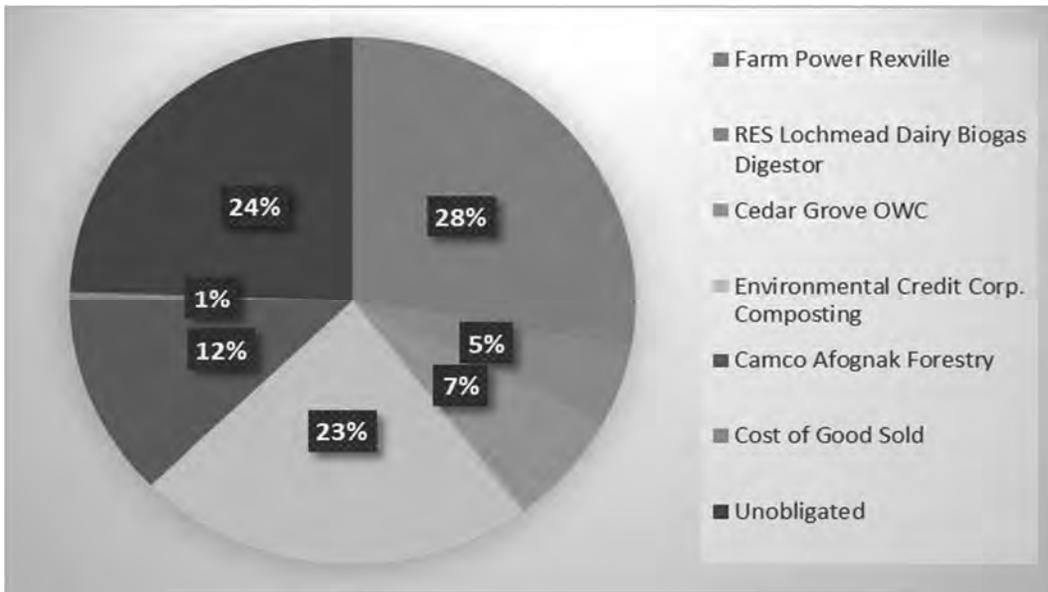
Table 3 on the next page shows the vintage of carbon offsets retired on behalf of Invenergy for each project. Under the Washington CO2 Standard the earliest vintage of offsets that are allowed is 2004.

Invest with purpose.

Table 3. Retirement of Project Offsets by Vintage

Project	2008	2009	2010	2011	2012	2013	2014	Total
Farm Power Rexville		883	6,184	9,321	11,069	10,586	12,433	50,476
RES Lochmead				810		900	1,281	2,991
Cedar Grove					17,996			17,996
ECC Composting	4,085		5,580		27,422	37,726		74,813
Camco Afognak				22,400	35,000	34,255		91,655

Figure 1. Project Funding Obligated to Projects by Percentage



Project Portfolio

The offset projects supported with Invenergy’s funding utilize diverse approaches to achieve real, measurable, and verified emissions reductions. Project details may be found at [The Climate Trust’s interactive portfolio map](#).

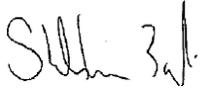
Conclusion and Looking Ahead

On April 26, 2016, The Climate Trust received Invenergy’s annual funding payment for continued investments in Satsop’s greenhouse gas mitigation portfolio. The Climate Trust shall obligate the funds to additional projects.

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The above annual report provides a snapshot of The Climate Trust's use of monetary pathway funds from Invenenergy's Satsop Combustion Turbine Project. The Climate Trust is available to answer any questions about Invenenergy's monetary pathway funds and the projects we're supporting through these funds. Thank you for your support of The Climate Trust.

Sincerely,

A handwritten signature in black ink, appearing to read "Sheldon Zakreski".

Sheldon Zakreski
Director of Carbon Compliance
The Climate Trust

Invest with purpose.

Invenergy LLC's Comments to the Washington Department of Ecology Regarding the Washington Clean Air Rule, Chapter 173-422 WAC

Invenergy LLC ("Invenergy") and Grays Harbor Energy Center ("Grays Harbor") appreciate the opportunity to provide comments to the Washington State Department of Ecology ("Ecology") regarding the proposed Washington Clean Air Rule ("CAR"), Chapter 173-422 WAC, which is intended to establish emission standards for greenhouse gas ("GHG") emissions from certain stationary sources located in Washington State, petroleum product producers or importers, and natural gas distributors in Washington State and which was re-issued on June 1, 2016. As North America's largest independent wind generation company, Invenergy supports responsible and well-structured carbon markets and believes in the need to transition to a cleaner energy future. In fact, this is a critical part of our Company's mission.

The Washington CAR as currently drafted, however, is not an efficient or effective way for the State to meet its GHG reduction goals. Instead, the CAR will create an illiquid, ineffectual carbon market, will result in unnecessarily high compliance costs, will drive up carbon emissions in surrounding states, and will be the impetus for the premature shut down of one of the most efficient natural gas combined cycle ("NGCC") plants in the state of Washington.

The proposed CAR not only embodies flawed policy choices, but also rests on shaky legal ground. Ecology has never before adopted a GHG regulation with neither specific statutory authority from the Washington Legislature nor reliance on the federal Clean Air Act. The attempt to do so with the CAR exceeds any reasonable reading of Ecology's authority.

In addition, the CAR as applied to Grays Harbor violates the U.S. Constitution. As explained below, the CAR's increasing stringency will unreasonably interfere with Invenergy's investment-backed expectations in developing the facility, and could even deprive Invenergy of all reasonable economic use of the Grays Harbor facility—prohibited by the Takings Clause of the Fifth Amendment. Because the CAR as proposed will interfere with operation of Grays Harbor and other efficient natural gas plants in Washington, it also runs the risk of violating the Supremacy Clause with respect to the national coal-to-gas shift envisioned by the Clean Power Plan ("CPP"), as well as potentially leading to violations of the reliability standards of the North American Electric Reliability Corporation ("NERC"), especially in the face of dramatically increased renewable energy penetration under the CPP.

Finally, the CAR uniquely penalizes Invenergy because Grays Harbor is the only 100% independent power producer ("IPP")-owned power plant subject to the CAR. The severe disadvantages imposed on efficient in-state power production in general, and Invenergy in particular as an IPP, bear no relationship to the aims of the CAR and of the state and federal Clean Air Acts. Those elements of the CAR are therefore arbitrary and capricious, in violation of the Washington Administrative Procedure Act.

Fortunately, Ecology can remedy all these flaws. Assuming the CPP withstands judicial challenge, Ecology need only provide that the regulation of power plants will occur under the state implementation plan ("SIP") submitted by Ecology under the CPP. This will subject Washington's most efficient plants to a unified regulatory framework crafted by Ecology pursuant to the national sideboards established by the CPP.

If Ecology decides to include power plants within the CAR, rather than addressing them in the context of the CPP, Invenergy respectfully requests that Grays Harbor Energy Center be exempted because of its unique circumstances.

In the event Ecology ignores Invenergy's legal arguments and request for exemption, which it should not, Invenergy also offers Ecology a number of recommended improvements to the CAR that are necessary in order for NGCC units like Grays Harbor to have a chance of remaining in operation in Washington. In particular, Invenergy urges Ecology to revise its baseline-setting methodology and to give early action credit to parties who are already investing in the clean energy economy.

I. Background

The Grays Harbor Energy Center is located in Elma, Washington and is able to produce 620 megawatts ("MW") of power. The project is owned by Invenergy, an independent power producer ("IPP") that develops, owns, and operates power generation and energy storage facilities in North America and Europe.¹ As an IPP, Invenergy, and Grays Harbor by extension, does not operate under the regulated and vertically integrated utility business model, meaning that there are no captive ratepayers in place to recover costs. Instead, both entities rely on the market and contractual agreements to do business in Washington, incorporating the cost of items such as O&M and regulatory compliance into all-in prices for energy. Grays Harbor is the only 100% IPP owned generation in the state of Washington covered by the proposed CAR.² The project employs some of the most efficient technology available to ensure that its GHG emissions are as low as possible. As proof, Chart 1 and the following table shows Grays Harbor to be the most carbon efficient plant of its kind in Washington State, emitting only 817 lbs of CO₂ per MWh.³

¹ To date, Invenergy has developed 7,654 MW of wind, consisting of over 5,576 MW of projects in operation and more than 2,078 MW in construction and in advanced development. To date, Invenergy has also developed over 144 MW of solar projects. The Company's thermal portfolio includes over 5,833 MW of natural gas capacity. Operating projects total 3,159 MW, with an additional 2,674 MW in construction and advanced development. The Company has developed more than 88 MW of energy storage projects to date and has over 68 MW of operating energy storage projects.

² 50.15% of Frederickson Power is indirectly owned by Atlantic Power Limited and the power sold through PPAs to three different Washington State Public Utility Districts ("PUDs"). The remainder of the ownership interest in Frederickson, approximately 49.85%, is held by Puget Sound Energy, Inc. ("PSE"). The portion of Frederickson's output allocable to PSE under its ownership interest is used by PSE to meet the needs of a portion of its electrical customers.

³ According to 2014 data from U.S. EPA.

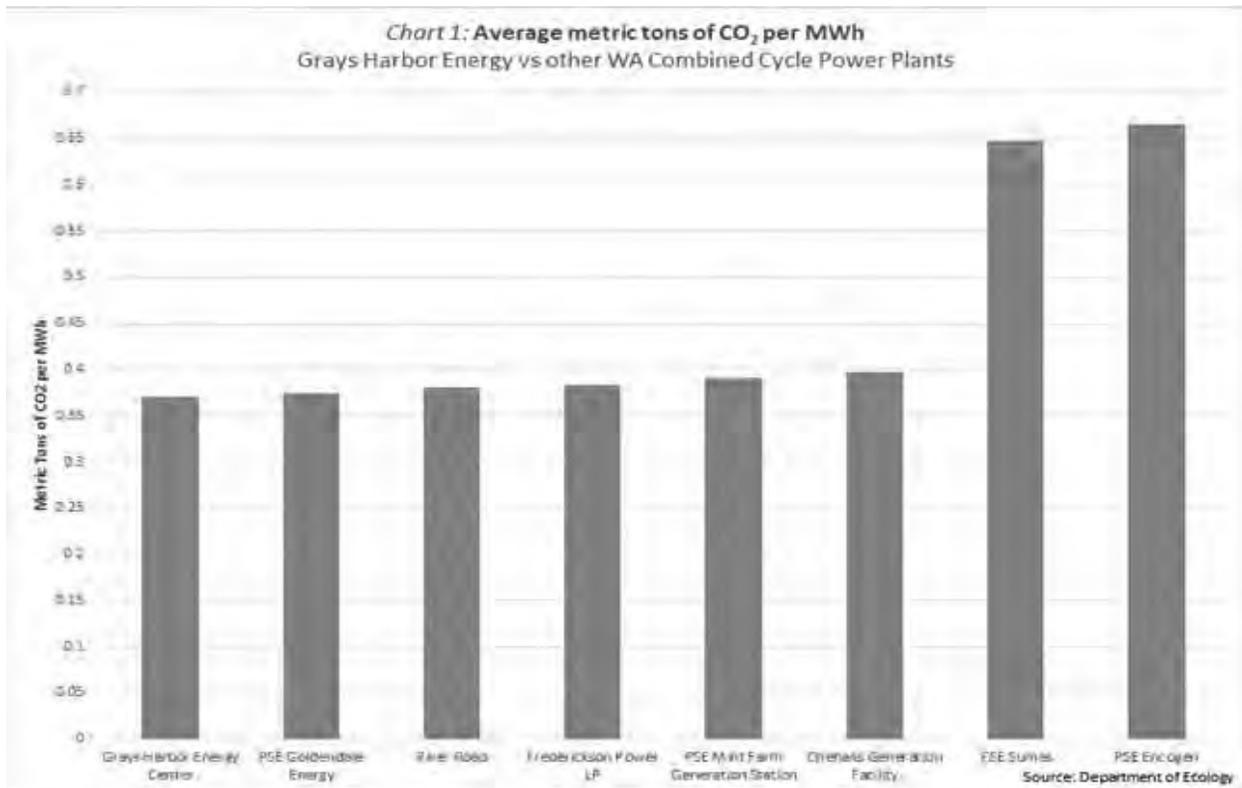


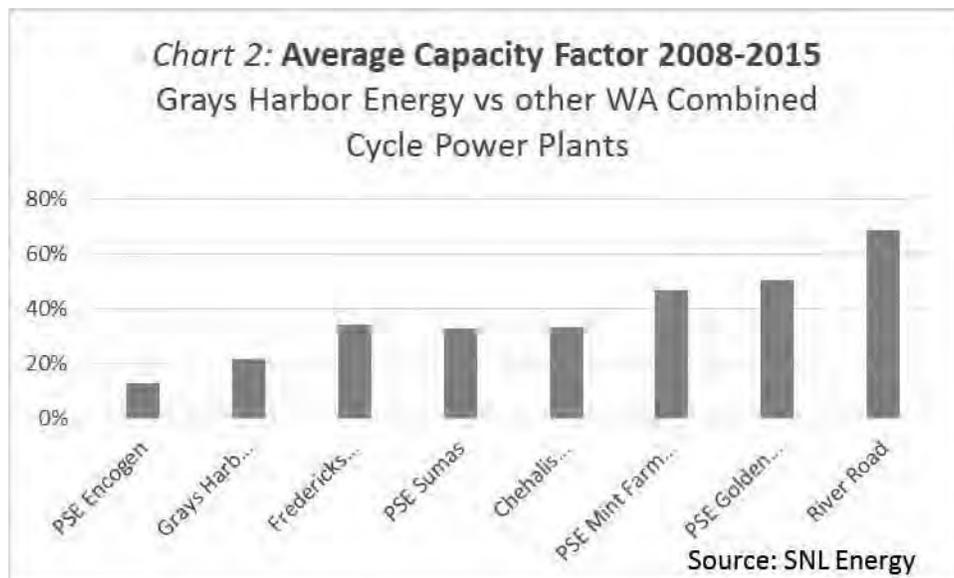
Table 1: Washington State Generation Units & Average Metric Tons of CO₂ per MWh
Grays Harbor Energy vs other WA CAR Covered Sources

Facility Name	City/State	Plant Type	2014 Generation (MWh)	2014 Metric Tons CO ₂	2014 CO ₂ lb/MWh
Centralia	Centralia	Coal	7,142,588	7,387,802	2,280
PSE Encogen	Bellingham	Combinec Cycle CT	158,729	105,542	1,466
PSE Ferndale Generating Station	Ferndale	Combinec Cycle CT	510,861	332,852	1,436
PSE Sumas	Sumas	Combinec Cycle CT	322,767	208,987	1,427
March Point Cogen	Anacortes	Combinec Cycle CT	1,003,103	631,298	1,387
Chehalis Generation Facility	Chehalis	Combinec Cycle CT	2,670,622	1,060,820	876
PSE Mint Farm Generation Station	Longview	Combinec Cycle CT	1,298,504	508,119	863
Frederickson Power LP	Tacoma	Combinec Cycle CT	708,343	271,361	845
River Road	Vancouver	Combinec Cycle CT	1,451,728	553,351	840
PSE Goldendale Energy	Goldendale	Combinec Cycle CT	1,035,540	386,914	824
Grays Harbor Energy Center	Elma	Combinec Cycle CT	1,752,369	649,526	817

Data Source: Department of Ecology

Though Grays Harbor is perhaps the most carbon-efficient plant in the state, Chart 2 shows that for many years, it has also been one of the least-operated plants. Washington could actually decrease its carbon emissions by reducing output from other plants and running Grays Harbor more—reducing to CO₂ associated with the shifted generation by perhaps 40%. Better yet, if unused capacity at Grays Harbor replaces coal generation, the net emissions from that power will be reduced by potentially almost two thirds (based on 2014 data from Grays Harbor and Centralia as an example). Unfortunately,

the CAR as proposed would foreclose those possibilities. Grays Harbor’s baseline would be very low because of its efficiency and its historic underutilization. Using that baseline, the CAR would treat Grays Harbor as an isolated GHG source that must reduce absolute emissions, with no regard for efficiency and no mechanism to assure that foregone generation from Grays Harbor is not replaced by much dirtier generation outside Washington. Instead, Ecology should follow the example of the CPP and treat underutilized, efficient gas plants as resources to reduce overall power system emissions, even if the individual plants emit more.



The CAR also fails to take account of contractual realities governing Grays Harbor operations. Currently Grays Harbor has a power purchase tolling agreement⁴ (“PPTA”) in place with Shell Energy North America (“Shell”). Under the PPTA, Shell is responsible for the delivery of natural gas to Grays Harbor and schedules and sells the power to the most attractive market or bidder. Power sales from the facility may be made to offtakers within and outside the state of Washington. Under the PPTA, Invenergy has no control over when and how often the plant runs.

Since taking over ownership of the plant, Invenergy has been actively engaged with The Climate Trust to offset the impact of the plant’s emissions and will continue to invest in carbon offsets for the life of the Grays Harbor project. Invenergy’s contributions to the clean energy community through these investments will be discussed in more detail below.

In 2015, Grays Harbor contributed approximately \$10.1 million dollars to the Washington economy through employee salaries, property taxes, leases, state paid expenses and the state natural gas use tax. Grays Harbor employs 22 full time employees with an average salary around \$100,000 per employee.

⁴ Power Purchase Tolling Agreements are contracts to purchase power wherein the offtaker pays the seller a periodic payment for capacity for the length of the contract. The offtaker is responsible for both the procurement and delivery of the fuel (e.g., natural gas) to the seller’s power plant generating units, and the scheduling of the generating units under contract.

II. The CAR's Proposed Treatment of Grays Harbor Suffers Legal Defects that Ecology Could Cure By Instead Implementing the Clean Power Plan

Washington's courts are empowered to invalidate agency rules for lack of statutory authority, constitutional violations, or for being arbitrary and capricious.⁵ As proposed, the CAR potentially meets all three of these standards.

a. The CAR as Proposed Exceeds Ecology's Statutory Authority under the Washington Clean Air Act

Ecology has never before adopted a GHG regulation with neither specific statutory authority from the Washington Legislature nor reliance on an EPA-approved plan under the federal Clean Air Act. The attempt to do so with the CAR exceeds any reasonable reading of Ecology's authority. This overreach is particularly severe because of the CAR's unprecedented attempt to require GHG emitters to finance emission reductions elsewhere, likely in entirely unrelated industries and regions of the United States.

In proposing the CAR, Ecology relies on its authority under RCW 70.94.331.⁶ However, even within that section, the Legislature not only authorized Ecology to regulate air quality, but "directed" the department to "cooperate with the appropriate agencies of the United States or other states . . . with respect to the control of air pollution and contamination . . ."⁷ The CAR's burden on facilities like Grays Harbor so interferes with federal and interstate GHG reduction goals as to cast serious doubt on the validity of the rule. The failure is most pronounced with regard to EPA and the CPP. EPA calculated national goals on the assumption that generation could be shifted from coal to NGCC plants across state lines. Because the CAR provides the opposite incentive, it fails utterly to cooperate with the federal effort. The CAR similarly fails to cooperate with other states. By constraining NGCC generation in Washington, the CAR will hamper the efforts of other states to reduce their GHG emissions. For example, in order to comply with the CPP, coal-dependent states in the west may find themselves building new NGCC plants to reduce emissions while comparably efficient plants in Washington sit idle. This would be the antithesis of cooperation with the federal government and other states, violating Ecology's statutory obligation to do so.

b. The CAR Suffers from Federal Constitutional Defects

In addition, the CAR as applied to Grays Harbor would violate the U.S. Constitution.

First, the Takings Clause of the Fifth Amendment prohibits the taking of private property for public use without just compensation. A government regulation may be so onerous as to effect such a taking by imposing costs on individuals that should fairly be borne by the public.⁸ In such cases, the courts consider factors such as "[t]he economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations," versus the

⁵ RCW 34.05.570(2)(c).

⁶ See Ecology, Proposed Rulemaking Form CR-102 at 2 (Jan. 5, 2016), *available at* <http://www.ecy.wa.gov/programs/air/rules/wac173442/1510docs.html>.

⁷ RCW 70.94.331(4).

⁸ Penn Central Transportation Co. v. City of New York, 438 U.S. 104, 123-24 (1978) (citing *Armstrong v. United States*, 364 U.S. 40, 49 (1960)).

character of the government action in question.⁹ Where a regulation deprives an owner of all economic use of property, a court need not even balance such factors—a “categorical” taking has occurred.¹⁰ In Invenergy’s case, Grays Harbor represents a massive investment of capital in an asset that would typically have a useful life of several decades. When the CAR takes effect, that investment will have been in commercial operation for less than 10 years. As currently proposed, the CAR will eviscerate the economics of Invenergy’s investment, and will therefore constitute a regulatory taking. If Grays Harbor is unable to operate economically because of the CAR, it could even be the subject of a categorical taking. This issue is likely unique to Grays Harbor, because Washington’s other gas plants are owned (at least largely) by utilities, which are allowed by law and regulation to recover just compensation from ratepayers for the cost of compliance.

Because the CAR as proposed will interfere with operation of Grays Harbor and other efficient natural gas plants in Washington, it also runs the risk of violating the Supremacy Clause with respect to the national coal-to-gas shift envisioned by the CPP. Under the doctrine of “conflict preemption,” the Supremacy Clause of the U.S. Constitution invalidates any state law that “stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress” in enacting a federal law.¹¹ This principle applies when the *effects* of the state law conflict with the federal law, notwithstanding the state law’s purpose.¹² In adopting the CPP, the EPA relied on fuel switching from coal plants to existing NGCC plants as one of just three building blocks to reduce the power sector’s carbon emissions nationwide. In determining the national and state goals for the CPP, EPA assumed that underutilized NGCC capacity would be redispatched across state lines to maximize displacement of fossil steam generation. The CAR will thus remove a major, underutilized NGCC resource that could be used to offset coal generation in other states. Even though the CAR and the CPP share a purpose of reducing GHG emissions, the CPP likely preempts the CAR as it applies to Grays Harbor, because the CAR’s effects interfere with the goals of the CPP.

The CAR also could potentially interfere with NERC reliability standards, especially in the face of dramatically increased renewable energy penetration under the CPP. Section 215 of the Federal Power Act (FPA) expressly preempts state actions inconsistent with reliability standards for the bulk power system established by NERC.¹³ Invenergy has not analyzed the potential reliability impacts should Grays Harbor be removed from service, but there is no doubt that such facilities provide increasing value to the grid in the form of efficient, stable, responsive generation. Among other things, such plants provide ancillary services critical to “firming up” the clean but intermittent power provided by renewables, like wind and solar. Renewables have dramatically increased their penetration in the western power supply in recent years, and the trend is only accelerating, spurred by recent federal tax incentives and the impending CPP. In this environment, the loss of major providers of ancillary services, such as Grays Harbor, could jeopardize grid reliability. If the CAR would cause such impacts, it would be expressly preempted by FPA Section 215.

⁹ *Id.* at 124 (citations omitted).

¹⁰ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1015-16 (1992) (citations omitted).

¹¹ *Gade v. National Solid Wastes Management Association*, 505 U.S. 88, 98 (1992) (quoting *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941)).

¹² *Id.* at 160-07.

¹³ 16 U.S.C. § 824o(i)(1), (3).

c. The CAR's Unfair, Counterproductive Treatment of Grays Harbor Is Arbitrary and Capricious

The CAR uniquely penalizes Invenergy because Grays Harbor is the only 100% IPP-owned power plant subject to the CAR. The severe disadvantages imposed on efficient in-state power production in general, and Invenergy in particular as an IPP, bear no relationship to the aims of the CAR and of the state and federal Clean Air Acts. A rule is arbitrary and capricious “if it is willful and unreasoning and taken without regard to the attending facts or circumstances.”¹⁴

The tables above, taken from Ecology's own data, amply demonstrate that Grays Harbor is among the most efficient natural gas power plants in the state. Yet Ecology ignores this fact, imposing the same across-the-board percentage reductions on Grays Harbor as it does on the state's least efficient natural gas power plants. Ecology's failure to draw such a common sense distinction is likely to be found arbitrary and capricious, in violation of the Washington Administrative Procedure Act.

To make matters far worse, the CAR does nothing to stem GHG emissions resulting from power imported into the state. The result is to hamper production from highly-efficient gas plants like Grays Harbor while expressly allowing power purchasers to replace that power with electricity generated through coal combustion in other states. This glaring loophole allows electricity purchasers and utilities in Washington to comply with the CAR while actually increasing the total amount of GHGs emitted in the region. This perverse outcome—directly contrary to the goal of the CAR —greatly strengthens the argument that the CAR is arbitrary and capricious in its proposed treatment of Grays Harbor.

d. Ecology Has Clear Statutory Authority to Implement the Clean Power Plan

Although the CAR ventures outside the boundaries of Ecology's freestanding authority under the state Clean Air Act, the Legislature has provided Ecology with clear supplemental authority when an Ecology rule implements the federal Clean Air Act. Specifically, RCW 70.94.785 authorizes Ecology to approve and enforce “all regulatory provisions” of “any plan . . . required or permitted under the federal clean air act.”¹⁵ The CPP requires each state to submit a state plan detailing how the state will meet its goal. If a state does not submit a plan, the EPA will impose a federal plan directly regulating power plants in the state. Thus, RCW 70.94.785 gives Ecology special authority to comply with and enforce the CPP, beyond what it could do under state law alone. Allowing Grays Harbor to participate in interstate markets under the CPP would also greatly reduce the chance of an unconstitutional taking, and would eliminate concerns of federal preemption and arbitrarily disparate treatment of power generated in and out of state.

III. Washington Should Not Implement a Rule Separate from the CPP or Should Exempt IPPs from the Rule Until the CPP Takes Effect

Invenergy supports common sense, reasonable carbon regulation and believes in the need to transition to a cleaner energy future but this must be done thoughtfully, holistically, and with the understanding that GHG pollution is a global issue impacting the nation and the planet as a whole, rather than a local and regional problem impacting only individual states. This calls for a cap and trade program that is

¹⁴ Hillis v. State, Department of Ecology, 131 Wn.2d 373, 383 (1997) (citations omitted).

¹⁵ Ecology has further license under RCW 70.94.510(2) to implement the policy of coordination with the federal Clean Air Act announced in RCW 70.94.510, and under RCW 70.94.331(4) to cooperate with federal and other state agencies in controlling air pollution.

broader than the state of Washington and applies to electricity imports as well as in-state generation, which operates in partnership with other existing markets using a common compliance instrument, and which follows the guidance set forth by the U.S. EPA in the CPP. Any regulation adopted by Ecology must recognize these guiding principles.

a. Washington Should Not Implement a Rule Separate from the Clean Power Plan

Instead of implementing the CAR, Washington should design a rule that can serve as the state plan for purposes of complying with the CPP. Invenergy has been supportive of the CPP from the beginning, advocating for the rule at the D.C. Circuit Court along with our trade industry partners Advanced Energy Economy (“AEE”) and the American Wind Energy Association (“AWEA”). Because the CPP is intended to encourage emission trading among states coast-to-coast, rather than a balkanized state-by-state approach, it is the most efficient way to transition the nation to a lower carbon footprint at the lowest cost. The CPP also recognizes the interconnected nature of the electric grid where power is generated in one location and consumed in another, often across state lines. A large and robust trading program that covers multiple states or the entire nation will be needed to maintain a low carbon, reliable electric system and to create a smooth transition with little impact on ratepayers as coal generation retires.

b. Ecology Should Exempt Grays Harbor from the CAR

If the State is unwilling to simply and effectively regulate all Washington power plants under the CPP, Ecology should at least do so as to the Grays Harbor Energy Center due to its unique circumstances. It is the *only* 100% IPP owned plant in Washington. IPPs are unfairly impacted by the CAR because they do not have captive ratepayers in place to recover the cost of compliance. The practical result of applying the CAR in its current form to Grays Harbor is that one of the most efficient NGCC plants in the State of Washington¹⁶ may be forced to prematurely shut down. Allowing high emitting resources to stay on line and forcing a low emitting resource off line cannot be the intended purpose of the CAR, and is a shortsighted way to address carbon regulation. NGCC units serve a vital purpose in firming up renewables both in Washington and in other areas of the Pacific Northwest and NGCC units help maintain electric reliability in low water years.¹⁷ Grays Harbor will be sorely needed in the region to help both Washington and surrounding states to meet their energy requirements when large coal generation facilities retire in the coming years.¹⁸ The alternative is for a utility to build new gas generation outside Washington to meet demand, at a considerable expense to ratepayers.

Ecology has already made special carve outs exempting certain GHG emitters from the CAR in WAC 173-422-040. More specifically, the CAR does not apply to TransAlta Centralia Generation (“Centralia”). In 2014, Centralia generated 8,143,658 short tons of CO₂¹⁹ and the plant is not slated to retire its first unit until 2021—four years into the CAR compliance period—and will not be completely shut down until the

¹⁶ Based on 2014 numbers provided in Table 1, page 3 of this filing.

¹⁷ IPPs also play an important role by offering power at competitive prices that may be much lower than what a vertically integrated utility can offer.

¹⁸ Portland General Electric’s Boardman coal plant in Oregon will retire at the end of 2020. For TransAlta’s Centralia coal plant in Washington, unit 1 is slated to retire by the end of 2020 and unit 2 by the end of 2025. For PSE, Talen Energy, Portland General Electric, Avista Corporation, PacifiCorp, and NorthWestern Energy LLC’s Colstrip plant in Montana, units 1 and 2 will retire no later than July of 2022.

¹⁹ State of Washington Department of Ecology Report - Washington Mandatory Greenhouse Gas Reporting Program – Reported Emissions for 2012 – 2014, January, 2016.

end of 2025. Ecology must also excuse Grays Harbor from compliance or risk losing this valuable, low carbon resource from its generation portfolio. It is worth noting that in 2015 Grays Harbor contributed approximately \$10.1 million dollars to the Washington economy through employee salaries, property taxes, leases, state paid expenses and the state natural gas use tax. Grays Harbor employs 22 full time employees with an average salary of \$103,009 per employee. This revenue and these jobs could be lost if Grays Harbor is not granted the exemption it seeks.

IV. Ecology Should Set a Baseline That Recognizes Industry Trends and Early Action

Invenergy's position is that (1) Washington should not implement a clean air rule separate from the CPP and (2) that if CAR is implemented Grays Harbor should be exempt. In the event Ecology does not grant Invenergy's request, there are a number of changes that should be made to the CAR to achieve the desired reductions at the lowest cost to covered units and ultimately to ratepayers.

As has been noted in the CAR planning documents, Grays Harbor will be covered by the rule beginning in 2017. Historically Grays Harbor has not always run as often as it has recently. In high water years hydropower facilities provide the majority of power to the region and NGCC units provide a reliable source to supplement that supply when needed. As a result, the CO₂ emissions from Grays Harbor in past high water years is significantly less than it is today. In 2012, a high water year, Grays Harbor emitted only 60,243.5 metric tons of CO₂, far below the 100,000 metric ton standard that triggers coverage under the CAR. Conversely in 2013 and 2014, low water years, the plant was needed for reliability reasons and ran more often, emitting 578,508 metric tons of CO₂ and 649,533 metric tons of CO₂, respectively.

Under the currently proposed CAR, Ecology will set a baseline of emissions for every covered party based on 5 years of data from 2012 to 2016. This is problematic for all gas-fired generation because it fails to take into account the monumental shift in the nation's generation portfolio from coal-fired to gas-fired generation. This shift is due to the low cost of natural gas, the need for additional firming capacity to support the enormous growth of renewables, and the fact that gas-fired GHG emissions per megawatt-hour are roughly half that of coal. As coal generation comes off the system, the increased use of gas-fired generation is therefore a very positive development, both in terms of the economy and the environment. That is why CPP building block 2 explicitly supports this shift.

The CAR, however, would push in the opposite direction. By focusing solely on the fact that GHG emissions inevitably increase at gas-fired facilities as they are utilized more often, Ecology is penalizing NGCC units like Grays Harbor for stepping into the breach. Thus a perverse message is sent to owners of gas-fired generating facilities: the more you help transition us away from coal and support renewables, the more we will penalize you. Most egregious, the rule will unfairly penalize the most efficient units in the state and reward entities who have dragged their feet on technology and other clean energy investments.

Under the proposed CAR, Ecology will assign a GHG emission reduction pathway to all covered parties with a baseline above 70,000 MT CO₂e. The reduction pathway decreases annually by an additional one and seven tenths of a percent (1.7%) of the covered party's baseline GHG emissions value. For Energy Intensive and Trade Exposed ("EITE") covered parties the CAR applies a totally different, efficiency-based baseline, crediting those who have already taken steps to reduce their emissions and who emit less carbon than typical facilities in their industries. More specifically, the CAR applies an individual

approach, comparing the efficiency level of the EITE with its national peers. The more efficient a business already is, the fewer carbon reductions it would have to make, properly recognizing the efforts some companies have already made to be more efficient and reduce their emissions. EITEs are also allowed to increase emissions when they increase production, as long as they meet their efficiency targets.

It is counterintuitive that Ecology would provide special allowances to efficient EITE entities but not to efficient stationary sources. Grays Harbor is already one of the most efficient power plants and NGCC units in Washington. The State needs policies that reward clean and efficient facilities, not punish them, which is what the CAR does in the case of Grays Harbor. Instead, the more efficient a stationary source is, the fewer carbon reductions it should be required to make. It is inequitable to require units who have made significant investments in environmental control technology to reduce their emissions by the same amount as units who have made zero investment in environmental control technology. This methodology will penalize early actors like Grays Harbor.

Instead of using the last five years of emissions data to calculate each unit's individual baseline, Ecology should give each covered source, by generating type, the same baseline. Ecology should first determine what technology is best in class for each generating type. For each type, Ecology should then calculate, based on this best in class technology and industry trends, three uniform baselines²⁰ that are applied across the board to stationary sources. Applying a universal baseline by generation type will allow Ecology to reduce GHG emissions in the state of Washington in the fairest and most equitable manner—by holding every covered source to the same standard. Appropriately, the least efficient units would be required to make the most significant changes and investments in the clean energy community, or run less frequently, and the most efficient units, like Grays Harbor Energy Center, would be rewarded for the investments they have made to date.

If Ecology is unwilling to alter the way the baseline is calculated, which Invenergy strongly argues against, Ecology should retain Section WAC 173-442-050 of the CAR as proposed, which creates a reasonable measure to account for aberrations in emissions data:

(3) Process to calculate a Category 1 baseline GHG emissions value

(b) Ecology may omit a specific calendar year from calculating the baseline GHG emissions value when the data meets at least one of the following criteria: (i) The data represents a significant difference from the average data based on all of the following:

(A) Primarily caused by a change in the GHG emissions calculation methodology approved under chapter 173-441 WAC during the baseline period that is not correctable by adjusting the existing reported GHG data;

(B) The GHG emissions calculation methodology produced a fifteen percent or more difference between that calendar year's GHG emissions and the 2012 through 2016 average of GHG emissions using the methodology in (a) of this subsection; and

²⁰ Separate baselines would be set for coal-fired generation, NGCC generation and natural gas simple cycle generation in line with currently available technology for those generation types.

- (C) The change is not the result of a process or production change regardless of how large, unusual, or outside of the control of the covered party; or
- (ii) The calendar year contains a period of curtailment.

This provision is critical to setting a proper baseline if Ecology's proposed methodology is adopted.

Ecology should also revise the GHG reduction pathway to recognize the low carbon energy that Grays Harbor provides to the region. If the methodology suggested above is not adopted, in the alternative the baseline from which the 1.7% reduction is made annually should be measured using the unit's highest year to date, in line with future projections. Last, if Ecology is unwilling to revise the CAR baseline calculation methodology and reward Grays Harbor for its investments in the most efficient technology available, at the very least the year 2012 should be omitted from its baseline calculation. 2012 represents a significant aberration from 2013-2014 emissions and its inclusion in the baseline would be punitive. In 2012 Grays Harbor's CO₂ emissions were 60,243.5 metric tons. The average of its CO₂ emissions from 2013 to 2015 is 799,111 metric tons per year, approximately 1,326% higher than in 2012.

V. A Robust Trading Platform with Fungible Compliance Credits is Necessary to Reduce Compliance Costs

Independent of the baseline calculations, Invenenergy also has issues with several aspects of the CAR that relate to the structure of the ERU market it will create.

a. Ecology Should Issue Tradeable, Fungible Compliance Instruments

While the re-issued CAR gets one step closer than the original proposal to a more robust trading platform by creating a reserve and registry for Emission Reduction Units ("ERUs") and not limiting the external bodies from which covered parties can obtain ERUs, it does not facilitate the creation of fungible, tradeable allowances that covered entities could offer on a broader, national carbon trading platform. Without such allowances, the intended effect of the rule could take more time and more administrative cost to implement. There is no price transparency into the cost to generate, buy, or sell an ERU because they are valid only in Washington. This means that covered entities will be more likely to purchase allowances from markets outside of Washington because those transactions are potentially more efficient and likely less expensive than implementing actual emissions reductions at their facilities or investing in Washington projects. In addition, the CAR does not create a liquid market for trading ERUs because third parties are not permitted to hold or trade them. This limitation is unnecessary, and will severely limit the efficacy of the program. Invenenergy encourages Ecology to engage in discussions with California, the Regional Greenhouse Gas Initiative ("RGGI"), and Quebec to better understand how their programs are designed and how Washington's program can be integrated with those trading programs.

b. The Use of ERUs Instead of Allowances Will Result in Unintended Consequences

The CAR's failure to utilize fungible, tradeable allowances as the compliance instrument means (1) that funds used to purchase allowances in other markets will fund projects in other states, not Washington; and (2) that the cost of compliance eventually passed along to ratepayers will be higher than necessary

to achieve Washington's carbon reduction goals. A higher cost of compliance translates to a higher cost of energy for ratepayers such as vulnerable low-income customers, for whom even small increases in power bills can have major impacts, and commercial and industrial companies who already run on thin margins and cannot absorb the cost of more expensive power. This will hurt Washington residents and drive businesses out of the state. A higher cost of compliance will also likely result in the shutdown of efficient IPP generators like Grays Harbor who do not have ratepayers from whom to recover the costs of compliance. In addition, it will discourage future investment in Washington by other IPPs. Based on 2014 data, Grays Harbor's CO₂ rate is approximately 40% better when compared to older generation gas turbines. This means that if Grays Harbor is forced to curtail its output or to shut down, (see Chart 1 and Table 1, Page 3), that output would have to be replaced by units with CO₂ emission rates approximately 40% worse.²¹

c. Ecology Must Apply the CAR in a Fair and Equitable Manner

The CAR should be applied to both in state generating facilities as well as the importers of electricity. Currently the CAR does not apply to imported generation, only to owners and operators of (i) stationary sources located in Washington; (ii) petroleum product producers in Washington or importers to Washington; or (iii) natural gas distributors in Washington. WAC 173-442-020(1)(j). First, it is unequitable to apply the CAR to petroleum product importers but not to parties importing GHG emitting power into the state. Second, a failure to apply this regulation to importers will put in-state generation at a significant commercial disadvantage to generators outside of the state and make it difficult for those generators to sell their power inside or outside the state. For example, a utility or other offtaker in Washington who wanted to avoid compliance with the CAR could simply sign a PPA with a coal or gas unit across the border. Given that Grays Harbor is one of the most efficient NGCC units in Washington due to its very low heat rate, it is highly likely that the out-of-state generation serving Washington load would be more carbon intensive and would generate *more* GHG emissions than Grays Harbor. Given the global nature of GHG pollution, this is not a desirable result and will have the opposite impact than the CAR intends. Washington should instead adopt a rule modeled on California's Cap and Trade program, which applies to both in-state and out-of-state generators.²²

VI. Ecology Must Provide Covered Parties a Broad Array of Compliance Options

Compliance options under the CAR are limited for Grays Harbor and Invenergy by our position in Washington as the only 100% IPP-owned facility and by our PPTA with Shell. Invenergy cannot comply if the re-issued CAR is not amended to (1) create an initial baseline of streamlined, fungible, tradeable allowances that covered entities could offer on a broader, national carbon trading platform (discussed above); (2) allow covered parties to purchase credits from external carbon markets to meet 100% of their compliance obligation through the life of the CAR; (3) give non-EITE entities like Grays Harbor early action credit for the investments they have made in improving the environment and reducing GHG emissions to date; and (4) allow covered parties to purchase offsets or make investments in projects outside of Washington.

²¹ Including base load, startup/shutdowns and other transient operating modes.

²² 17 Cal. Code Regs. § 95811(b) (entities covered by cap-and-trade program includes all "First Deliverers of Electricity," defined to include both generating facilities and electricity importers).

Under the draft CAR, each covered party must keep their total GHG emissions at or under their assigned baseline, less the 1.7% annual reduction, or produce ERUs to cover any overages. ERUs must come from emission reductions occurring within Washington unless derived from allowances from external emission markets. The CAR provides covered parties with the following options to generate ERUs:

- If actual emissions are below the GHG emission reduction requirement for a compliance period, the party will receive ERUs for the difference between the reported emissions and the requirement;
- Purchase of credits from external emission markets, with limitations; and
- Through emission reduction projects or programs occurring within Washington State.

ERUs can be banked for up to 10 years and can be exchanged and sold to other covered parties but the CAR does not provide any early action credit for non-EITE parties like Grays Harbor.

a. Option 1 – Technological Improvements or Curtailment

In order to take advantage of the first option for generating ERUs, Invenenergy would have to either invest in technological efficiency improvements at Grays Harbor or simply run less often. Grays Harbor utilizes two GE 7FA.03 gas turbines. GE F-class turbine technology was introduced to the industry over 25 years ago. It is the world's most-deployed gas turbine with over 1,100 installed units, 50 million fired hours, and best in class reliability at 99.3%. Grays Harbor's gas turbines are equipped with GE's dry low nitrous oxide (DLN) system to improve heat rate efficiency. The plant is equipped with Selective Catalytic Reduction System ("SCR system") and carbon monoxide ("CO") catalysts which guarantee nitrous oxide ("NOx"), CO, and ammonia emission levels below air permit approved levels. Discussions with GE have confirmed that there is no existing technology in development which would allow Grays Harbor to reduce CO₂ emissions directly. While there is an option to make an investment in \$48 million worth of new equipment, this investment would result in a *one-time* improvement that is less than the 1.7% reduction Grays Harbor is required to make *annually*.

In addition, curtailment of the facility is not a real compliance option for Grays Harbor either, particularly through the end of its contract with Shell. Under the PPTA, Shell is responsible for the delivery of natural gas to Grays Harbor and schedules and sells the power to the most attractive market or bidder. This is a very common structure for a PPTA. Under the PPTA, Invenenergy does not have any control over when and how often the plant runs or where the energy is delivered.²³ Thus, there is no way for Invenenergy to curtail the operations of the unit under the current contract and Invenenergy will be left guessing how many ERUs to procure by other means to cover the estimated overages.

b. Option 2 – Purchase Compliance Credits from External Markets

The purchase of compliance credits from external carbon markets is the most viable way for Invenenergy to comply with the CAR and continue operations in Washington State, but under the re-issued rule Invenenergy will be limited in its ability to utilize that option. While Invenenergy appreciates that the re-issued rule would not limit the external bodies from which covered parties can obtain allowances to

²³ Long term PPAs or PPTAs are very important for financing or re-financing merchant generating units. IPPs who operate merchant plants that are not under long term PPAs or PPTAs do so at their own risk. Depending upon the energy markets in the surrounding area, financial institutions/lenders are not always comfortable financing projects that do not have long-term PPAs or PPTAs.

generate ERUs, currently only the Regional Greenhouse Gas Initiative, California’s cap-and-trade program, or Quebec’s cap-and-trade program are options. The larger problem is that under the re-issued rule, after the 2020-22 compliance period, a covered party’s use of allowances is cut in half and limited to 50% of its compliance obligation. This percentage is decreased each compliance period until it reaches 5% in 2035. Essentially, ramping down this compliance option will place a mounting burden Grays Harbor for no reason. As stated above, under its current contract with Shell, Invenenergy will be left guessing how many ERUs to procure to address an unforeseen amount of overages. The easiest and cheapest way for Invenenergy to cover those overages and comply with the CAR is to procure compliance credits from other carbon markets. If the current proposal is adopted and options are limited there will be very few ways to control costs and continue to run a financially viable operation at Grays Harbor. Invenenergy respectfully requests that Ecology revise the rule to allow covered parties to purchase credits from external carbon markets to meet 100% of their compliance obligation through the life of the CAR. This is the only way for an IPP like Invenenergy, without ratepayers, to even conceivably comply with the proposed regulation.

c. Option 3 – Invest in Emission Reduction Projects or Programs

The CAR also provides that covered parties can generate ERUs by investing in emission reduction projects or programs occurring within Washington State. The activities and programs generating ERUs need to result in real, specific, identifiable, quantifiable, permanent reductions that are verifiable and additional to existing law or rule with certain exceptions. Proposed WAC 173-442-160 lists transportation activities, combined heat and power activities, energy activities, livestock and agricultural activities, waste and wastewater activities, industrial sector activities, certain Washington Energy Facility Site Evaluation Council (“EFSEC”)-recognized emission reductions, and Ecology approved emission reductions. Reductions that occur under the following programs can also be used for compliance under the CAR:

- The CPP
- Washington’s GHG emission performance standard
- Washington’s CO₂ mitigation standard for fossil-fueled thermal electric generation facilities
- Commute trip reduction programs

Invenenergy applauds Ecology for allowing covered parties to comply with the CAR by counting reductions required under the above existing programs as well as certain EFSEC-recognized emission reductions, but Invenenergy still has concerns with some of the compliance options.

i. Compliance Using Offsets

Ecology should also allow entities who have been making clean energy investments for many years to get early action credit. Grays Harbor currently operates under the Satsop Combustion Turbine Project’s (“Satsop”) Greenhouse Gas Mitigation Plan,²⁴ approved by the EFSEC and implemented by The Climate Trust to meet the requirements of the Washington Carbon Dioxide Mitigation Program.²⁵ To our

²⁴ See Attachment A

²⁵ See Chapter 80.70 RCW

knowledge, Grays Harbor is the only covered source under the CAR with a plan like this in place. Since 2008, The Climate Trust has received offset project funding in the amount of \$2,563,288.03 from Grays Harbor, \$1,907,563.17 of which was invested directly in projects both inside and out of the state of Washington and which offset 237,931 metric tons of carbon.²⁶ The projects include the following:

- Farm Power Rexville Dairy Digester in Washington
- Revolution Energy Solutions (RES) Lochmead Dairy Digester in Oregon
- Cedar Grove Composting in Washington
- Environmental Credit Corp. Composting Portfolio in Delaware
- Camco Afognak Island Forestry in Alaska

Ecology should amend the proposed CAR to give non-EITE entities like Grays Harbor early action credit for the investments they have made in improving the environment and reducing GHG emissions to date. Ecology should also amend the CAR to allow covered parties to make investments in projects outside of Washington so long as they meet the requirements for verification. At the very least, Ecology should grant parties ERUs for project investments made under existing, EFSEC-approved GHG mitigation plans.

Under the current proposal, Invenergy will not get any credit for its investments in the clean energy community until the compliance period begins. In addition, the rule is vague regarding whether investments made under the Carbon Dioxide Mitigation or other similar programs **outside** Washington meet the requirements of the CAR. If not, Invenergy will be forced to defund those projects and find new, not-yet-financed or operating projects in-state to invest in. While this sounds like a simple task and a positive outcome for the state, our discussions with The Climate Trust reveal otherwise. These projects can take years to get up and running and there are simply not that many of them. Financing is often based on the price the project can expect to get for the offsets it creates and then sells but because there is currently no price transparency into the cost of an ERU (see Section V), projects will not be able to rely on expected revenue from Washington's ERU market for some years. The CAR as currently proposed would disrupt funding for projects that are already operating well and producing real, quantifiable reductions in GHG emissions and will make it very difficult for covered parties to find new projects in the state to fund for CAR compliance.

Trading and access to offset reductions provide necessary compliance and policy flexibility. These measures can help drive low-carbon innovative solutions and investments, keep program and compliance costs to a minimum, capitalize on new revenue streams, manage competitiveness concerns, and pursue clean investments on a logical timescale. Flexibility also gives covered sources like Grays Harbor the ability to gradually transition and meet compliance obligations, while adopting new low-carbon strategies, technologies, and processes that work best for their operations, human resource capacity, supply chains, and consumers.

Not only is a failure to grant covered parties like Invenergy early action credit for GHG reduction investments inside and out of Washington poor policy, it contravenes the Satsop GHG Mitigation plan approved by EFSEC. On page 5 under "Preemption and Sunset," the plan states as follows:

If a new state or federal law imposes requirements on the Certificate Holder to limit, mitigate or offset greenhouse gas emissions, EFSEC will support the Certificate Holder in obtaining credit

²⁶ See Attachment B

under any such new laws, regardless of preemption, for early action for offsets already funded under this Mitigation Plan.

For the past nine years Invenery has made business decisions and has formulated contracts with offtakers with the understanding that investments made under this plan would translate to early action credit under any future GHG mitigation regulation. Ecology must recognize the agreement put in place between Invenery and the EFSEC many years ago and allow Invenery to obtain credit for early action for offsets already funded under its Mitigation Plan.

ii. Compliance Using RECs

Ecology's cost-benefit analysis supporting the CAR assumes a REC price of \$1.50 to \$5.00 per MWh, translating to a CAR compliance cost of about \$3 to \$11 per MTCO₂e.²⁷ For purposes of compliance with Washington's renewable portfolio standard, as well as with the proposed CAR, RECs are tracked through the WREGIS system, operated by the Western Electricity Coordinating Council ("WECC").²⁸ The WECC maintains a public database of contact information for active WREGIS account holders.²⁹ However, WREGIS does not appear to report market information beyond "aggregated data on account holders, generating units, and certificates."³⁰ Apparently not even REC prices or the number of certificates held (and thus potentially available for purchase) from individual holders are made public. This lack of transparency into the price for Washington RECs makes this compliance option impractical and uncertain. As an IPP, Invenery cannot adequately contract with an offtaker without knowing its exposure to compliance costs so that it can accurately mitigate the resulting risk.

VII. Additional Information and Clarification is Needed Regarding the ERU Reserve

The re-issued draft rule would create a reserve to address comments received from industry and environmental stakeholders about protecting and encouraging business growth while also reducing carbon pollution. The reserve would operate by banking a small percentage of the ERUs generated by covered parties (2%). As Invenery understands it, Ecology can assign reserve ERUs to covered parties in the following priority order: (1) curtailed sources that restart operations; (2) new sources and existing sources that expand or physically modify their operations; (3) changes in production levels; (4) harmonizing ERU generation with actual GHG emission reductions; (5) for energy efficiency and renewable energy projects and programs in environmental justice communities; and (6) for voluntary green power renewable programs.³¹ Ecology should provide additional guidance explaining under what circumstances ERUs from the reserve could be applied to a stationary source like Grays Harbor (for example, in response to changes in production under (3)) and should set clearer guidelines as to when the need for the reserve is triggered.

²⁷ Washington Department of Ecology, Pub. no. 16-02-008, "Preliminary Cost-Benefit and Least Burdensome Alternative Analysis: Chapter 173-442 WAC Clean Air Rule and Chapter 173-441 WAC Reporting of Emissions of Greenhouse Gases" at 15 (June 2016).

²⁸ WAC 194-37-210(1); proposed WAC 173-442-020(1)(q).

²⁹ See <https://portal2.wregis.org/myModule/rpt/myrpt.aspx?r=1&TabName=Generator>.

³⁰ WECC, "WREGIS 101," <https://www.wecc.biz/Pages/101.aspx#/WREGIS>.

³¹ Proposed WAC 173-442-240(4).

We appreciate this opportunity to provide Invenenergy's views on the draft CAR, and would be pleased to provide additional information or to answer any questions you may have.

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Flat Rolled Products

Trentwood Works

July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

RE: Kaiser Aluminum Comments on Proposed Clean Air Rule

Dear Mr. Wilson:

Kaiser Aluminum Washington, LLC appreciates the opportunity to provide the attached comments on the Washington Department of Ecology's proposed Clean Air Rule which was published as a proposed rule on June 1, 2016.

If you should have any questions, please feel free to contact me at (509) 927-6554.

Sincerely,



Bernard P. (Bud) Leber, Jr.
Environmental Manager

**Comments on Proposed Clean Air Rule – WAC173-443
Kaiser Aluminum Washington, LLC**

General Comments

Two of Kaiser's key concerns with respect to any regulatory approach to limiting carbon dioxide equivalent (CO_{2e}) emissions in Washington are leakage and growth. We recognize that Ecology has addressed these concerns in the proposed rule through specific mechanisms such as creating a separate compliance pathway for Energy Intensive and Trade Exposed (EITE) sources and creating a reserve that addresses incremental production increases at an EITE source. These provisions are critical to preventing leakage of production from the Washington aerospace supply chain to competing entities which would cause increased global CO_{2e} emissions.

While some EITEs may be in a production growing mode, other EITEs may be in a production declining mode. It appears that an EITE that is in a declining production mode or potentially cyclical production mode may encounter an unintended larger regulatory reduction burden (acquisition of ERUs) under WAC 173-442-070 as compared to WAC 173-442-060 especially if a large percentage of their emissions are process emissions. In order to address this potential situation, alternative compliance pathways may be appropriate or the ability to "opt out" of -070 for -060 provided. Kaiser believes that such actions would be appropriate so that no EITE bears a higher regulatory burden than a non-EITE.

Kaiser is concerned that the demand for emission reduction units (ERUs) could well exceed the supply of ERUs. Kaiser's review of the rulemaking documents did not reveal where analyses of the supply side ERUs and demand side ERUs had been performed. Kaiser believes that this analysis is critical to the functioning of the proposed rule and that certain "safety valves" should be built into the regulation. These safety valves would set up a process that addresses potential situations where sufficient ERUs may not be available. These safety valves need to be in place so that allowances from valid external markets can be accessed without limit when there are insufficient economic emission reduction options available, either on site or elsewhere within the state, to address covered source's emission reduction obligations.

With respect to external markets, Kaiser is concerned that access to these markets could be negatively impacted by current litigation and potential legislation in California that would essentially block access to any allowances that a Washington covered source may need to acquire. Thus for EITE sources the prohibition on only obtaining

allowances from multi-sector programs and limiting their acquisition over time should be dropped and safety valves built in as described above.

Specific Comments

The following comments are provided with respect to specific sections of the proposed rule.

Reserve (WAC 173-442-240)

On page 6 of the SEPA Environmental Checklist, Ecology describes how it intends to handle emissions related to incremental production increases and decreases from the baseline period for EITEs. This description clearly states Ecology's intent to retire ERUs from the reserve to cover all the emission increase from incremental production increases at the required pathway intensity metric. In addition, any emission decrease from incremental production decreases at the required pathway intensity metric is placed into the reserve. Kaiser is concerned that the intent expressed in the SEPA Checklist does not appear to clearly carry forward into the language contained in WAC 173-442-240 and requests that Ecology clarify its intent, as expressed in the SEPA Checklist, in the text of WAC 173-442-240.

Kaiser requests that Ecology clarify its intent with respect to adjustments in and out of the reserve that the adjustments are to be at the required pathway intensity metric (and the incremental production level from the baseline) for when the adjustment is made even if the covered source has not actually achieved the required pathway intensity metric when the adjustment is made.

Kaiser also believes that the following revisions to WAC 173-442-240 would clarify Ecology's intent in general with respect to adjustments.

WAC 173-442-240 Reserve

Ecology will establish an account of reserve ERUs for the purposes described in this section.

(1) Contribution to the reserve:

(a) Ecology must allocate to the reserve:

(i) Two percent of each:

(A) Covered party's emission reduction pathway annual decrease in WAC 173-442-060(1)(b); and

(B) EITE covered party's emission reduction pathway annual decrease in WAC 173-442-070(4)(b)

(ii) ERUs generated as a result of facility curtailments.

(b) Ecology must transfer into the reserve the ERUs specified in (a)(ii) of this subsection within one hundred twenty days after each applicable compliance period (WAC 173-442-200).

(c) Ecology will not accept into the reserve retired or expired ERUs.

(2) Reserve Adjustments for EITEs

(a) If the EITE covered party's RA_x is greater than zero, then the difference in MT CO_2e of GHG emissions results in ERUs allocated to the reserve.

(b) If the EITE covered party's RA_x is less than zero, then the difference in MT CO_2e of GHG emissions results in ERUs retired from the reserve.

(c) Calculate MT CO_2e of GHG emissions of ERUs allocated to or retired from the reserve using Equation 2.

Equation 2

$$RA_x = ((BP_x OB) - (BP_x OB_x RR_x (Y_x - 1))) - RP_x$$

Where:

RA_x = Reserve adjustment for given EITE covered party for calendar year "x" (MT CO_2e for year "x")

RP_x = GHG emission reduction pathway for given EITE covered party for calendar year "x" as specified in WAC 173-442-070(4)(b) (MT CO_2e for year "x")

BP = Baseline production data for given EITE covered party as specified in WAC 173-442-070 (2)(a) (unit of production)

OB = Output-based baseline for given EITE covered party as specified in WAC 173-442-070 (2) (MT CO_2e /units of production)

RR = Efficiency reduction rate for given EITE covered party as specified in WAC 173-442-070 (3) (%)

Y_x = The number of calendar years the EITE covered party has been subject to WAC 173-442-030. The first calendar year is designated as calendar year number one.

- (d) Any calendar year containing curtailment recognized by Ecology does not count toward total years Y_x .*
- (e) Beginning in calendar year 2036, Y_x remains constant at the number of years determined for calendar year 2035.*
- (f) The reserve adjustments as defined in this subparagraph are not impacted by the priority of reserve uses described in subparagraph (5) of this section.*

*(3) Retirements within the reserve.
No text revisions.*

*(4) Withdrawals from the reserve.
No text revisions.*

*(5) Priority of reserve uses.
No text revisions.*

Limitations on the use of allowances WAC 173-442-170

In WAC 173-442-170 (2)(b), Ecology appears to apply an additional limitation (Table 4) on the use of allowances by specifying that the vintage year for any acquired allowances must match the corresponding specific year within a compliance period that the allowance is applied to. In addition, Table 4 sets a maximum limit on the percentage of the total allowances acquired during the compliance period that can be applied to specific years within the compliance period. Kaiser respectfully requests that Ecology clarify that this is a correct interpretation.

Kaiser understands that the limitations set in Table 4 are meant to minimize impacts on external markets by spreading out the acquisition of allowances. Kaiser is concerned however, that if the need for the purchase of allowances falls in a single year during the compliance period, the limitations of Table 4 could become more restrictive than the limitations of Table 3 during the first two compliance periods when the need to purchase allowances may be the only available route to compliance if ERUs from projects within Washington are not yet available.

Kaiser operates facilities in several locations in the United States and one in Canada. As Kaiser continuously evaluates where best to improve energy efficiency, it may implement projects at facilities other than Trentwood. Kaiser requests that this section be modified to allow for the unrestricted use of Ecology qualified emission reductions that a company makes at any of its out of state facilities.

And finally, Kaiser is concerned that there will be insufficient in-state projects available and that there needs to be a safety valve mechanism relative to the restrictions imposed by Table 3 of WAC 173-442-170 so that this restriction can be lifted.

Demonstrating Compliance WAC 173-442-200

With respect to determining a facility's compliance obligation under WAC 173-442-200(3), it appears that the actual emissions and emission reduction requirements are aggregated over the compliance period and that the difference between these two parameters determines either the need for ERUs or the amount of ERUs generated. It is Kaiser's understanding that the vintage year of either emissions in excess of the required reductions or the vintage of any ERUs applied are not germane to the required compliance demonstration. Kaiser respectfully requests that Ecology clarify that this is a correct interpretation.

Banking WAC 173-442-130

With respect to the ability to "bank" ERUs under WAC 173-442-130, it appears that although ERUs are assigned a vintage year this assigned vintage only impacts the order in which ERUs are withdrawn from the "bank". It also appears that it is only after being in the bank for 10 years (reaching its "expiration date") that an ERU is retired. Kaiser respectfully requests that Ecology clarify that this is a correct interpretation.

GHG emission reduction pathway and emission reduction requirement for EITE covered parties WAC 173-442-070

With respect to the determination of a given EITEs efficiency reduction rate, WAC 173-442-070(3) describes in general the process that will be used in setting this critical factor. Kaiser is concerned with respect to two issues. The first is that based on the process described in WAC 173-442-070(3)(b), a covered source that has an efficiency metric that is determined to be below the 25th percentile of performance relative to its sector will bear a larger burden than any other covered source under the rule. This is inherently unfair in that as an EITE it is already in a difficult competitive position that would be made worse by the larger burden. The second is that there are no clear criteria provided for how an EITE covered source's efficiency specific reduction rate will be determined once it has been placed inside of either the lowest 25th percentile or the highest 25th percentile of performers. Kaiser believes that a part of this determination

should be recognition of a covered source's indirect emissions from its electrical power supply and a covered source's product mix relative to others.

With respect to the second issue identified above, Kaiser offers three other potential alternative options for assigning an emission reduction pathway.

Option #1
Delayed Start for Above Average Performance

In order to minimize the amount of data needed relative to that needed for an adequate distribution to be developed, sufficient data to determine average performance should be more feasible. All covered sources would be required to meet a reduction pathway that would have been required by WAC 173-442-060 (1)(a), but those determined to be above average would have their initial compliance period delayed by one additional compliance period. This approach would allow for a reduction in the amount of data required, would not be punitive with respect to any covered sources, and rewards high performing covered sources that likely took early actions to achieve their performance level.

Option #2
Process Step Comparisons

There are only three facilities in the United States similar to Kaiser that produce heat treated sheet, plate and coil. These facilities vary significantly in the types of energy source used as well as on-site ancillary services (steam). As a result, there is no real ability to generate an energy intensity distribution that would allow for the determination of performance percentiles. However, if major process steps were evaluated, there are significantly more facilities that melt aluminum increasing the likelihood that an efficiency intensity distribution could be determined. This could further be carried forward for such process steps as steam boilers. Thus, a covered source's process steps could be evaluated and a weighted efficiency metric could be determined based on the percentage of facility energy usage for each process step.

Option #3
Best Practice Performance

Requiring an EITE covered source to move beyond best practice for its sector or process steps places that facility at a competitive disadvantage. Rather than develop an efficiency intensity distribution for a covered source's sector, a determination of best

practice for that source or its process steps (See Option #2) would be made. A covered source would be required to meet a reduction pathway that would have been required by WAC 173-442-060 (1)(a), but upon achieving an efficiency metric equivalent to best practice, no additional reductions would be required of the covered source for either the entire facility or the process steps that have reached best practice.

Confidentiality WAC 173-442-350

Kaiser is very concerned that confidential business information such as its actual production rates would be made available to its world-wide competitors as a result of the data reporting requirements of this rule. Kaiser is concerned that even if its output-based baseline information or subsequently reported intensity information would become publically accessible, this would allow for an easy determination of production levels by using other sources for actual annual emissions.

Kaiser respectfully requests that any production information is provided solely to Ecology and that covered sources are able to designate production information as confidential business information and as a result not subject to disclosure under the Public Records Act. Notwithstanding the above, should Ecology feel compelled to disclose reported intensity information, this data should be indexed to the baseline period which is assigned a value of 100.

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Trentwood Works

July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

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Bernard P. (Bud) Leber, Jr.
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Kaiser Aluminum Washington, LLC**

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And finally, Kaiser is concerned that there will be insufficient in-state projects available and that there needs to be a safety valve mechanism relative to the restrictions imposed by Table 3 of WAC 173-442-170 so that this restriction can be lifted.

Demonstrating Compliance WAC 173-442-200

With respect to determining a facility's compliance obligation under WAC 173-442-200(3), it appears that the actual emissions and emission reduction requirements are aggregated over the compliance period and that the difference between these two parameters determines either the need for ERUs or the amount of ERUs generated. It is Kaiser's understanding that the vintage year of either emissions in excess of the required reductions or the vintage of any ERUs applied are not germane to the required compliance demonstration. Kaiser respectfully requests that Ecology clarify that this is a correct interpretation.

Banking WAC 173-442-130

With respect to the ability to "bank" ERUs under WAC 173-442-130, it appears that although ERUs are assigned a vintage year this assigned vintage only impacts the order in which ERUs are withdrawn from the "bank". It also appears that it is only after being in the bank for 10 years (reaching its "expiration date") that an ERU is retired. Kaiser respectfully requests that Ecology clarify that this is a correct interpretation.

GHG emission reduction pathway and emission reduction requirement for EITE covered parties WAC 173-442-070

With respect to the determination of a given EITEs efficiency reduction rate, WAC 173-442-070(3) describes in general the process that will be used in setting this critical factor. Kaiser is concerned with respect to two issues. The first is that based on the process described in WAC 173-442-070(3)(b), a covered source that has an efficiency metric that is determined to be below the 25th percentile of performance relative to its sector will bear a larger burden than any other covered source under the rule. This is inherently unfair in that as an EITE it is already in a difficult competitive position that would be made worse by the larger burden. The second is that there are no clear criteria provided for how an EITE covered source's efficiency specific reduction rate will be determined once it has been placed inside of either the lowest 25th percentile or the highest 25th percentile of performers. Kaiser believes that a part of this determination

should be recognition of a covered source's indirect emissions from its electrical power supply and a covered source's product mix relative to others.

With respect to the second issue identified above, Kaiser offers three other potential alternative options for assigning an emission reduction pathway.

Option #1
Delayed Start for Above Average Performance

In order to minimize the amount of data needed relative to that needed for an adequate distribution to be developed, sufficient data to determine average performance should be more feasible. All covered sources would be required to meet a reduction pathway that would have been required by WAC 173-442-060 (1)(a), but those determined to be above average would have their initial compliance period delayed by one additional compliance period. This approach would allow for a reduction in the amount of data required, would not be punitive with respect to any covered sources, and rewards high performing covered sources that likely took early actions to achieve their performance level.

Option #2
Process Step Comparisons

There are only three facilities in the United States similar to Kaiser that produce heat treated sheet, plate and coil. These facilities vary significantly in the types of energy source used as well as on-site ancillary services (steam). As a result, there is no real ability to generate an energy intensity distribution that would allow for the determination of performance percentiles. However, if major process steps were evaluated, there are significantly more facilities that melt aluminum increasing the likelihood that an efficiency intensity distribution could be determined. This could further be carried forward for such process steps as steam boilers. Thus, a covered source's process steps could be evaluated and a weighted efficiency metric could be determined based on the percentage of facility energy usage for each process step.

Option #3
Best Practice Performance

Requiring an EITE covered source to move beyond best practice for its sector or process steps places that facility at a competitive disadvantage. Rather than develop an efficiency intensity distribution for a covered source's sector, a determination of best

practice for that source or its process steps (See Option #2) would be made. A covered source would be required to meet a reduction pathway that would have been required by WAC 173-442-060 (1)(a), but upon achieving an efficiency metric equivalent to best practice, no additional reductions would be required of the covered source for either the entire facility or the process steps that have reached best practice.

Confidentiality WAC 173-442-350

Kaiser is very concerned that confidential business information such as its actual production rates would be made available to its world-wide competitors as a result of the data reporting requirements of this rule. Kaiser is concerned that even if its output-based baseline information or subsequently reported intensity information would become publically accessible, this would allow for an easy determination of production levels by using other sources for actual annual emissions.

Kaiser respectfully requests that any production information is provided solely to Ecology and that covered sources are able to designate production information as confidential business information and as a result not subject to disclosure under the Public Records Act. Notwithstanding the above, should Ecology feel compelled to disclose reported intensity information, this data should be indexed to the baseline period which is assigned a value of 100.



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VIA EMAIL: AQComments@ecy.wa.gov

July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Comments on Proposed Washington State Clean Air Rule (CAR)

Dear Mr. Wilson:

KapStone Kraft Paper Corporation (KapStone) appreciates the opportunity to provide comments on the Department of Ecology's proposed Clean Air Rule (CAR) (Chapter 173-442 WAC). KapStone's comments are presented below. KapStone owns and operates one of the largest integrated Kraft mills in the Pacific Northwest located in Longview, Washington ("The Longview Mill").

KapStone fully supports and endorses the comment package submitted by the Northwest Pulp and Paper Association (NWPPA).

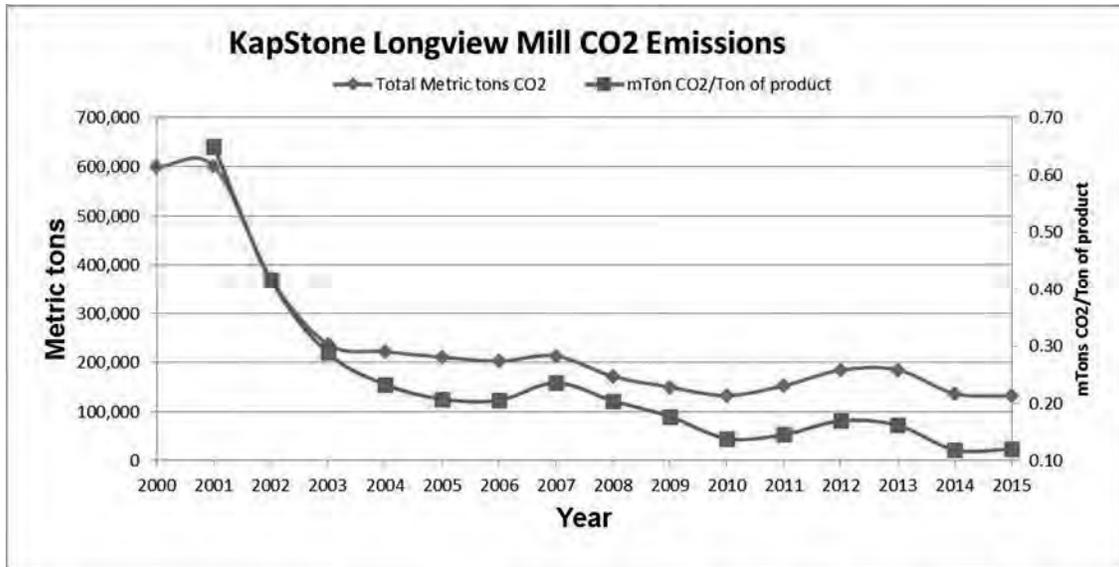
The Proposed Rule Penalizes Early Action

As proposed, not only does WAC 173-442-070(2) not recognize early action, the rule effectively penalizes early action. Over the past fifteen years, the Longview Mill has made significant reductions of its greenhouse gas (GHG) emissions.

The Longview Mill voluntarily joined the Climate Registry (TCR) as one of the founding members in April of 2008. The Longview Mill was the first pulp and paper mill in North America, to have an inventory certified under TCR requirements.

The Longview Mill entered its 2000-2010 emissions inventory to TCR for public review. TCR acknowledged the Longview Mill as the first member to submit so many years of data.

Since 2000-2001, the Longview Mill has reduced its carbon dioxide (CO₂) emissions from fuel firing by over 75% on both mass and intensity bases, this is equivalent to over 400,000 metric tons of CO₂.



The Longview Mill is highly efficient in terms of GHG emissions already; it generates over 90% of its steam from biogenic fuels and balances the rest with natural gas firing. Besides this, natural gas is used as a fuel for its lime kilns. The opportunities left to reduce the amount of fossil fuels being fired are minimal at this point short of curtailing production. The Longview Mill also operates a Combined Heat and Power (CHP) system over 35 MW. CHP is widely considered one of the best means of reducing GHG emissions globally due to the increased efficiencies.

The above improvements and existing mill systems have been the results of multiple projects and capital investments from recognizing the need to decrease fossil fuel consumption. The Longview Mill has been part of the solution and must be recognized as such.

WAC 173-442-070(2) requires a facility such as the Longview Mill to compute its baseline GHG emissions as the average emissions during the 2012 through 2016 period. The current proposed rule would impose additional significant reductions over the Longview Mill that would be extremely difficult and expensive to achieve if even possible.

The rule must be modified to provide credit and recognition for these early actions such as those implemented by the Longview Mill.

Ecology made a similar request to EPA to recognize early action as part of the state's comments of the proposed Clean Power Plan (CPP) dated December 1, 2014. The same logic should be used for the proposed CAR rule.

GHG Baseline

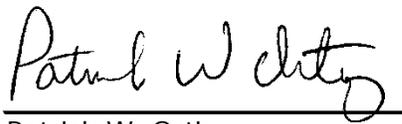
Facilities that can accurately count and demonstrate a different baseline period should be allowed to do so. The Longview Mill should be allowed to use its GHG data submitted and third-party verified under the TRC protocols back to year 2000 to establish its baseline.

Recognition of Existing CHP Systems

As included in the NWPPA comments, the proposed CAR penalizes covered parties operating existing CHP systems. The rule should incentivize the utilization and optimization of existing CHP systems instead of penalizing it since it is widely considered one of the best means of reducing GHG emissions globally due to the increased efficiencies. KapStone supports the generation of ERUs for existing CHP systems. Avoided GHG emissions as a result of operation of existing CHP will continue into the future.

Please contact me if you have any questions about these comments. KapStone would be pleased to meet with you to further outline our concerns.

Sincerely,

A handwritten signature in black ink that reads "Patrick W. Ortiz". The signature is written in a cursive style and is positioned above a horizontal line.

Patrick W. Ortiz
Director, Engineering, Environmental and Safety



King County

Solid Waste Division

Department of Natural Resources and Parks

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July 22, 2016

Mr. Peter Christiansen
Washington State Department of Ecology
3190 - 160th Ave. SE
Bellevue, WA 98008-5452

Mr. Stuart Clark
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mr. Christiansen and Mr. Clark,

King County supports the Department of Ecology's work to follow through on the Governor's direction to use existing state pollution laws to develop a regulatory cap on carbon emissions, and King County Executive Dow Constantine is providing comments on the draft rule Ecology has proposed. In addition to the Executive's comments, King County has significant concerns about how the rule may consider landfill greenhouse gas (GHG) emissions and we would like to share detailed comments focused on these issues.

King County's Solid Waste Division (SWD) owns and operates the Cedar Hills Regional Landfill. Cedar Hills is one of the largest municipal solid waste landfills in the Pacific Northwest, serving 37 of the 39 cities in King County (all cities except Seattle and Milton) and receiving approximately 2,500 tons of refuse each day.

We recognize that for the purpose of landfill GHG emissions reporting, Ecology is relying on the U.S. Environmental Protection Agency's (EPA) Mandatory Reporting Rule (MRR) calculating protocols and methodologies.

Building on recent discussions with Ecology, King County has updated its 2012-2015 EPA Cedar Hills reports to more accurately reflect the site conditions at the landfill. These updates were made consistent with the EPA's methodologies, and were made to more accurately represent the performance of the landfill gas collection systems currently in operation. They also reflect the significant improvements and investments made that have decreased emissions from the landfill over the last several years. These updates demonstrate Cedar Hills GHG emissions are well under Ecology's proposed 100,000 MTCO_{2e} proposed initial regulation threshold.

King County encourages Ecology to accept these updated GHG estimate totals in its final rulemaking and to reach out to the King County SWD if it has any questions. Furthermore, the SWD has two additional recommendations related to concerns about using default methodologies for measuring progress in GHG emissions reduction over time and as it relates to a recommendation to clearly exclude biogenic emissions from the Clean Air Rule.

Details on GHG Emissions from the Cedar Hills Regional Landfill

As part of King County's commitment to confront climate change, the SWD has been taking action to reduce the impact of Cedar Hills. This includes partnering with BioEnergy Washington, one of the largest landfill gas to energy facilities currently operating, to convert previously flared landfill gas into renewable energy (High BTU pipeline quality gas). While King County sells the environmental attributes associated with this project, it is an example of how SWD work is helping to reduce GHG emissions in Washington, and this type of action should also be considered as Ecology develops its draft rules.

The SWD has also been taking action to reduce fugitive methane emissions. For example, in 2014, improvements were made to the already advanced landfill gas capture system in Areas 5 and 6 of the landfill. A new geomembrane cover system was installed on top of the deposited refuse, using 4,400 feet of additional gas pipelines and 125,000 cubic yards of compacted soil to more effectively control potential fugitive gas emissions and enhance the gas collection system. These improvements were effective in increasing the captured landfill gas by an estimated 4 percent.

There are several other infrastructure and operational strategies that go above and beyond regulatory requirements which are in place at Cedar Hills that help limit fugitive GHG emissions at the landfill. As a result GHG emissions from the site are significantly below average for a landfill that receives the quantity of waste that Cedar Hill receives. These strategies include:

- Early installation of horizontal landfill gas collectors as waste filling progresses. These collectors are generally brought on-line within one year of waste placement, which is well in advance of New Source Performance Standards (NSPS) requirements for landfills.
- The monitoring of fugitive emissions from the surface above the landfill during surface emissions monitoring is much more stringent than regulatory requirements. The action level for remedial measures has been reduced from 500 parts per million by volume (ppmv) above background to 100 ppmv above background.
- A geomembrane and soil cover system that is similar to that used in final closure of an area has been installed in areas of the landfill that are considered at interim grades and will receive waste in the future.
- Projects and programs that reduce organic materials landfilled, which decreases landfill methane generation and also results in lifecycle GHG benefits

Based on these strategies and other work, and based on a third party review of Cedar Hills infrastructure and operating protocols, the SWD has recently updated its EPA reported totals to better reflect site specific characteristics. The EPA MRR reporting protocol allows two different calculation methodologies known as equations "HH-6" and "HH-8". Although emissions totals from both methods are reported to EPA, e-GGRT system publishes the emissions inventory that is based on equation HH-8. However the SWD recommends using equation HH-6 for the following key reasons:

- Cedar Hills' landfill cover system has been significantly improved over recent years, as described above. However HH-8 has no means to account for these improvements.
- The SWD methane monitoring program is proactive but equation HH-8 has no means to account for this robust monitoring program, which is above and beyond regulatory requirements and industry best practices.
- The HH-6 methodology matches related parameters such as methane generation and measured methane recovery, and related mass balance calculations made by the SWD.

The SWD EPA reported totals use EPA's HH-6 reporting methodology and result in average GHG emissions for the 2012-2015 time period of 14,800 MTCO_{2e} per year. Reported totals using HH-8 average 85,400 MTCO_{2e} during this time period.

Additional Recommendations:

While the EPA reporting methodologies allow some flexibility to reflect the on the ground landfill gas collection system at Cedar Hills, the SWD believes that the EPA method still has significant limitations that could prove problematic if Ecology includes landfills as a regulated entity. The SWD urges Ecology to also consider the following:

Measuring Progress Over Time: The SWD has significant concerns about how the use of default or generic calculation methodologies for landfill GHG emissions reductions could be used as a baseline for and demonstrate progress towards reductions over time. King County has updated its reporting totals to reflect equation HH-6 (a better representation of the site specific conditions at the landfill). The EPA's MRR model still has limitations in taking into account facilities that have above, or below average collection efficiencies and requires default collection efficiencies for each specific landfill cover type. This approach may not allow an improvement of collection efficiencies or decreased GHG emissions regardless of what King County does to further expand or improve its gas collection system within each specific landfill cover type. If the different cover areas do not change in size, the HH-8 method will assume the same collection efficiency regardless of the collection infrastructure in place. But if the gas system is improved and it collects more gas, the HH-8 method will show an increase in emissions rather than decrease, which is an inherent disconnect in the methodology.

Biogenic Emissions: Ecology's draft rule for quantifying landfill related GHG emissions relies on the EPA's GHG reporting protocols, which excludes biogenic emissions. The SWD supports this exclusion, and SWD urges Ecology to explicitly exclude all biogenic emissions and biomass related emissions from regulation under the Clean Air Rule to be consistent with the EPA and California's cap and trade program and other climate policies around the world. This is important for both recognizing the difference between fossil fuel related CO₂

emissions and waste related CO2 emissions and also for recognizing and supporting biogas to renewable energy projects at King County's landfill and other Washington State landfills.

We would be happy to discuss and share results of our GHG emissions reduction quantification work in more detail. Thank you for your hard work on this important rule.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kevin Kiernan', written over a light blue horizontal line.

Kevin Kiernan

cc: Bob Burns, Deputy Director, Department of Natural Resources and Parks (DNRP)
April Putney, Legislative Relations Manager, Executive Office (EO)
Megan Smith, Director of Climate and Energy, EO
Matt Kuharic, Climate Change Program Coordinator, DNRP



King County

Dow Constantine

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July 22, 2016

Maia Bellon
Director
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Director Bellon:

Thank you for the opportunity to comment on the Washington State Department of Ecology's (Ecology's) Clean Air Rule.

Last year gave us a glimpse of what the future holds with projected climate change impacts in our region. Across King County and Washington State, damaging floods, record-low mountain snow, searing summer heat, dying salmon, and massive wildfires took a toll on residents' health, livelihoods, and quality of life. These events reminded us of the urgent need to confront the many challenges of climate change.

King County government has a strong record of action to reduce greenhouse gas (GHG) emissions and prepare for the impacts of climate change, but we must do much more to prevent the most severe impacts of climate change. In 2015, King County adopted its Strategic Climate Action Plan, a bold blueprint for confronting climate change and reducing GHG pollution across King County by 80 percent by 2050.

The good news is that we are making progress. In the last year:

- Metro Transit achieved record passenger boardings on buses and other transit services.
- King County surpassed its goals for reducing energy use in buildings and facilities.
- More than half of all new single-family buildings achieved green building certification.
- Recycling at our transfer stations increased by one-third.
- Our King County-Cities Climate Collaboration (K4C) grew to 14 local governments and was recognized with a national award from the Environmental Protection Agency.

There is much we can and must do as a local government to combat climate change, but we also need state-level action to set a binding cap on carbon emissions and create frameworks to price carbon and catalyze investment in actions that will reduce emissions. King County supports the Department of Ecology's work to establish a Clean Air Rule limiting carbon pollution and reduce Washington's GHG emissions. We appreciate Governor Inslee's direction to the Department of Ecology to take action that will help achieve the State's climate commitments.

King County offers the following recommendations to strengthen the draft Clean Air Rule and create opportunities to link its implementation to cap and trade systems in other states in the future. We request that Ecology incorporate these recommendations within the framework of the state Clean Air Act and through complementary actions in the future.

Strengthen climate goals: King County and its 39 cities have collaboratively adopted GHG reduction targets that are more ambitious than Washington State's reduction requirements, including a long term target to reduce emissions by at least 80 percent below 2007 levels by 2050. As Ecology and the Legislature update existing state requirements, and use these targets to inform the Clean Air Rule reduction pathways for regulated entities, King County urges consideration of stronger targets that ensure Washington is doing its part to avoid the worst impacts of climate change.

Be comprehensive and compatible: King County and eleven K4C partners support comprehensive, market-based approaches that reduce GHG emissions and set a price on carbon pollution. Approaches such as the Clean Air Rule should be comprehensive in the sources of emissions that are covered, including the significant emissions associated with electricity used in Washington State, no matter where the electricity is produced. We support the inclusion of provisions to minimize "leakage" (the shift of energy intensive trade exposed industries and their associated emissions out of state). King County hopes to see additional design considerations that ensure that the rule could be compatible with other programs such as California's cap and trade program, a future market-based mechanism in Washington State, and the federal Clean Power Plan.

Reinvest in solutions: Setting a price or cap on GHG emissions alone will not provide sufficient certainty of meeting our ambitious GHG reduction targets; additional, large-scale investments in reducing community-scale emissions will be needed. King County seeks reinvestment of revenue from comprehensive, market-based programs in climate solutions such as transit service, energy efficiency projects, and forest protection and restoration initiatives. I support dedicating funding from carbon revenues in ways that address existing inequities through climate action. For example, investments that better integrate transit and land use, and expansion of commute options, will increase access to work, education, health care, and recreation opportunities. King County is supportive of Ecology's proposals to use some of the Clean Air Rule "emissions reduction units" to support priorities identified by a new Environmental Justice Advisory Committee.

Maia Bellon
July 22, 2016
Page 3

Recognize landfill best practices that reduce emissions: To be effective, the proposed rule needs to be based on reliable emissions assumptions and monitoring of progress in reducing emissions over time. We urge Ecology to base landfill emissions assumptions on actual management practices and monitoring rather than default or industry-average assumptions. King County's Solid Waste Division (SWD) is submitting separate, technical comments outlining steps it has taken beyond regulatory requirements that reduce county landfill GHG emissions. Based on a recent third party technical review of King County's Cedar Hills Regional Landfill infrastructure and operations, including direct data collection, the SWD has updated its EPA-reported fugitive GHG emissions totals and they are significantly below Ecology's proposed regulatory threshold for the Clean Air Rule. While King County's updated EPA report better quantifies Cedar Hills Regional Landfill GHG emissions, I hope that King County, Ecology, and the EPA will collaborate to update future protocols that further improve landfill gas emissions calculations and recognize site specific landfill operation protocols, collection infrastructure, and detailed monitoring data that King County has available.

Design carbon offsets carefully: King County is supportive of limited use of carbon offsets to help regulated entities more cost-effectively reduce their GHG emissions. However, any offsets used should be additional, based on a realistic baseline, measurable, verifiable, permanent, and accurately quantified. The rule should prevent double-counting, which appears possible in the current rule in cases where offset projects are allowed in sectors already required to reduce emissions through the rule, including related transportation fuels and electricity.

King County supports inclusion of carbon offsets from forest protection, restoration and stewardship projects. These types of projects have the potential to result in significant GHG reductions that also support our ecosystems and rural communities, and many other GHG reduction programs have recognized these sources of offsets.

Support energy co-generation and biofuel development: The rule should be designed to support and encourage renewable biogas-to-energy projects at landfills and wastewater treatment plants, as well as broader efforts to develop sustainable transportation biofuels. Specifically, the rule should distinguish between emissions from fossil fuels and short-term biological sources by excluding all biogenic and biomass-related carbon dioxide emissions from the rule.

Thank you again for the opportunity to comment on the Clean Air Rule.

Sincerely,



Dow Constantine,
King County Executive

Maia Bellon
July 22, 2016
Page 4

cc: Sam Wilson, Environmental Planner, Ecology
Chris Davis, Carbon Markets Policy Advisor, Governor's Office
April Putney, Legislative Relations Manager, King County Executive's Office
Megan Smith, Director of Climate and Energy Initiatives, King County Executive's Office
Christie True, Director, King County Department of Natural Resources and Parks
Matt Kuharic, Climate Change Program Coordinator, King County Department of Natural Resources and Parks



Public Utility District No. 1 of Klickitat County

75 Years of Service

1938-2013

Public Utility District #1 of Klickitat County (aka Klickitat PUD) Comments on the proposed Clean Air Rule

Klickitat PUD owns and operates the H.W. Landfill Gas Electrical Generation Facility near Roosevelt, Washington, utilizing landfill gas from one of the largest landfills in the nation to generate electricity. This generation facility collects methane gas from the landfill that would otherwise be flared and released into the air as carbon dioxide (CO₂), cleans the gas by removing sulfurs, VOCs and other compounds, compresses it, and uses it to generate more than 150,000 megawatts-hours of renewable energy every year. Klickitat PUD is proud of the investment our utility has made in this facility as an early actor in helping to reduce greenhouse gas emissions. We want to assure that carbon regulation in the state continues to recognize that contribution and comply with 15 years of legislative history, codified in law.

We are very concerned that the approach taken under the Clean Air Rule will place a carbon responsibility on the H.W. Landfill Gas Plan despite its designation as a renewable resource and the clear emission reduction benefits it provides. Characterizing the H.W. Hill Landfill Gas Facility as a covered entity is in violation of Washington law and state and federal policy regarding the encouragement of electrical generating facilities utilizing renewable resources, including landfill gas, to displace fossil fuels and the generation of positive environmental attributes. For this reason, we request that Ecology revise the Clean Air Rule to recognize the H.W. Hill Facility as a CO₂ reducing resource and a source of Emission Reduction Units (ERUs).

Ecology has repeatedly stated that the Clean Air Rule does not look at lifecycle carbon emissions of a project, rather regulates direct emissions. And Ecology further states that they must follow reporting requirements per RCW 70.94.151. EPA's GHG reporting requirements (and thus Ecology's) for electricity generators require biogenic CO₂ emissions to be reported separately from fossil fuel CO₂ emissions. This separate reporting is intended to facilitate different treatment of those emissions under regulatory programs yet Ecology's Clean Air Rule fails to recognize that distinction. The H.W. Hill facility CO₂ emissions are approximately 99.5% biogenic per the facility's most recent (2014) GHG report.

Ecology and the Clean Air Rule proposes to exempt woody biomass from regulation under the Clean Air Rule per RCW 70.235.020, but fails to recognize the very next subsection, RCW 70.235.030(f), which states Ecology is required to submit to the legislature:

(f) Recommendations regarding the circumstances under which generation of electricity or alternative fuel from landfill gas and gas from anaerobic digesters may receive an offset or credit in the regional multisector market-based system or other strategies developed by the department;

In developing the proposed Clean Air Rule's regulatory treatment of the H.W. Hill Landfill Gas Power Plant, it is clear that Ecology has failed to implement existing law. Klickitat PUD intends to defend our status codified in law as being part of the solution to combat climate change, not to be regulated as part of the problem. Klickitat PUD is also a member of and works closely with the Washington PUD Association. Comments made by the Washington PUD Association are incorporated by reference into these comments submitted by Klickitat PUD.

The remainder of this letter elaborates on these points and references to Washington State statute appear below.

Sincerely,

A handwritten signature in black ink that reads "Kevin E. Ricks". The signature is written in a cursive style with a large, stylized "K" and "R".

Kevin Ricks, Generation Asset and Special Projects Manager
Klickitat PUD

Ecology has taken the position, upheld by the Washington Supreme Court, that renewable energy projects should not be subject to regulation under RCW 70.235.020, and should be defined as carbon dioxide reduction facilities.

Treating landfill gas electrical generating facilities under the proposed Clean Air Rule as renewable energy with no attributed CO₂ emissions is consistent with the position Ecology took before the Washington Supreme Court in *PT Air Watchers v. Ecology*.⁶ In this case, a Kraft pulp and paper mill applied to Ecology to construct a new cogeneration project at its existing mill. The project would add up to 25 megawatts of electrical generating capacity to the mill (some of which would be sold to the power distribution system) but would also result in increased emissions of some pollutants including carbon dioxide.

Ecology reviewed the mill's NOC application under SEPA and issued a determination of nonsignificance (DNS). A number of environmental groups challenged the DNS, saying Ecology failed to consider the environmental impacts from increased carbon dioxide emissions. In particular, the environmental groups argued Ecology failed to consider the legislative policy behind RCW 70.235.020(3) in concluding the increased greenhouse gas emissions would not have significant environmental impacts.

Ecology took the position that the project will actually decrease the net amount of carbon dioxide released into the atmosphere. Ecology acknowledged that the burning of biomass, like the burning of fossil fuel, emits carbon dioxide into the atmosphere. However, the burning of biomass does not add to the total amount of carbon dioxide released into the atmosphere. Ecology argued that fossil fuels are not part of the earth's natural carbon cycle, and when fossil fuel is replaced by biomass fuel, the new carbon dioxide that would normally be emitted by fossil fuel is replaced by carbon dioxide that will be emitted into the atmosphere regardless of whether biomass is burned. In other words, "the replacement of fossil fuel with biomass fuel decreases the total amount of carbon dioxide in the atmosphere."⁷

This same rationale applies to the reduction of CO₂ emissions from landfill gas electrical generation facilities, as further demonstrated in the appendix under Washington law. If the gas was not used to create renewable energy, the methane would be flared and otherwise emitted into the atmosphere as CO₂. Thus, like the biomass from the pulp and paper mill in *PT Air Watchers*, the H.W. Landfill Gas Facility does not increase the total amount of carbon dioxide released to the atmosphere, and should not be defined as a covered entity under the Clean Air Rule.

Treat Electric Generation from Landfill Gas under the Clean Air Rule as carbon-reducing and eligible for Emission Reduction Units (ERUs) and Renewable Energy Credits (RECs) in compliance with state law

State law and federal policy both consistently recognize the unique nature of biogenic CO₂ emissions and the role that projects like H.W. Landfill Gas Facility can have in achieving overall greenhouse gas reduction goals.

⁶179 Wn.2d 919, 319 P.3d 23 (2014)

⁷*Id.* at 928

Two very specific statutes should lead Ecology in their treatment of the H.W. Hill Landfill Gas Power Plant as a carbon reduction facility not subject to regulation as a GHG emitter in this rule, including the statute that Ecology uses to support parts of this rule:

RCW 70.235.030(3)(f):

(3) In addition to the information required under subsection (1)(b) of this section, the director . . . shall submit the following to the legislature by December 1, 2008:

*(f) Recommendations regarding the circumstances under which **generation of electricity or alternative fuel from landfill gas and gas from anaerobic digesters may receive an offset or credit in the regional multisector market-based system or other strategies developed by the department; and***

RCW 19.285.030(15)(b) (defining the non-power attributes of the generation of renewable energy as contained in a renewable energy credit [REC]) states (emphasis added):

*"Nonpower attributes" [of renewable energy credits] does not include any aspects, claims, characteristics, and benefits associated with the on-site capture and destruction of methane or other greenhouse gases at a facility through a digester system, landfill gas collection system, or other mechanism, **which may be separately marketable as greenhouse gas emission reduction credits, offsets, or similar tradable commodities.** However, these separate avoided emissions may not result in or otherwise have the effect of attributing greenhouse gas emissions to the electricity.*

This statutory provision clearly states that this facility is eligible for both: ERUs as a methane conversion ERU; and a separate, additional ERU for generating renewable energy.

Appendix: Legislative History

Washington Legislation Has Historically and Consistently Recognized Electrical Generation using Landfill Gas as Renewable Energy with substantial greenhouse gas benefits.

As Washington has developed its greenhouse gas policy through legislation over the past 15 years, the Legislature has consistently recognized the greenhouse gas benefits of generation of electricity from landfill gas as renewable energy, *never* as a source of greenhouse gas emissions that must be regulated. And in fact, the Legislature has explicitly stated⁹ that capturing and destroying methane from landfills and digesters may be separately marketable as a carbon offset.

Legislative support for electricity generated from landfill gas began in 2001, when the Legislature adopted HB 2247. This bill added what is commonly known as the "Green Price Option" to state law¹⁰. It requires electric utilities to provide retail electricity customers a voluntary option to purchase "qualified alternative energy resources."¹¹ A "qualified alternative energy resource" is the type of electricity a utility customer can voluntarily agree to purchase separately from their normal supply and expressly includes electricity "produced from generation facilities that are fueled by ... (d) landfill gas; . . . (f) gas produced during treatment of wastewater; or ((h) biomass energy based on animal waste . . ." ¹²

2004 marks the first year that the Legislature allowed electricity from landfill gas projects to be used as carbon mitigation. The Legislature adopted a requirement that all new fossil fueled thermal generating plants permitted by the state include an approved carbon dioxide mitigation plan:

"A proposed site certification agreement submitted to the governor under RCW 80.50.100 and a final site certification agreement issued under RCW 80.50.100 *shall include an approved carbon dioxide mitigation plan.*"¹³ (italics added).

Chapter 80.70 RCW further defines a "mitigation plan" as "a proposal that includes the process or means to achieve carbon dioxide mitigation through use of *mitigation projects* or carbon credits."¹⁴ A "mitigation project" is defined to include "*qualified alternative energy resources.*"¹⁵ "Qualified alternative energy resources" is defined by reference to RCW 19.29A.090 – *i.e.*, "electricity ... produced from generation facilities that are fueled by ... landfill gas."¹⁶ (italics added throughout).

In November 2006, voters of the state supported furthering the use of renewable resources including electricity generated from landfill gas by approving Initiative 937, referred to as the state's Renewable Portfolio Standard (RPS), codified as Chapter 19.285 RCW, also known as the Energy Independence Act (EIA). The act "requires large utilities to obtain fifteen percent of their electricity from new renewable resources,"¹⁷ and includes landfill gas in the definition of a "renewable resource."¹⁸ It further defines an

⁹ RCW 19.285.030(15)(b)

¹⁰ RCW 19.29A.090

¹¹ RCW 19.29A.090(1).

¹² RCW 19.29A.090(3)(d)

¹³ RCW 80.70.020(2)(a)

¹⁴ RCW 80.70.010(11)

¹⁵ RCW 80.70.010(12)

¹⁶ RCW 80.70.010(15); RCW 19.29A.090(3)(d)

¹⁷ RCW 19.285.010,

¹⁸ RCW 19.285.030(21)(e)

“eligible renewable resource” as electricity generated from a renewable resource, such as landfill gas, as eligible for compliance with the EIA. In addition, the act created and made available as a compliance option a Renewable Energy Credit (REC). A REC attaches to the eligible renewable resources¹⁹ (the electricity generated by renewable resources). A REC was initially defined (later amended as described below) to include all non-power attributes of the megawatt-hour of electricity, including the “avoided emissions of carbon dioxide and other greenhouse gases.” Ecology has indicated its intention to allow RECs in excess of 937 requirements to be used as an Emission Reduction Unit (ERU) for compliance with the CAR. Thus, the EIA/Chapter 19.285 RCW and even Ecology through use of a REC, considers landfill gas generated electricity a renewable resource that *avoids* emissions of carbon dioxide.

In 2007, immediately on the heels of voter approval of I-937, Legislature adopted the state’s emission performance standard, Chapter 80.80 RCW. This statute again calls out electricity generated from landfill gas as reducing greenhouse gases. The Legislature found that the “emissions performance standard will work in unison with the state's carbon dioxide mitigation policy, chapter 80.70 RCW and its related rules”²⁰ As stated above, the state's carbon dioxide mitigation policy incorporates “qualified alternative energy resources,” which include electricity produced from generation facilities fueled by landfill gas²¹. In addition, as part of the emissions performance standards defined in RCW 80.80, the governor is to “develop policy recommendations to the legislature on how the state can achieve the greenhouse gas emissions reduction goals....”²² The Legislature **required** these recommendations to include utilization of “indigenous resources, such as *landfill gas*, geothermal resources, and other assets that might *reduce greenhouse gases emissions*.”²³ (emphasis added).

In 2013, to further strengthen the Legislature’s intent to treat generation of electricity from landfill gas as a carbon reduction mechanism, they added a new subsection to RCW 19.285.030(15) that clearly calls out the collection and destruction of methane as a greenhouse gas reduction mechanism. Specifically, and only for digesters and landfill gas systems, this legislation recognizes that capture and destruction of methane may be separately marketable as a greenhouse gas emission reduction credit, offset, or similar tradable commodity. This potential separate marketability of carbon offsets is not available to any other renewable resources:

“Nonpower attributes” does not include any aspects, claims, characteristics, and benefits associated with the on-site capture and destruction of methane or other greenhouse gases at a facility through a digester system, *landfill gas collection system*, or other mechanism, which may be *separately marketable as greenhouse gas emission reduction credits, offsets, or similar tradable commodities*. However, these separate avoided emissions may not result in or otherwise have the effect of attributing greenhouse gas emissions to the electricity.²⁴

Finally, **in 2015**, to continue and enhance the legislative direction that the productive use of landfill gas to offset fossil fuels as a greenhouse gas reduction measure, the Legislature passed ESB 5424, which

¹⁹ RCW 19.285.030(20).

²⁰ RCW 80.80.005.

²¹ RCW 80.70.010(15), RCW 19.29A.090(3)(d)

²² RCW 80.80.030(1).

²³ RCW 80.80.030(1)(d)

²⁴ RCW 19.285.030(15)(b)

allowed Public Utility Districts to produce and sell renewable natural gas available to reduce carbon emissions in the transportation sector and to displace fossil natural gas in other sectors.²⁵

"Renewable natural gas" means a gas consisting largely of methane and other hydrocarbons derived from the decomposition of organic material in landfills, wastewater treatment facilities, and anaerobic digesters.²⁶

This history of clear and consistent legislative intent can only be read that electricity generated from landfill gas results in greenhouse gas reductions, and should not be treated as an emission source

Staff interpretation of RCW 70.235.020 is inconsistent with statutory intent.

Ecology staff explained it intends to subject the H.W. Landfill Gas Facility to the Clean Air Rule under RCW 70.235.020, which requires monitoring and reporting of greenhouse gas emissions and ultimately reductions in greenhouse gas. This statute contains an express exemption for carbon dioxide emissions from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals.²⁷ Ecology staff stated it interpreted this section to mean that industrial combustion of biomass only in the form of wood is exempt from the greenhouse gas reduction requirements of RCW 70.235.020(1).

Greenhouse gas emissions are also addressed in Chapter 80.80 RCW. The Legislature's stated intent in enacting Chapter 80.80 RCW is to establish goals for the reduction of greenhouse gas emissions and for immediate actions to be taken in the electric power generation sector to reduce greenhouse gas emissions:

The legislature intends by this chapter to establish statutory goals for the statewide reduction in greenhouse gases emissions and to adopt the recommendations provided by the Washington climate change challenge stakeholder group, which is charged with designing and recommending a comprehensive set of policies to the legislature and the governor on how to achieve the goals. The legislature further intends by this chapter to authorize immediate actions in the electric power generation sector for the reduction of greenhouse gases emissions²⁸.

This statute exempts electric generation facilities powered exclusively by renewable resources, like the H.W. Landfill Gas Facility, from greenhouse gas emissions performance standards:

All electric generation facilities or power plants powered exclusively by renewable resources, as defined in RCW 19.280.020, are deemed to be in compliance with the greenhouse gas emissions performance standard established under this section²⁹.

"Renewable resources" which are defined as fuels used to generate electricity, are expressly defined to include landfill gas.³⁰

²⁵ RCW 54.04.190(2)

²⁶ RCW 54.04.190(6)(a)

²⁷ RCW 70.235.020(3)

²⁸ RCW 80.80.005(3)

²⁹ RCW 80.80.40(4)

³⁰ RCW 19.280.020(14)

While RCW 70.235.020 does not contain an express exemption for landfill gas facilities, it must be read in the context of other statutes addressing greenhouse gases, and not be read to attribute greenhouse gases to the generation of electricity by this facility. When interpreting a statute, the purpose is to determine and implement legislature's intent.³¹ This requires looking not only at the statute, but also at related statutes to determine legislative intent.³² Here, Washington legislature has stated an intent "to encourage the development of new safe, clean, and reliable energy resources to meet demand in Washington for affordable and reliable electricity."³³ In doing so, legislature has specifically recognized landfill gas as a "renewable resource"³⁴, and has stated that electric generation facilities using renewable resources are deemed to be in compliance with greenhouse gas emissions performance standards³⁵.

To interpret RCW 70.235.020 as requiring the attribution of greenhouse gases to a landfill gas generating facility because it provides an exclusion for wood biomass would elevate burning wood to a higher priority than utilizing landfill gas that would otherwise be released into the environment. There is no statutory basis for this preference, and it would lead to the absurd result of discouraging the further development of landfill gas facilities in Washington, while at the same time encouraging the development of "new safe, clean, and reliable energy sources to meet demand in Washington for affordable and reliable electricity" – but only from burning wood. Statutes are not to be interpreted in a manner that would lead to absurd results.³⁶ It would be absurd to interpret RCW 70.235.020 as only encouraging clean energy from burning wood biomass while discouraging the generation of electricity from landfill gas, when legislature has made clear its intention to encourage all forms of clean and renewable energy.

³¹ See *Anthis v. Copland* 173 Wn.2d 752, 756, 270 P.3d 574, 576, 270 P.3d 574 (2012)

³² *Id.*

³³ RCW 19.280.010.

³⁴ RCW 19.280.020(14)

³⁵ RCW 80.80.40(4)

³⁶ *State v. Larson*, 184 Wn.2d 843, 851, 365 P.3d 740, 744 (2015)



July 22, 2016

Sam Wilson
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Via on-line submittal at <http://www.ecy.wa.gov/climatechange/engagement.htm>

Re: Proposed Clean Air Rule

Dear Mr. Wilson,

Thank you for the opportunity to provide comments on Washington's Proposed Clean Air Rule ("Proposed Rule"). This letter provides the comments of the Low Carbon Fuels Coalition ("the Coalition"). The Coalition represents a broad range of low carbon fuel providers including producers and developers of biodiesel, ethanol, renewable natural gas, waste-derived fuels and retail low carbon fuel providers. The Coalition tracks regulations and legislation, advocates for policies that benefit the entire low carbon fuels industry, and facilitates industry success through consensus and coalition building.

At the outset, we would like express the Coalition's support for the objective of the Proposed Rule. As we understand it, the Proposed Rule is intended to reduce the emissions of greenhouse gas ("GHG") pollutants that cause climate change. Because the Coalition is not focused on power generation issues, we are not providing comments as to the likely effectiveness of the Proposed Rule in reducing GHG emissions in the power sector. However, the Coalition is deeply involved in low carbon policy issues pertaining to the transportation sector. As regards the transportation sector, the Proposed Rule is inconsistent with well-established scientific principles of GHG accounting and fails to incentivize low carbon fuels, the most proven method to reduce GHG emissions from existing vehicles. We are therefore concerned that the Proposed Rule may actually prove counter-productive to its GHG reducing objective in the transportation sector.



Concerns Regarding GHG Accounting

Based upon our review, the accounting of biogenic carbon emissions within the proposed rule is unclear. If the accounting of biogenic emissions departs from convention established by the Intergovernmental Panel on Climate Change (“IPCC”) and maintained by the U.S. Environmental Protection Agency (“EPA”) and the California Air Resources Board (“CARB”), the proposed regulation will fail to deliver benefits to the environment and potentially sacrifice the economic benefits of low carbon fuels. Further, incorrect accounting of biogenic emissions would undermine the scientific basis and legitimacy of Washington’s efforts to address climate change.

We note that WAC 173-441-130 specifies how fuel suppliers are to report the carbon emissions resulting from combustion for each type of fuel that they sell. The information required by this section would provide the data needed to quantify the biogenic carbon emissions from biodiesel and ethanol as well as the fossil carbon emissions from gasoline, diesel, propane, natural gas, kerosene, jet fuel, and aviation gasoline. This in itself is not inconsistent with GHG accounting conventions established by IPCC and implemented by EPA and CARB. However, the Clean Air Rule being proposed by Washington State could be improved by clearly stating that biomass derived fuels contain carbon of biogenic origin, and that the Department of Ecology is abiding by established convention for conducting GHG inventories. Similarly, the Proposed Rule could be improved by recognizing that waste-derived fuels reduce emissions of the short-lived climate pollutant methane, and that the Department of Ecology is abiding by established convention for conducting GHG inventories for these fuels.

As recognized in IPCC convention, the carbon contained within biomass-derived fuels is of recent biogenic origin. While a lifecycle approach is not in order for the purpose of GHG inventories and this Clean Air Rule, it is necessary to correctly distinguish between carbon of biogenic, waste captured or derived, and fossil origin. The proposed regulation appears to make this distinction in the reporting requirements of WAC 173-441, but fails to correctly address this distinction in WAC 173-442.

We are concerned that in our reading of WAC 173-442, there appear to be inconsistencies regarding the accounting of biogenic and waste-derived carbon. In keeping with established convention, biogenic carbon should be exempted from the compliance threshold and the net emissions counting toward emission reduction pathways. Reductions in GHG emissions provided by waste derived fuels must also be recognized to support the development and use of these fuels. We note that WAC 173-



*LOW CARBON
FUELS COALITION*

442-040 appropriately exempts CO₂ from industrial combustion of biomass. This exemption should be extended to all forms of biomass that are combusted for fuel which replaces non-biogenic carbon emissions.

While the proposed regulation fails to identify biomass-based liquid fuels as being carbon neutral, WAC 173-442-040 provides some questionable exemption for fossil fuels including: coal-based liquid fuels, jet fuel, and residual fuel oil. Climate change is caused by the extraction and combustion of fossil fuels. Fossil Fuel combustion accounts for approximately 80% of US GHG emissions¹. Displacing fossil carbon is the essential component of a viable carbon policy. Providing giveaway exemptions to fossil fuel industries in the transportation sector and inappropriately penalizing low carbon fuels will result in a counterproductive policy.

Conclusion

In order to be an effective policy for reducing net GHG emissions, Washington's Clean Air Rule must recognize that biogenic and waste derived carbon emissions do not add to the net atmospheric load of total GHGs. The proposed Clean Air Rule misses major opportunities to reduce net GHG emission by failing to include biofuels in section 173-442-160(3).

We would be glad to discuss any of these comments with you or provide any clarifications that would be helpful to your process. Thank you for your efforts in the vital area of climate change and for considering our recommendations.

Sincerely,

Graham Noyes
Executive Director

¹ EPA 430-R-16-002; Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2014; April 2016

**LOCAL GOVERNMENT COALITION FOR
RENEWABLE ENERGY**

*Barron County Waste-to-Energy
and Recycling Facility
(Almena, Wisconsin)*

City of Ames, Iowa

*City and County of Honolulu,
Hawaii*

*City of Huntsville Solid Waste
Disposal Authority
(Huntsville, Alabama)*

*County Sanitation Districts of
Los Angeles County
(Whittier, California)*

ecomaine (Portland, Maine)

*Kent County Board of Public
Works, Waste-to-Energy Facility
(Grand Rapids, Michigan)*

*Lancaster County Solid
Waste Management Authority
(Lancaster, Pennsylvania)*

*Lee County Public Utilities
Department
(Lee County, Florida)*

Marion County, Oregon

*Mid-Maine Waste Action Corp.
(Auburn, Maine)*

*Northeast Maryland Waste
Disposal Authority
(Baltimore, Maryland)*

*Solid Waste Authority of
Palm Beach County
(Palm Beach, Florida)*

*Spokane Regional Solid Waste
System (Spokane, Washington)*

*Wasatch Integrated Waste
Management District
(Layton, Utah)*

*York County Solid Waste Authority
(York, Pennsylvania)*

** In coordination with the
U.S. Conference of Mayors/
Municipal Waste
Management Association*

July 22, 2016

Via Email: AQComments@ecy.wa.gov

Sam Wilson
Department of Ecology
P.O. Box 47600
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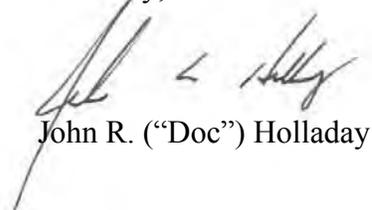
**Re: Comments Regarding Proposed Rule Making, Clean Air Rule,
Chapter 173-442 WAC**

Dear Mr. Wilson:

This letter concerns the above-referenced rulemaking proposal and is submitted by the Local Government Coalition for Renewable Energy (Coalition), an alliance of local government entities that own (and in various instances also operate) state of the art waste-to-energy (WTE) facilities and actively engage in various WTE-related state and federal regulatory proceedings and legislative matters. In addition to their WTE facilities, most of the Coalition members also own and operate landfills. As a result, the Coalition members have a unique and particularly well-informed perspective on the environmental impact of waste management alternatives. As shown in the attached "white paper," WTE is the most protective method for managing non-recycled municipal solid waste. A key example is the significant greenhouse gas (GHG) reduction that WTE provides. In that regard, **WTE is not part of a waste sector GHG problem but rather part of the solution.** The Department of Ecology's interest in sound environmental policy will be well served by following the lead of each of the other states that have established their own GHG reduction programs – those programs exclude WTE facilities from additional GHG reduction requirements.

The Coalition appreciates your consideration of our views, as further discussed in the attachment. If you have questions, please call me (256-880-6054 – I am the Executive Director of Coalition member Solid Waste Disposal Authority of Huntsville, Alabama, and serve as the Coalition's chairperson), or our counsel (Scott DuBoff and Matt Schneider, 202-965-7880).

Sincerely,



John R. ("Doc") Holladay

Barron County Waste-to-Energy
and Recycling Facility
(Almena, Wisconsin)

City of Ames, Iowa

City and County of Honolulu,
Hawaii

City of Huntsville Solid Waste
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* In coordination with the
U.S. Conference of Mayors/
Municipal Waste
Management Association

LOCAL GOVERNMENT COALITION FOR RENEWABLE ENERGY

America's Need for Clean, Renewable Energy: THE CASE FOR WASTE-TO-ENERGY

- ▶ Waste-to-energy (WTE) is one of the most environmentally protective sources of renewable energy.
- ▶ In fact, the World Economic Forum's report, *Green Investing – Towards a Clean Energy Infrastructure*, recognizes **WTE as one of eight “key renewable energy sectors” and “particularly promising in terms of . . . abatement potential” for carbon emissions.** p. 27, http://www3.weforum.org/docs/WEF_IV_GreenInvesting_Report_2009.pdf.
- ▶ Nevertheless, WTE is a largely untapped resource in the United States – only 7.6% of our municipal solid waste (MSW) is directed to WTE while 63.5% is landfilled. *See Generation and Disposition of Municipal Solid Waste (MSW) in the United States – A National Survey*, p. 19, http://www.seas.columbia.edu/earth/wtert/sofos/Dolly_Shin_Thesis.pdf (2014); *see also* <http://www.biocycle.net/2010/10/26/the-state-of-garbage-in-america-4> (estimating WTE-processed MSW in the U.S. at 7%).

Here are the facts:

WTE HELPS MITIGATE CLIMATE CHANGE – WTE's role in reducing greenhouse gas (GHG) emissions is widely recognized:

- Important context here is the widespread recognition that “because of its potency as a GHG and its atmospheric life, **reducing methane emissions is one of the best ways to achieve a near-term beneficial impact in mitigating global climate change.**” *Emission Guidelines, and Compliance Times, and Standards of Performance for Municipal Solid Waste Landfills; Advance Notice of Proposed Rulemaking (ANPRM)*, 79 Fed. Reg. 41772, 41774/1 (July 17, 2014).
- As EPA's solid waste management planning methodology recognizes, WTE reduces GHG emissions in three ways by (i) generating electricity and/or steam without having to use fossil fuel sources, (ii) avoiding the potential methane emissions that would result if the same waste was landfilled, and (iii) recovering ferrous and nonferrous metals, which avoids the additional energy consumption that would be required if the metals were produced from virgin ores. *Is it Better to Burn or Bury for Clean Electricity Generation?*, pp. 1711-14, <http://pubs.acs.org/doi/pdf/10.1021/es802395e> (hereafter “*Better to Burn or Bury*”); *see also* *Life After Fresh Kills*, Part B, Summary and pp. B-23 to B-32, <http://www.seas.columbia.edu/earth/EECSIPA-report-NYC-Dec11.pdf>.
- In fact, use of EPA's model for determining the life-cycle GHG emissions from alternative MSW management methods shows that **for every ton of MSW that is directed to WTE rather than landfilled, between 1.62 and 4.1 tons of GHG emissions are avoided.**¹

- Consistent with EPA's analysis, the Intergovernmental Panel on Climate Change (IPCC), a leading forum of independent scientific experts on climate change, **emphasizes WTE's dual benefits of (i) offsetting fossil fuel combustion and (ii) avoided landfill methane emissions.** *Mitigation of Climate Change*, p. 601, <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter10.pdf>.
- Similarly, the Kyoto Protocol's Clean Development Mechanism **approves WTE as a source of tradeable GHG emission reduction credits that displaces electricity from fossil fuels and avoids landfill methane emissions.** *Approved Baseline and Monitoring Methodology AM0025*, pp. 1-3, <https://cdm.unfccc.int/UserManagement/FileStorage/-9WVIN7Z06A8UGLFPO4Y51BDMJ23QXT>.
- In addition, the United Nations' November 2011 report, *Bridging the Emissions Gap*, concludes that **waste sector GHG emissions can be reduced 80% if there is significant diversion of currently landfilled waste to WTE.** See http://www.unep.org/pdf/UNEP_bridging_gap.pdf, pp. 37-38.
- WTE's GHG reduction benefits can also be evaluated by considering an equivalent reduction in automobile emissions. If the U.S. could increase its usage of WTE from the current 7.6% to the average WTE usage rate of the EU 28, which is 27%², the additional reduction in annual CO₂-equivalent emissions in the U.S. would be between 122 million and 309 million tons, which is equivalent to **removing 23,600,000 to 59,700,000 passenger cars from the nation's roads** (the range reflects the difference between using a methane GWP of 34 [100-year timescale] vs. a methane GWP of 86 [20-year timescale]).³

MODERN WTE FACILITIES – TRUE “GREEN” TECHNOLOGY – In addition to its benefits in reducing GHGs, WTE's status as a very clean and efficient energy source is evident on many other bases:

- Reflecting state and federal requirements for the most advanced emissions control technology, WTE emissions have plummeted since the late 1980's (e.g., annual WTE emissions of dioxin have decreased by a factor of 1,000 to less than 12 grams), *Waste-to-energy: A Review of the Status and Benefits in the USA*, p. 1722⁴, and WTE emissions are lower than landfill emissions for 9 of 10 major air pollutants, *Life After Fresh Kills, supra*, p. B-30.
- EPA's analysis shows that **WTE yields the best results (compared to landfills) in terms of maximum energy recovery and lowest GHG and criteria pollutant emissions.** *Better to Burn or Bury, supra*, pp. 1711-14, 1716-17.
- As a result, EPA recognizes WTE as a renewable energy source that “produce[s] 2800 megawatts of electricity with **less environmental impact than almost any other source of electricity.**”⁵
- EPA's hierarchy for “integrated waste management” **recommends waste combustion with energy recovery over landfilling** (as does the European Union).⁶
- WTE's efficiency and reliability are clear as well:

- WTE recovers approximately 600 kWh of electricity per ton of waste, which is approximately **10 times the electric energy recoverable from a ton of landfilled waste**. *Better to Burn or Bury, supra*, p. 1714; *see also Life After Fresh Kills, supra*, p. B-29.
- In addition, WTE is the **paradigm example of “distributed generation”** that serves nearby load without the need for new long-distance transmission lines.
- WTE is also **base-load generation**, available 24/7 and unaffected by days that are cloudy or calm.
- It should also be noted that **GHG emissions from WTE are primarily of biogenic origin** (approximately two-thirds). *Better to Burn or Bury, supra*, p. 1716.
 - These emissions are already part of the natural carbon cycle because the biogenic carbon that comprises paper, food and other biomass in municipal waste is removed from the atmosphere as part of the plant growth-natural carbon cycle.
 - The remaining petrochemical-based material (approximately one-third) can also be considered renewable (it’s generated year after year), but when relegated to landfilling rather than combustion with energy recovery, the result is the loss of a vast amount of valuable energy – **WTE recovers the energy equivalent of one barrel of oil from each ton of MSW**.
- Not surprisingly, The Nature Conservancy commends WTE’s sound environmental protection benefits. *See Climate Change and Renewable Energy*, The Nature Conservancy, presentation to Covanta Energy, Feb. 11, 2009, p. 24 (copy on file with author); *see also Ask the Conservationist; August 2011: Can Trash Solve Our Energy Problems?* <http://www.nature.org/science-in-action/science-features/ask-the-conservationist-august-2011.xml>.

WTE ENCOURAGES RECYCLING – Finally, WTE is also entirely compatible with recycling:

- WTE communities **routinely outperform non-WTE communities in recycling**, with recycling rates that are typically **well in excess of the national average and in some cases lead the nation in recycling**.
- This point is confirmed by a May 2014 national survey. *See* <http://energyrecoverycouncil.org/wp-content/uploads/2016/03/ERC-2014-Berenyi-recycling-study.pdf>.
- Although recycling rates are driven by state policies that apply equally to WTE and non-WTE communities, **WTE communities’ recycling rates are typically higher than the overall recycling rates for their respective states**. *Id.*, pp. 5, 9-11.

RECAP AND CONCLUSIONS

- ▶ WTE – a significant source of renewable energy that substantially reduces GHG emissions by (a) displacing electric power generation from fossil fuels, (b) avoiding methane emissions from landfill disposal of municipal waste, and (c) facilitating post-combustion recovery and reuse of ferrous and non-ferrous metals.
- ▶ Clean, baseload energy with very low emissions.
- ▶ Recovers 10 times the energy (electric power) from a ton of waste in comparison to landfill methane recovery-reuse.

- ▶ “Distributed” generation, i.e., energy is used where it is generated, which reduces the environmental impact and cost of transporting both waste and energy.
- ▶ WTE complements recycling programs rather than competing with recycling.
- ▶ But as is often the case with environmentally preferred alternatives, WTE can cost more (at least on a short-term and intermediate basis) – **Our communities accept the higher cost precisely because the result is better for the environment.**

¹ See <https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/airem.html> (scroll to “Greenhouse Gases”). The cited URL refers to a 1-ton-avoided metric, which is based on a now-superseded global warming potential (GWP) value for methane of 21 times carbon dioxide on a 100-year timescale. Assessment Report 5 (2014) of the Intergovernmental Panel on Climate Change (IPCC) increases methane’s GWP to 34 times CO₂ on a 100-year timescale and 86 times CO₂ on a 20-year timescale. The corresponding change in the tons-avoided metric (i.e., tons of CO₂-equivalent emissions avoided) is 1.62 tons avoided based on a 100-year timescale and 4.1 tons avoided using a 20-year timescale. Given methane’s status as a potent short-lived climate pollutant, use of the 20-year timescale GWP of 86 – and the corresponding 4.1 tons-avoided metric – is more accurate. See 79 Fed. Reg. at 41774/1 (referring to “methane’s potency as a GHG and its [12-year] atmospheric life”); *Emission Guidelines, Compliance Times, etc.*, 80 Fed. Reg. 52100, 52105/1 (August 27, 2015) (same).

² http://cewep.eu/information/recycling/m_1486. A portion of the 27% figure (between 0 and 5 percentage points) represents older MSW combustion facilities for which the original design did not include energy recovery. In recent years, a number of older EU facilities have been retrofitted for energy recovery (and even non-retrofitted facilities provide two of the three GHG reduction benefits that WTE facilities provide – avoided emissions of landfill methane and recovery of ferrous and nonferrous metals from post-combustion waste, i.e., avoiding the additional energy consumption that would be required to produce the same metals from virgin ores).

³ The calculation is based on the 2011 MSW landfill disposal volume of 247 million tons shown at http://www.seas.columbia.edu/earth/wtert/sofos/Dolly_Shin_Thesis.pdf, p. 19, *supra*, and EPA data for annual CO₂-equivalent emissions per passenger car (5.18 tons). See <https://www.epa.gov/sites/production/files/2016-02/documents/420f14040a.pdf>.

⁴ This document is not readily available on the internet. A copy is on file with the author.

⁵ See <http://energyrecoverycouncil.org/wp-content/uploads/2016/07/030214-EPA-letter.pdf>.

⁶ *Municipal Solid Waste in the United States: 2007 Facts and Figures*, p. 11, <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1001UYV.PDF>.



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July 22, 2016

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AQComments@ecy.wa.gov

Re: Comments on Proposed Clean Air Rule.

Dear Mr. Wilson:

Thank you for the opportunity to comment on this proposed regulation. We continue to appreciate the efforts of the Department of Ecology and the State of Washington to address climate change with policies that support domestic jobs and the environment.

The National Biodiesel Board (NBB) serves as the trade association for the U.S. biodiesel and renewable diesel industry. The NBB represents more than 90 percent of domestic biodiesel and renewable diesel production. In addition to governmental affairs activities, the association coordinates the industry's research and development efforts. The National Biodiesel Board is the first national fuel trade association to develop and adopt its own set of sustainability principles. Chief among those principles is the reduction of greenhouse gas emissions compared to petroleum fuel. Biodiesel reduces net lifecycle emissions of greenhouse gases by 81 percent compared to petroleum diesel¹. Biodiesel can reduce GHG emissions while bolstering domestic jobs and providing benefits to the economy. In 2015, biodiesel reduced 18.2 million metric tons of CO₂ equivalent by displacing fossil fuel while supporting 47,000 US jobs and creating \$2 billion in wages and \$8 billion in total economic activity².

The webinar presented by the Department of Ecology on June 23, 2016 presented very good rationale for why the state of Washington should reduce net emissions of carbon dioxide and other greenhouse gases. Rather than duplicate the extensive rationale supporting the critical need to reduce carbon emission from fossil fuels and other greenhouse gases, we will simply state that we agree with that rationale. We are concerned, however, that the accounting of biogenic carbon emissions within the proposed rule is unclear. If the accounting of biogenic emissions departs from convention established by the Intergovernmental Panel on Climate Change (IPCC), which generally recognizes the carbon neutrality of biofuels related to combustion, the proposed regulation will fail to deliver benefits to the environment and potentially sacrifice the economic benefits of renewable energy. This accounting has been applied by several governmental agencies, including the California Air Resources Board, particularly with respect to biofuels. Further, incorrect accounting of biogenic emissions would undermine the scientific basis and legitimacy of Washington's efforts to address climate change.

¹ 81% GHG reduction is based on the weighted average of feedstocks used nationally according to EIA and USEPA used to produce biomass based diesel participating in the Renewable Fuel Standard combined with lifecycle analysis published by USEPA and USDA, and comparing to the carbon intensity of current average US petroleum diesel.

² The Economic Impact of the Biodiesel Industry on the U.S. Economy; LMC International, June 2016

We note that WAC 173-441-130 specifies how fuel suppliers are to report the carbon emissions resulting from combustion for each type of fuel that they sell. The information required by this section would provide the data needed to quantify the biogenic carbon emissions from biodiesel and ethanol as well as the fossil carbon emissions from gasoline, diesel, propane, natural gas, kerosene, jet fuel, and aviation gasoline. This in itself is not inconsistent with GHG accounting conventions established by IPCC. However, the Clean Air Rule being proposed by Washington State could be improved by clearly stating that biodiesel and ethanol contain carbon of biogenic origin, and that the Department of Ecology is abiding by established convention for conducting GHG inventories.

As a matter of fact, and as upheld in IPCC convention, the carbon contained within biodiesel is of recent biogenic origin. This should not be confused with the net lifecycle carbon emissions of fuels or the centuries long carbon cycle of fossil fuels. When lifecycle analysis is used to quantify the net carbon intensity of fuels, the emissions of fossil fuel used in the process to refine fuels are added to the emissions from using the finished fuel. While a lifecycle approach is not in order for the purpose of GHG inventories and this Clean Air Rule. A clean air rule must distinguish between carbon of biogenic and non-biogenic origin. The proposed regulation appears to make this distinction in the reporting requirements of WAC 1732-441, but fails to correctly address this distinction in WAC 173-442.

We are concerned that in our reading of WAC 173-442, there appear to be inconsistencies regarding the accounting of biogenic carbon. In keeping with established convention, biogenic carbon should be exempted from the compliance threshold and the net emissions counting toward emission reduction pathways. We note that WAC 173-442-040 appropriately exempts CO₂ from industrial combustion of biomass. This exemption should be extended to all forms of biomass that are combusted for fuel which replaced non-biogenic carbon emissions. This is particularly true for biofuels from annual crops, where the carbon cycle is much shorter than the biomass that has apparently been exempted.

While the proposed regulation fails to identify biomass-based liquid fuels as being carbon neutral, WAC 173-442-040 provides some questionable exemption for fossil fuels including: coal-based liquid fuels, jet fuel, and residual fuel oil. The reason we have a problem with greenhouse gases is largely due to the extraction and combustion of fossil fuels. Fossil Fuel combustion accounts for approximately 80% of US GHG emissions³. Displacing fossil carbon without sacrificing access to energy, or economic vitality should be the thrust of any carbon policy. Providing giveaway exemptions to fossil fuel industries while inappropriately penalizing renewable fuels will result in a counterproductive policy.

In order to be a useful policy for reducing net GHG emissions, Washington's Clean Air Rule must recognize that biogenic carbon emissions do not add to the net atmospheric load of total GHGs. Rather, biogenic carbon emissions inevitably result from natural processes of the biosphere. Plants and other living organisms do not store carbon indefinitely. Most biomass is destined to decompose, oxidize, or be respired by another organism or process of decay. Effective carbon policy should encourage the capture of energy from the biogenic carbon cycle. Using the solar energy which is stored in the chemical bonds within biomass should be encouraged as an alternative to exploiting fossil fuels, which add additional carbon load to the atmosphere.

³ USEPA 430-R-16-002; Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2014; April 2016

The proposed Clean Air Rule misses major opportunities to reduce net GHG emission by failing to include biofuels in section 174-442-160(3). Bioenergy should be added as an option as a different form of energy that avoids the extraction and emission of fossil carbon.

Acknowledging the carbon benefit of bioenergy is important as it applies to many different kinds of solid, liquid, and gaseous fuels. (Bioenergy can even be used to produce renewable electricity—particularly when a mode is needed to store renewable energy.) Biodiesel provides just one example of how bioenergy can significantly reduce net GHG emissions.

Biodiesel and renewable diesel are currently made from an expanding array of feedstocks in the US. The combined biomass-based diesel pool used to satisfy the federal Renewable Fuel Standard is made of the following feedstocks: 49% soybean oil, 15% used cooking oil, 15% animal fat, 15% distillers corn oil, 6% canola oil, and 1% other recycled greases. All of this feedstock material results as the waste or byproduct of other industries. While it should be clear that used cooking oil, animal fat from meat processing, and inedible oil from corn ethanol production are waste products, the first-use vegetable oils which are turned into biodiesel are also byproducts of protein production. Protein is the limiting factor in our food supply. Protein is the most expensive macronutrient which is required to sustain human life. Oilseeds like canola, and especially soybeans are very efficient ways to grow protein for the food supply. The term oilseed is somewhat misleading, because these crops produce very high quantities of protein. Soybeans are 80% protein meal and 20% oil (by mass). While consumers demand the protein resulting from oilseeds, a significant portion of the oil cannot be used for food purposes.

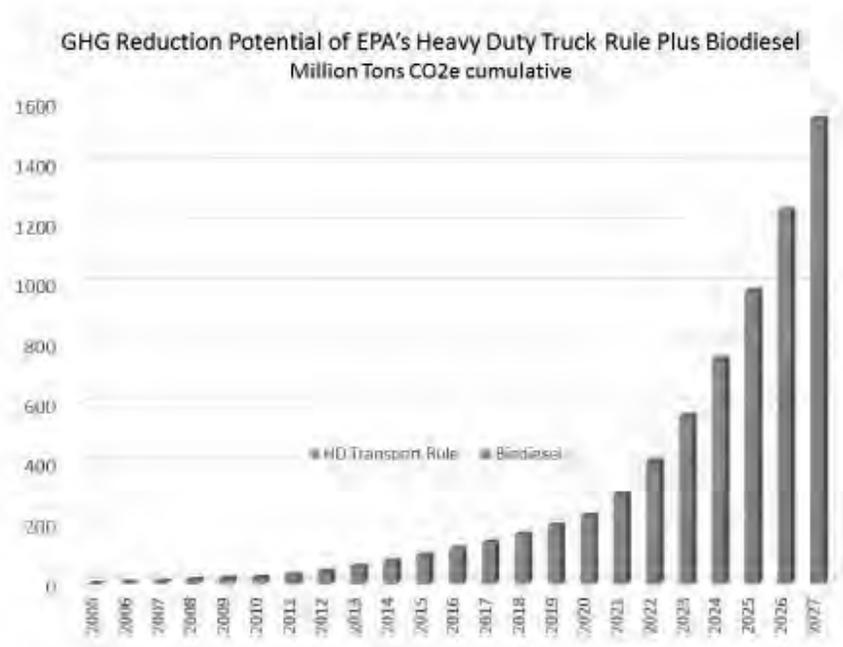
All plants store solar energy. This energy can be stored in fat (vegetable oil), soluble carbohydrates (starches and sugars), and insoluble carbohydrates (fiber). Plants all have different strategies for storing and using solar energy. Oilseeds pack in high concentrations of stored solar energy into seeds, because that energy is needed to begin the process of growing a new plant. When we harvest seeds, like soybeans, we harvest with the goal of collecting enough protein for food (including livestock feed) uses. Even a high protein plant, like soybeans contains a relatively high amount of stored solar energy in ratio to the protein contained in each seed. As a result, when we harvest enough plant protein as required for the food supply, we coincidentally collect far more energy (fat/oil) than we can incorporate into our food supply. We need to grow more protein to feed a growing population, but we cannot possibly eat all the fat which is coproduced by even the most efficient forms of protein production. This leaves an excess of vegetable oil and fat on the market. The biodiesel industry was started in this country in order to find a use for this excess vegetable oil.

How does this impact net GHG emissions? As stated above, we need efficient protein production to satisfy global needs of the food supply. Oilseeds, like soybeans are among the most efficient way to grow protein. When we grow this efficient protein crop, we get more stored solar energy in vegetable oil than we can possibly eat. So what becomes of this vegetable oil if we fail to process it into biodiesel. Like all forms of biomass, vegetable oil will eventually break down biologically or through oxidation. The carbon from biomass is destined to return to the atmosphere. This completes a cycle where new plants can grow using solar energy and convert atmospheric CO₂ into new biomass. This is the rationale used by the IPCC to consider biogenic carbon to be carbon neutral.

Bioenergy can be a powerful tool to mitigate climate change, because the solar energy stored in biomass can be used for beneficial purposes and displace the extraction and combustion of fossil fuels. By using carbon-neutral solar energy to displace carbon-polluting fossil energy, we can maintain the societal and economic benefits of energy use while reducing net GHG emissions. Biodiesel, which is made from solar energy stored in excess vegetable oil is a perfect example of

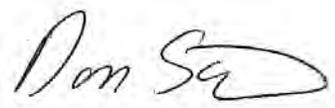
an annual crop that reabsorbs the carbon emissions equivalent to the previous season's harvest. This, again supports the IPCC ruling that biogenic carbon is carbon neutral. GHG fluxes from land use change are inventories separately, and the United States is a net sequester of carbon with respect to land use.

The Department of Ecology is to be commended for recognizing in WAC 173-442-160(3) that reduced energy consumption is an important strategy to reduce GHG emissions from transportation. The use of liquid fuels for transportation cannot likely be reduced to zero. For many important uses, liquid fuels will long be necessary to meet the needs of society. This is especially true for emergency and heavy duty applications. For these reason, Washington should not underestimate the power to reduce net GHG emissions through biofuels. The federal heavy duty truck rule proposed by USEPA seeks to reduce emission from the heavy duty fleet by 1 billion tons by 2028. By implementing biodiesel on a national scale, we can achieve an additional 550 million tons of GHG reduction over the same time frame. The combined GHG reduction of biodiesel plus the pending heavy duty truck rule is illustrated in the graph below. The benefits of including biodiesel as a GHG reduction strategy go beyond supporting 47,000 US jobs and generating \$8 billion in total economic activity. Including biodiesel in addition to energy efficiency improvements will further reduce GHG emission by another 55% compared to implementing efficiency alone. Further, biodiesel can begin achieving these GHG benefits in the heavy duty fleet of today as well as the modern, fuel efficient fleet of 2028 that USEPA envisions to replace the fleet of today. Efficiency and biofuels do not replace each other. Each is reducing specific emissions that cannot and will not be reduced through any other means.



Washington should incentivize the use of carbon-neutral energy in place of carbon-polluting energy, and must exempt biogenic carbon from the compliance threshold and carbon reduction requirements within the proposed Clean Air Rule. Failing to do so will increase the cost of meeting Washington's carbon reduction goals; it will reduce the overall effectiveness of Washington's policies to mitigate climate change; and it will threaten the loss of green jobs and economic benefits from renewable fuel production. The simple solution is to exempt emissions of CO₂ from the combustion of liquid biofuel from the list of covered sources. Taking this approach would ensure the Clean Air Rule is scientifically responsible and consistent with other state, national, and international policies.

Sincerely,

A handwritten signature in black ink that reads "Don Scott". The signature is written in a cursive style with a large, sweeping loop at the end of the name.

Don Scott, PE
Director of Sustainability
National Biodiesel Board

July 22, 2016

Sam Wilson
Department of Ecology
State of Washington

Re: Chapter 173-442 WAC, Clean Air Rule

Dear Mr. Wilson,

Thank you for the opportunity to comment on the Department of Ecology's proposed Clean Air Rule to reduce greenhouse gas emissions. Because the Department is contemplating allowing covered parties to satisfy their compliance obligations under the proposal using greenhouse gas allowances purchased from California's cap-and-trade system, I write to share important information about the status of the California market.

The Department should be aware that California's carbon market is significantly oversupplied at present, meaning that the total supply of compliance instruments available in the market significantly exceeds the demand for those instruments. The California program's legal future is also highly uncertain. If the program expires at the end of its current authorization through December 2020, then the oversupply conditions will worsen and the environmental consequences of allowing covered parties in Washington to use allowances issued by an expiring program in California will be severe.

While the Department's proposed Clean Air Rule does not by itself allow covered parties in Washington to submit California allowances for compliance, the accompanying cost-benefit analysis explicitly contemplates this outcome and the proposal itself creates a process for approving greenhouse gas allowances issued by external markets.

The presence of oversupply conditions in an approved external emission market would reduce the environmental integrity of the Department's proposal. Purchasing allowances from an oversupplied market would not lead to greenhouse gas emission reductions because such a purchase would have no impact on the emissions in the seller's market, and therefore the

credit generated for compliance under the Clean Air Rule would not reflect a real emission reduction. In the worst-case scenario, sufficient oversupply in an approved external emission market could completely negate the anticipated benefits of the proposed rule during the first two compliance periods, during which time these external allowances could be used for 100% of compliance obligations.

To account for the risks identified here, the Department should conduct additional analysis of oversupply conditions in California's cap-and-trade program prior to making any decision to approve allowances from this market. It should also explicitly consider the environmental integrity impacts of recognizing California allowances in its final cost-benefit assessment—including a consideration of the impacts should California's program expire at the end of 2020, as is currently codified in California state regulations.

1. The proposed Clean Air Rule is designed to allow covered parties to comply by purchasing allowances from California's cap-and-trade program.

Under the Department's proposed rule, covered parties with greenhouse gas emissions above their assigned targets must acquire sufficient Emission Reduction Units (ERUs) to cover the excess emissions,¹ with ERUs equivalent to one metric ton of carbon dioxide equivalent (tCO₂e).² ERUs can be generated by emission reductions made at covered parties' facilities, from approved projects or programs that reduce greenhouse gas emissions (including carbon offset protocols and renewable energy credits), or by the purchase of allowances from external emission markets approved by the Department.³ The use of allowances from approved external emission markets can account for 100% of the compliance

¹ WAC 173-442-200.

² WAC 173-442-020 subd. (1)(m) (defining "ERUs"); WAC 173-442-020 subd. (1)(d) (defining CO₂e with respect to global warming potentials (GWPs) listed in WAC 173-441-040). The Department proposes using 100-year GWPs from the 1995 IPCC Report for emissions in years 2013-14 and 100-year GWPs from the 2007 IPCC Report for emissions in 2015 and beyond. WAC 173-441-040, Table A-1.

³ WAC 173-442-110.

obligations in the first two compliance periods (2017–2019 and 2020–2022), with the allowable share falling to 50% and lower in subsequent compliance periods.⁴

In order for the Department to approve allowances from an external emission market under the proposed rule, three conditions must be met: (a) the allowances are issued by an established multi-sector greenhouse gas emission reduction program, (b) parties covered by the Department’s Clean Air rule must be eligible to purchase the external allowances, and (c) the external allowances must be derived from methodologies consistent with the Department’s own approach.⁵

While the decision to approve external allowances is left to future Department discretion, it is clear that the Department’s proposal contemplates the use of California allowances. On paper, California’s cap-and-trade program could potentially meet all of the Department’s criteria; and in practice, the Department’s preliminary cost-benefit analysis of the Clean Air Rule explicitly contemplates this outcome.⁶

2. California’s carbon market is currently oversupplied.

As has been widely reported in recent months, California’s carbon market is experiencing a significant oversupply condition in which the supply of available compliance instruments exceeds demand.⁷ In February 2016, the government-sponsored auction cleared at the price floor, but for the first

⁴ WAC 173-442-170, subd. (2)(a), Table 3.

⁵ WAC 173-442-170 subd. (1).

⁶ Department of Ecology, Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis, Chapter 173-442 WAC (Clean Air Rule) & Chapter 173-441 WAC (Reporting of Greenhouse Gases), Report # 16-02-008 (June 2016) at 14–15 (estimating the cost of external market emissions by reference to the linked California-Québec cap-and-trade market, with costs estimated between \$13–14 per tCO₂e); *id.* at 22, 23, 33 (reporting the cost of compliance with reference to external market emissions cost estimates based on the linked California-Québec cap-and-trade market).

⁷ Danny Cullenward and Andy Coghlan, Structural oversupply and credibility in California’s carbon market. *The Electricity Journal* 29(5): 7–14 (2016). Free access to this article is available through August 13, 2016, at the following address: <http://authors.elsevier.com/a/1TGUH3ic~q2YZ>.

time in the program's history, not all available current-year vintage allowances sold out.⁸ Shortly thereafter, secondary markets began trading at slightly below the auction price floor.⁹ In May 2016, the auction failed spectacularly, with 90% of available allowances going unsold.¹⁰ Valued at the auction price floor, these allowances were worth over \$880 million.¹¹ As these auction and secondary market data indicate, California's cap-and-trade market is oversupplied.

The California Air Resources Board (CARB), which regulates the California carbon market, may be the only entity with the necessary data to calculate the full extent of oversupply. While CARB has not publicly quantified or acknowledged the oversupply condition, it has projected that expected emissions from regulated entities in 2020 will be below the market cap in that year¹²—a condition that guarantees oversupply. Meanwhile, the *Sacramento Bee* has cited an estimate from ICIS, a market intelligence firm, that the California cap-and-trade program is oversupplied by over 250 million tCO₂e.¹³

⁸ CARB, February 2016 Joint Auction #6 Summary Results Report, http://www.arb.ca.gov/cc/capandtrade/auction/feb-2016/summary_results_report.pdf.

⁹ Data from one secondary market index (ICE, Inc.) are freely available at <http://calcarbondash.org/>.

¹⁰ CARB, May 2016 Joint Auction #7 Summary Results Report, http://www.arb.ca.gov/cc/capandtrade/auction/may-2016/summary_results_report.pdf.

¹¹ Cullenward and Coghlan, *supra* note 7.

¹² CARB, Preliminary Draft Proposed Regulation Order and Staff Report (July 19, 2016) at 12 (projecting that emissions from sources regulated under the cap-and-trade program will be 322.6 million tCO₂e, which is lower than the cap for that year at 334.2 million tCO₂e), http://www.arb.ca.gov/cc/capandtrade/draft-ct-reg_071216.pdf.

¹³ Carbon Market Compliance Association, Fixing California's Cap-and-Trade (June 8, 2016) (on file with author); Dan Walters, California cap-and-trade emission auctions could face bleak future, *Sacramento Bee* (June 20, 2016) (referencing the CMCA memo and ICIS estimate), <http://www.sacbee.com/news/politics-government/politics-columns-blogs/dan-walters/article84930702.html>.

3. The legal authority to extend California’s carbon market beyond 2020 is uncertain and will likely be challenged in court.

Weak demand at auctions in California’s cap-and-trade market is a product of oversupply as well as uncertainty over the program’s post-2020 future. This uncertainty helps explain why market stakeholders are not buying all available allowances at auction and why allowances are trading on secondary markets slightly below the auction price floor.

In 2015, Governor Brown issued an executive order establishing a statewide target of reducing greenhouse gas emissions 40% below their 1990 levels by 2030 and 80% below 1990 levels by 2050.¹⁴ If allowances in a market that is oversupplied in the short term could be used to comply with these long-term targets, then one would expect buyers to purchase all available allowances at the low allowance price floor of \$12.73/tCO₂e.

However, the carbon market is currently authorized only through the end of 2020.¹⁵ The market’s enabling statute, AB 32, authorized CARB to develop market-based measures (including cap-and-trade) in order to meet a state target of reducing statewide emissions to their 1990 levels by 2020. Critically, the statutory provision under which CARB developed California’s cap-and-trade market is time-limited:

In furtherance of achieving the statewide greenhouse gas emissions limit, by January 1, 2011, the state board may adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions, **applicable from January 1, 2012, to December 31, 2020, inclusive**, that the state board determines will achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, in the aggregate, from those sources or categories of sources.¹⁶ [Emphasis added.]

Whether and how this limit can be overcome is now the subject of significant controversy in California.

¹⁴ Governor Edmund G. Brown, Executive Order B-30-15 (April 29, 2015), <https://www.gov.ca.gov/news.php?id=18938>.

¹⁵ Cal. Code Regs. tit. 17, §§ 95840-41.

¹⁶ Cal. Health & Safety Code § 38562(c).

CARB contends that it can extend the cap-and-trade program after 2020 without legislative re-authorization, but has not explained its legal theory in detail. In July, CARB released draft proposed regulations to extend the cap-and-trade program through 2050.¹⁷ Remarkably, the draft proposal does not discuss the statutory language quoted above, on which CARB has traditionally justified its cap-and-trade program. Nowhere in the 66-page summary of staff reasoning does the draft proposal clarify CARB’s view of its authority to continue cap-and-trade beyond the program’s current expiration at the end of 2020.

CARB does, however, make reference to authority to “maintain and continue” emission reductions beyond 2020¹⁸ and to comply with the Governor’s executive order targets for 2030 and 2050, consistent with existing (but unspecified) statutory authority.¹⁹ For context, the “maintain and continue” language likely refers to another set of provisions in AB 32:

- (a) The [2020] statewide greenhouse gas emissions limit shall remain in effect unless otherwise amended or repealed.
- (b) **It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020.** [Emphasis added.]
- (c) The state board shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020.²⁰

Again, CARB has not publicly analyzed how the “maintain and continue” provision overcomes the implied limitation of the authority to use market-based mechanisms only through the end of 2020.

It should also be noted that the Legislative Counsel Bureau, an independent legal office that advises the California legislature, has analyzed these questions. At the request of State Senator Jean Fuller

¹⁷ CARB, *supra* note 12.

¹⁸ *Id.* at ES-1; *id.* at 1.

¹⁹ *Id.* at 3.

²⁰ Cal. Health & Safety Code § 38551.

(R-Bakersfield), the Bureau wrote a 10-page memo concluding that (1) the Governor’s executive order could not establish a legally binding target for 2030 or 2050 in the absence of statutory authority and (2) the “maintain and continue” language in AB 32 does not authorize extension of the cap-and-trade program after 2020.²¹

To be clear, the Bureau’s analysis is only advisory and cannot substitute for what a reviewing court would independently determine in the course of litigation. Nevertheless, the Bureau’s analysis indicates that CARB’s decision to proceed with draft proposed regulations in July is, at a minimum, controversial.

Given the legal uncertainty over CARB’s post-2020 authority, the draft proposed regulation is likely to be challenged in court should CARB proceed with its stated intentions to extend the cap-and-trade program without legislative re-authorization.

4. Because California’s carbon market is oversupplied and could expire at the end of 2020, the Department should account for the environmental integrity impacts of allowing covered parties to use California allowances under the Clean Air Rule and in its accompanying cost-benefit analysis.

In light of the oversupply conditions present in California’s carbon market, the Department should explicitly evaluate whether it believes the purchase of allowances from an oversupplied market constitute real greenhouse gas emission reductions.²²

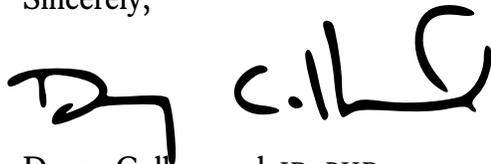
²¹ California Legislative Counsel Bureau, Letter to Senator Jean Fuller, California Global Warming Solutions Act of 2006: Executive Branch Authority - #1609054 (Apr. 19, 2006) (on file with author); *see also* David Siders, Legislature’s attorney says Jerry Brown can’t set climate target. *Sacramento Bee* (Apr. 21, 2016). <http://www.sacbee.com/news/politics-government/capitol-alert/article73227072.html>. Although the Bureau does not publish its advisory letters, a copy may be found online, *e.g.* at <http://careaboutenergy.org/wp-content/uploads/Leg-Counsel-Opinion-GGRF.PDF>.

²² *E.g.*, as the term “real” is defined under WAC 173-442-150 subd. (1)(a).

The Department's implied assumption in the draft cost-benefit analysis that an allowance from California's market is equivalent to an ERU generated in Washington²³ is mistaken. Buying allowances from an oversupplied market does not result in a one-for-one reduction in greenhouse gases and is therefore neither real nor comparable to a reduction in emissions from in-state sources or the use of compliance instruments from other market-based programs that are functioning properly. This concern is all the more pressing if California's market is not extended beyond 2020.

Thank you again for the opportunity to comment on the proposed rule. If it would be helpful, I can provide additional data and analysis on the issues discussed in this comment letter, as well as copies of any of the primary sources referenced herein.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Cullenward'.

Danny Cullenward JD, PHD
Research Associate
Near Zero / Carnegie Institution for Science
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www.ghgpolicy.org/about/

Disclaimer: I am writing in my personal capacity only, and not on behalf of my employer.

²³ Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis, *supra* note 6 at 38–39 (calculating the benefits of avoided greenhouse gas emissions by assuming that the Clean Air Rule's target emission reductions are achieved); WAC 173-442-170 subd. (1)(c) (requiring that approved allowances from external emission markets use methodologies that are "congruent" with the Washington state reporting requirements in chapter 173-441 WAC).



**COMMENTS ON PROPOSED RULEMAKING CR-102:
CHAPTER 173-442 WAC - CLEAN AIR RULE & CHAPTER 173-441 WAC -
REPORTING OF EMISSIONS OF GREENHOUSE GASES
July 22, 2016**

The Northwest and Intermountain Power Producers Coalition (“NIPPC”)¹ appreciates the opportunity to provide comments on the Washington Department of Ecology’s (“Ecology”) proposed modifications to the Clean Air Rule establishing greenhouse gas (GHG) emissions standards (the “Proposed Rule”), issued on June 1, 2016.

NIPPC also appreciates the leadership being shown by the State of Washington and Ecology in working to create an effective program to limit carbon emissions. As a general policy matter, NIPPC believes that a fulsome market-based cap and trade program, including trading, broad access to offsets, and cross-border cooperation is the best approach to carbon reduction, and encourages Ecology and the State to work towards a program capable of full linking with other jurisdictions, such as the WCI program utilized by California, Quebec, and shortly Ontario. NIPPC believes it is the most effective mechanism available to meet the states climate goals, and encourages the state to continue to move forward to develop that capability.²

In these comments, NIPPC addresses limited, specific aspects of the Proposed Rule:

- Standardized Nomenclature and Standardized Terms: Ecology should adopt standardized terminology for the various products covered by the rule and provide specific definitions thereof, differentiating ERUs into Allowances, Offsets and Emission Performance Credits (EPCs).
- Issuance of Allowances/EPCs: Ecology should recognize that it has full authority to issue “allowances” or “EPCs” under the Clean Air Act

¹ NIPPC is a member-based advocacy group representing electricity market participants in the Pacific Northwest. On behalf of our membership, which includes a diverse cross-section of entities across the electricity value chain in the region, we are committed to facilitating cost-effective electricity sales, offering consumers choice in their energy supply, and advancing fair, competitive power markets. Learn more about NIPPC www.nippc.org/index.tpl.

² A more fulsome discussion of the benefits of a broad regional cap and trade program can be found in the comments filed by the International Emissions Trading Association. NIPPC agrees with and supports these comments.

- Third Party Participation: Ecology should modify the Proposed Rule to allow for third-party ownership of ERUs. Failure to do so will dramatically limit the program's effectiveness.
- Parity for Electricity Imports: Ecology should ensure parity between in-state generated electricity and electricity imported from jurisdictions that do not put a price on carbon. Failure to do so will result in leakage and undermine program benefits.
- Parity for Electricity Exports: Ecology should insure electricity exported out of Washington not be subject to carbon pricing both in Washington and in the state that imports such electricity.

NIPPC believes that Ecology has sufficient authority under the Clean Air Act to address all of these issues. As an addendum to these comments, we briefly outline the legal basis for such authority.

1. Adopt Standardized Nomenclature and Standardized Terms.

NIPPC recommends the Proposed Rule be modified to utilize standardized industry terminology and define terms within the rule with precision. Simply clarifying the meanings of "allowance" versus "Energy Reduction Unit" will help resolve a number of vexing problems with the Proposed Rule.

Various successful cap and trade programs exist in North America and throughout the world, with proven records of success -- the Western Climate Initiative ("WCI") program (covering California, Quebec, and shortly Ontario), the Regional Greenhouse Gas Initiative ("RGGI," covering 9 eastern states); the European Union Emission Trading System ("EU-ETS," covering 31 countries), the federally-managed SO_x/NO_x markets, and a variety of other jurisdictions. Generally speaking, all of these programs use a common nomenclature for specified type of products:

- "**Allowances**" are a limited license to emit a set amount of emissions, issued by the regulator. Allowances are generally understood to be accounting instruments, and not "property," and thereby can be issued, revoked, or discounted by the regulator without creating any constitutional "takings" issues, but still have the indicia of property with respect to private transactions. This gives the regulator substantial flexibility to control the system and ensure a smoothly operating market.
- "**Emission Performance Credits**" or "**EPC**" are credits generated by regulated facilities that have reduced emissions below their specified target or benchmark.

- “**Offsets**” are real and verifiable reduction in carbon created under specific protocols approved by the programs.
- “**Renewable Energy Credits**” or “**RECS**” are certificates representing the environmental attributes from generation of renewable energy.
- “**Compliance Instruments**” is the umbrella term covering all types of instruments that can be used in a given program.

While these terms may be defined somewhat differently in different jurisdictions, they have broad general meaning throughout the industry.

The Proposed Rule, by contrast, uses the undefined term “Energy Reduction Unit” or “ERU” in a manner that generally appears to be consistent with a Compliance Instrument – *i.e.*, an umbrella instrument that includes offsets, allowances, and Emission Performance Credits. The Proposed Rule uses other terminology imprecisely, or at least in a manner different than industry standards. For example, WAC 173-442-150, “Criteria for Activities and Programs Generating Emission Reduction Units,” contemplates a type of product commonly known throughout the industry as an “offset,” yet the Proposed Rule does not use that terminology, nor provide any other term to reference this type of emission product. Similarly, the Proposed Rule uses the term “allowance” without definition, but seemingly to refer to any compliance instrument from another GHG emission reduction program. Many cap and trade programs use the term “allowance” to contemplate issuance by a regulator of a baseline level of compliance instruments that can be freely traded, but distinguish it from offsets; others use the term allowance to include both instruments issued by the regulator as well as offsets.³ It is unclear whether use of the term “allowance” in the Proposed Rule would include offsets, or not, as the term is never defined.

NIPPC recommends Ecology revise the Proposed Rule to include definitions based on industry standards as described above. Doing so will resolve numerous questions regarding the rule, and allow Ecology to address specific concerns on specific matters without corrupting other aspects

³ See Quebec *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*, Section 3(5) (““emission allowance” means any emission allowance referred to in the second paragraph of section 46.6 of the Environment Quality Act (chapter Q-2), namely a greenhouse gas emission unit, offset credit or early reduction credit, and any emission allowance issued by a partner entity, each allowance having a value corresponding to one metric ton of greenhouse gas CO₂ equivalent”).

of the rules. Doing so will also encourage participation in the market, adding to its success. And, doing so will place the State in a better position to expand into regional carbon markets in the future (should it desire to do so) without the need to completely disrupt existing business practices.

2. Issuance and Allocation of ERUs or Allowances.

NIPPC recommends that Ecology issue “allowances” (as that term is generally used in the industry) to compliance entities equal to their compliance targets.

In substantially all of the active carbon cap and trade markets, allowances are allocated to the entities with the compliance obligations, based on emission reduction goals, with the amount of allocated allowances declining over time. Because Allowances are generally understood to be accounting instruments, and not “property,” and thereby can be issued, revoked, or discounted by the regulator without creating any constitutional “takings” issues.⁴ This gives the regulator substantial flexibility to control the system and ensure a smoothly operating market. At the same time, allowances still have the indicia of property with respect to private transactions; in fact, they are expressly tradeable. This allows for the development of a robust market, which, in turn, allows compliance entities the ability to find the lowest cost options to meet their carbon goals.

NIPPC understands that Ecology’s decision not to use the allowance approach was due to a concern that it did not have the authority to distribute credits or allowances to covered parties -- but the Proposed Rule provides no explanation as to why this is the case. In public outreach meetings, Ecology staff indicated that this concern is based on their belief the Proposed Rule is limited by the emissions-driven mandate of the Washington State Clean Air Act (“CAA”), which does not expressly create a cap-and-trade system or create or allocate tradable allowances. As

⁴ See, e.g., the California Air Resources Board’s rationale for Section 95820(c), which states that compliance instruments are not property: “This provision is necessary to inform holders of compliance instruments of the properties of compliance instruments. Compliance instruments are created by ARB through AB 32, and are to be used solely for use as a compliance credit in California’s market. It is necessary for the Executive Officer to retain authority to terminate or limit the ‘authorization to emit’ so that in the case of fraud or market manipulation, ARB has a mechanism to protect the market. Additionally, property rights cannot attach to the compliance instruments because, in the event of federal preemption in the cap-and-trade market or other conditions, California must have the ability to revoke the compliance instruments without creating a loss to the people of California. (ARB, Staff Report: Initial Statement of Reasons, Proposed Regulation to Implement the California Cap-and-Trade Program IX-18.)

described in the Addendum hereto, NIPPC believe that this is an overly-cautious interpretation of the statute and that the Clean Air Act; in fact, it provides Ecology ample authority to issue allowances.⁵ As such, there is no reason for Ecology not to do so.

NIPPC urges Ecology modify its position and issue allowances. Doing so will fundamentally strengthen the program by providing Ecology a mechanism to manage reserves, stabilize pricing where necessary, and ensure an efficiently working market. To the extent it declines to do so, Ecology should provide a detailed explanation, and expressly indicate the legal authority that prevents utilization of this standard emission trading mechanism.

Third Party Participation in ERU Markets.

The Proposed Rule expressly prevents ownership and trading of ERUs (i.e., compliance instruments) by third parties.⁶ This limitation is unnecessary, and will severely limit the efficacy of the program. As with the allocation of allowances issue addressed in Section 1 above, NIPPC understands that Ecology proposed this limitation due to a concern over its authority under the Clean Air Act; however, as noted above and as described more fully in the Addendum to these comments, NIPPC believes that Ecology's concerns are misplaced, and that there is no legal impediment to allowing third party participation. Moreover, even if the Ecology determines that it is not empowered under the Clean Air Act to allocate allowances directly, there is nothing in the Clean Air Act that prevents the sale of ERUs from one party to another.

Cap and Trade programs have proven to be the most successful policy instrument for creating real reduction in carbon emissions. The success of these programs requires well-functioning markets that incent emission reduction by allowing entities to actively trade compliance instruments. Such markets rely on plentiful market participants to help provide market liquidity, risk management and hedging strategy services, transparent price discovery, as well as capital. Absent third parties, trading of ERUs will be limited to a very small number of compliance

⁵ NIPPC recognizes that there may be legal distinctions between whether Ecology has authority to distribute allowances, on one hand, versus generation and utilization of revenue from the sale of allowances at state sponsored auctions, on the other. NIPPC takes no position on this latter issue; but notes that allocation of allowances as recommended here does not require such systems.

⁶ See Proposed Rule section 173-442-140 (3) "Third parties may not own ERUs."

entities, creating a market too small to function adequately. It will limit the compliance entities' ability to access risk capital through structured carbon financing provided by financial participants. Third party market participants can also help compliance entities significantly reduce risk through fixed price agreements, hedging strategies, or similar mechanics – just as in the case of most other industries.

For example, a compliance entity engaged in a competitive industry may value the ability to lock in a fixed price for ERUs in future years so they can adequately forecast their future costs structures, rather than bear the risk of market fluctuations. A third party trading participant may be willing to absorb that risk and can offer certainty to the compliance entity. Such transactions are routine throughout the business world and create significant value for participants; by limiting a compliance entity's ability to find willing trade participants, Ecology's proposal hamper the development of risk management tools, will substantially harm the market, and will drive up the cost of compliance for all parties.

Notably, virtually all other emissions markets, including the WCI markets, the Regional Greenhouse Gas Initiative, the EU ETS, and various subnational markets, all allow third party trading. This is also true for the Alberta market, which is structured in a manner similar to the Proposed Rule in many respects. In each of these markets, the regulator maintains oversight of third party participation in the market by requiring parties that participate to register and be subject to the applicable market rules established by the regulatory authority. For example, Quebec allows participation of covered entities (defined in Quebec as “emitters”) as well as third parties that meet specific requirements and register with the system, referred to as “Participants.”⁷ California has a similar program, with third parties identified as “Voluntary Associated Entities.” Like Quebec, California requires that these third parties to meet specific requirements and be registered in the system. The markets also provide varying examples of conduct of trade mechanics, holding limits, and market oversight to help ensure that no entity,

⁷ See, e.g., Quebec Cap and Trade Regulations, Chapter IV, Section 24 (“Emission allowances may be traded only between emitters or participants registered for the system, and only emitters or participants registered with the Minister or a partner entity may hold emission allowances for their own use.”)

whether a compliance entity or third party, can engage in manipulative conduct, artificially affect market pricing, or otherwise act in a manner detrimental to the market.

NIPPC urges Ecology to adopt policies allowing third parties to participate in the system, as in these other markets. This can be done simply and easily by requiring that third parties desiring to participate in the Washington market register – and follow any other guidelines and market rules adopted by Ecology – in order to do so. If it declines to do so, NIPPC requests that Ecology provide its specific rationale, including any legal authority that limits Ecology’s authority to do so; an analysis of the benefits versus the detriments of allowing third party participation; market examples considered; and any other factors that informed the decision.

3. Import Parity.

Ecology should insure parity between carbon costs for electric generation within the state and electricity imports. Requiring in-state electric power generation to bear carbon costs, but not imposing similar obligations on out-of-state generation delivered into Washington, will simply cause leakage, raising power prices within the state and lowering economic output with no net carbon reduction. Other states, such as California, have successfully imposed carbon costs on imported electricity, and withstood legal challenge; there is nothing that prevents Washington from doing so as well.

Any mechanism that imposes costs on imported electricity must be structured in a manner to avoid interstate commerce clause challenges. This is easy to accomplish by applying requirements identically to in state and out of state power generation. As the Ninth Circuit found in the landmark *Rocky Mountain Farmers Union v. Corey*, 730 F.3d 1070 (9th Cir. 2013 (cert denied), upholding challenges to California’s low carbon fuel standard, “[a]bsent discrimination, we will uphold the law “unless the burden imposed on [interstate] commerce is clearly excessive in relation to the putative local benefits.” The latter quote refers to the commerce clause balancing test in the well-known case *Pike v. Bruce Church Inc.*, 397 U.S. 137 (1970). By applying the *same* requirements on in-state and out-of-state generation,

Washington would avoid any interstate commerce challenge.⁸ And, as discussed in the Addendum, such action is entirely within the authority of the Ecology based on existing law under the Clean Air Act.,

Ecology should modify the final rule to insure parity between carbon costs for electric generation within the state and electricity imports. If Ecology declines to adopt this proposal, we ask that that Ecology specify its rationale, including an analysis of leakage that could occur from economically incenting imported electricity; other revenue impacts on the state from disincenting generation within the state; and the specific laws or policies that limit Ecology's ability to do so.

4. Export Parity.

Ecology should insure parity between carbon costs for electric generation within the state and electricity exports, to ensure that in-state generation is not subject to multiple carbon price regimes for the same carbon emissions.⁹ As noted above, other jurisdictions, such as California, require that power utilized in California – whether generated therein or imported – be subject to California's cap and trade program and the costs thereof. To the extent a power generator in Washington exports power to California, and pays such costs, such generator should not also be required to pay for the very same ton of carbon emissions a second time under the Washington program. The Oregon program under development likely will do the same, when enacted. NIPPC believes that the best mechanism to resolve this issue is through a regional approach under which other states give credit for carbon costs paid in the state of generation; this can be done through linkage negotiations with California and other jurisdictions. Alternatively, the Proposed Rule should provide a credit to the extent generation otherwise subject to the Proposed Rule already is paying an equivalent carbon price to another jurisdiction. Such crediting can be accomplished by simply granting an equivalent number of

⁸ For example, Ecology could include as a Covered Party "Stationary sources outside of Washington generating electricity imported into Washington, if the emissions attributable to the generation of the quantity of electricity imported into Washington, is equal to or exceed the Compliance Threshold, other than emissions from coal-fired baseload electric generation facilities that emitted more than one million tons of GHGs in any calendar year prior to 2008.

⁹ While parity with respect to import and export of electricity are conceptually similar, they raise different legal issues and should be addressed separately.

allowances to a power generator that demonstrates a compliance obligation for power exported out of the state: The in-state generator would still be required to comply with all aspects of the Washington program; but it would only incur costs once. This can be done with little additional administrative cost to the program or participants because the exported power is already tracked and identified as part of the importing state's carbon pricing system, and will not cost the State anything.

NIPPC requests that Ecology modify the final rule to insure parity between carbon costs for electric generation within the state exported to states mandating carbon remediation pricing. If Ecology declines to include this modification it should provide a detailed explanation for its action, including any legal impediments to its ability to undertake this action; any costs that Ecology would incur to administer such provision, and a projection of the costs that would be incurred by Washington entities as a result of double payment of costs for carbon.



ADDENDUM

Department of Ecology's Authority under the Washington Clean Air Act.

Any action taken by the Ecology in this proposed rule is done under the Washington's Clean Air Act ("CAA"). The CAA's fundamental purpose is to prevent air pollution. *ASARCO, Inc. v. Puget Sound Air Pollution Control Bd.*, 112 Wn.2d 314, 322, 771 P.2d 335 (1989) (citing RCW 70.94.011). The CAA directs Ecology to adopt rules that (1) establish air quality objectives and air quality standards

¹ and (2) establish emission standards.² RCW 70.94.331 (2)(a)-(c).³ The CAA vests Ecology with the power to adopt rules that extend beyond simply adopting air quality standards and objectives. *Frame Factory Inc. v. Dep't of Ecology*, 21 Wn. App. 50, 53, 583 P.2d 660 (1978). Ecology has the authority to "[a]dopt, amend and repeal its own rules and regulations, implementing this chapter and consistent with it . . ." RCW 70.94.141(1). Issuance of baseline allowances – or indeed, simply allowing for trading of ERUs, fits squarely within Ecology's authority.

To the extent Ecology utilizes this authority, it is unlikely to be overturned by a court. Courts presume that an agency's promulgation of a rule pursuant to a legislative grant of authority is valid. *Wash. Public Ports Ass'n v. State Dep't of Revenue*, 148 Wn.2d 637, 645, 62 P.3d 462 (2003). Agency rules will be upheld if they are reasonably consistent

¹ "Air quality standard' means an established concentration, exposure time and frequency of occurrence of a contaminant or multiple contaminants in the ambient air which shall not be exceeded." RCW 70.94.030(3).

² "Emission standard' means a limitation on the release of a contaminant or multiple contaminants into the ambient air." RCW 70.94.030(12).

³ The department, in addition to any other powers vested in it by law after consideration at a public hearing held in accordance with chapters 42.30 and 34.05 RCW shall: (a) Adopt rule establishing air quality

with the controlling statute. *Id.* Agencies do not have the power to promulgate rules that would amend or change the legislative enactment. *Id.*; *see also State of Wash. v. Department of Ecology*, 146 Wn.2d 1, 14, 43 P.3d 4 (2002) (“Administrative rules or regulations cannot amend or change legislative enactments.”). However, agencies can adopt rules that would “fill in the gaps” in legislation if such rules are necessary to effectuate the statutory purpose. *Wash. Public Ports*, 148 Wn.2d at 645. ⁴

In this case, it is important to recognize that the past failure of the legislature to pass a legislative cap and trade bill does nothing to limit Ecology’s authority under the CAA. In 2015, the Legislature considered Governor Inslee’s climate change bill, titled “AN ACT Relating to implementing a carbon pollution market program to reduce greenhouse gas emissions.” H.B. 1314 (Wash. 2015). The bill, if passed, would have established a market-based greenhouse gas (GHG) emissions program. H.B. Report, H.B. 1314 (Wash. 2015). The bill was not passed into law, and was re-introduced in March 2016. However, in the March 2016 special session, the Legislature retained the bill in its present status. While the passage of H.B. 1314 would have provided Ecology with express authority to create and distribute allowances, its failure to pass does not indicate the Legislature’s intent as to Ecology’s existing authority to create or distribute allowances or credits. Specifically, there was no indication that the Legislature did not pass the bill because it found that Ecology did not or could not have the authority to distribute allowances under the CAA.

In Washington, courts do not interpret rejection of a bill as legislative intent, particularly where, as here, many different factors may have led to the decision to not pass the proposed bill. *See State v. Conte*, 159 Wn.2d 797, 813, 154 P.3d 194 (2007) (“[L]egislative intent cannot be gleaned from the failure to enact a measure, particularly where there are several components of it, any one of which may have been critical to the decision to reject.”); *State v. Cronin*, 130 Wn.2d 392, 400, 923 P.2d 694 (1996) (“As a general principle, we are loathe to ascribe any meaning to the Legislature’s failure to pass a bill into law”).

Courts may attribute meaning to the Legislature’s express and specific denial of a proposed amendment to a bill or law. *See State v. Schwab*, 103 Wn.2d 542, 551-52, 693 P.2d 108

1985) (finding that where there was evidence in the legislative record that a specific proposed amendment was considered and expressly rejected it provided evidence of the Legislature's intent). However, in other cases where amendments were proposed and rejected without express reason, courts have not imputed any meaning to the amendment's rejection. *See Spokane Cnty. Health Dist. v. Brockett*, 120 Wn.2d 140, 153, 839 P.2d 324 (1992) (“[W]hen the Legislature rejects a proposed amendment, as they did here, we will not speculate as to the reason for the rejection.”)

In summary, Ecology has full authority under the existing CAA to implement tradeable allowances, and nothing related to the rejection of legislation effects that fact.

Advocates for the West
 Affiliated Tribes of Northwest Indians
 AirWorks, Inc.
 Alaska Housing Finance Corporation
 Alliance to Save Energy
 Alternative Energy Resources Organization
 American Rivers
 A World Institute for a Sustainable Humanity
 Beneficial State Bank
 BlueGreen Alliance
 Bonneville Environmental Foundation
 Centerstone
 Citizens' Utility Board of Oregon
 City of Ashland
 City of Seattle Office of Sustainability &
 Environment
 Climate Solutions
 Community Action Center
 Community Action Partnership Assoc. of Idaho
 Community Action Partnership of Oregon
 David Suzuki Foundation
 Drive Oregon
 Earth and Spirit Council
 Earth Ministry
 Ecova
 eFormative Options
 Emerald People's Utility District
 EnergySavvy
 Energy Trust of Oregon
 Enhabit
 Environment Oregon
 Environment Washington
 HEAT Oregon
 Home Performance Guild of Oregon
 Home Performance Washington
 Housing and Comm. Services Agency of Lane
 Co.
 Human Resources Council, District XI
 Idaho Clean Energy Association
 Idaho Conservation League
 Idaho Rivers United
 Interfaith Network for Earth Concerns
 League of Women Voters Idaho
 League of Women Voters Oregon
 League of Women Voters Washington
 Montana Audubon
 Montana Environmental Information Center
 Montana Renewable Energy Association
 Montana River Action
 National Center for Appropriate Technology
 Natural Resources Defense Council
 New Buildings Institute
 Northern Plains Resource Council
 Northwest Energy Efficiency Council
 NW Natural
 NW SEED
 OneEnergy Renewables
 Opower
 Opportunities Industrialization Center of WA
 Opportunity Council
 Oregon Environmental Council
 Oregonians for Renewable Energy Progress
 Pacific Energy Innovation Association
 Pacific NW Regional Council of Carpenters
 Physicians for Social Responsibility Oregon
 Chapter
 Physicians for Social Responsibility Washington
 Chapter
 Portland General Electric
 Puget Sound Advocates for Retired Action
 Puget Sound Cooperative Credit Union
 Puget Sound Energy
 Renewable Northwest Project
 Save Our Wild Salmon
 Sea Breeze Power Corp.
 Seattle City Light
 Seinerger
 Sierra Club
 Sierra Club, Idaho Chapter
 Sierra Club, Montana Chapter
 Sierra Club, Washington Chapter
 Smart Grid Northwest
 Snake River Alliance
 Solar Installers of Washington
 Solar Oregon
 Solar Washington
 South Central Community Action Partnership
 Southeast Idaho Community Action Agency
 Spokane Neighborhood Action Partners
 Student Advocates for Valuing the Environment
 Sustainable Connections
 The Climate Trust
 The Energy Project
 The Policy Institute
 Trout Unlimited
 Union Of Concerned Scientists
 United Steelworkers of America, District 12
 US Green Building Council, Idaho Chapter
 Washington Environmental Council
 Washington Local Energy Alliance
 Washington State Department of Commerce
 Washington State University Energy Program
 YMCA Earth Service Corps



From: JJ McCoy
 Senior Policy Associate
 NW Energy Coalition

July 22, 2016

To: Washington Department of Ecology

Re: Comment on Clean Air Rule 2nd CR 102

Thank you for the opportunity to comment on the draft Clean Air Rule, which aims to lower Washington's carbon emissions via a "baseline and credit" mechanism that requires polluters to either reduce carbon emissions directly each year or acquire emissions reduction units (ERUs) through one of several pathways.

We appreciate the efforts of Gov. Jay Inslee and the Washington Department of Ecology staff to address this important issue. Climate science tells us that each day's carbon emissions – every time we turn the ignition key or flick on a light switch – will warm the atmosphere for more than 100 years and acidify the oceans for more than 1,000 years. These long-lasting consequences impose a huge burden on future generations of humans and every other species residing on the planet. It is vitally important to reduce these emissions now and drive the clean energy transition that is within our grasp. We also appreciate that Ecology is operating within a zone of restricted legal authority that provides, at best, incomplete and imperfect tools to address carbon pollution.

We would like to echo the comments of others that the rule should be far stronger than it is. Addressing many of these issues will require additional legislation, and we call on the Washington Legislature to act.

- The 30% reduction in covered emissions by 2035 is insufficient. Science-based limits would call for far steeper reductions for Washington to do our proportional share in keeping the planet from warming beyond 2°C, as prescribed in international agreements.
- The rule does not cover all emissions in the state: a more comprehensive framework is required.
- The rule also specifically does not cover emissions from electric power imported into the state. This creates a significant risk of emissions leakage if electricity generation migrates to other states via our multi-state transmission grid.

The NW Energy Coalition has the following technical comments and suggestions at this time:

1. **The regulation should address cases of total and permanent exit by electricity generating units (EGUs) in the same way it addresses curtailment by other covered parties.** This is necessary to address potential leakage issues and avoid perverse incentives. Several utility companies have stated publicly that they may consider shutting down EGUs in Washington and purchasing (or generating) power out of state in response to price signals generated by the CAR. The CAR as currently drafted would allow the EGUs to sell 100% of their former emissions (minus the compliance path) as ERUs forever, a source of ongoing revenue. This could be an incentive to shut down Washington facilities, resulting in high rates of carbon leakage and possibly net increases in global emissions if those out-of-state power purchases have higher emission rates than the closed Washington facility. The CAR must take steps to avoid this unwanted outcome.

We recommend the following be added to the definition of “Curtailment” in WAC 173-442-020(1)(k) (on p. 2):

“Permanent Shutdown – Complete and permanent shutdown of an EGU will be considered a curtailment from the date of shutdown. Any ERUs generated due to a complete and permanent shutdown will be deposited in the reserve account in the same manner as curtailments by other covered parties.”

We would also recommend that the applicability sections of WAC 173-442-030 (on pp. 3-5) and the reporting requirement sections WAC 173-442-210 (p. 21) address mandatory exit from the CAR in the case of total and permanent shutdown. As drafted, exit from reporting requirements is a voluntary choice by the covered entity if emissions fall below the compliance threshold. An EGU that completely and permanently shuts down may have an incentive to continue reporting under the CAR in order to sell ERUs to other covered parties. Ecology should compel exit from regulation under the CAR in the event of total and permanent shutdown on an appropriate timeframe.

2. **Temporary curtailment by EGUs should also be addressed.** WAC 173-442-020(1)(k)(ii) (p. 2) provides a blanket exemption from the curtailment rules for EGUs. We agree that capacity factors for EGUs vary widely for many legitimate reasons, including weather and hydro conditions. However, it should be possible to construct a minimum level of functioning that is beyond normal operations needs. In addition to the rule for complete and permanent closure suggested above, Ecology should consider a temporary curtailment standard for EGUs.

We recommend the following:

“An EGU will be considered to be in curtailment in any calendar year in which the EGU generates megawatt hours totaling less than 5% of its nameplate rating for power generation multiplied by 8,760 (i.e. the number of hours in a year). Ecology may deposit ERUs generated during a temporary curtailment into the reserve account. However, if the covered party demonstrates to Ecology that the temporary curtailment occurred due to normal electricity system operations (including hydro conditions), then Ecology may elect not to deposit the resulting ERUs into the reserve account.”

3. **Issues for Regulatory Consideration – The Utilities & Transportation Commission (UTC) should consider policy on the use of ERUs from closed or curtailed Washington electric generating facilities.** While this comment is beyond the scope of the CAR, the prospect of using ERUs from shuttered natural gas generating facilities raises several fundamental regulatory issues, which the UTC should monitor:
 - a. **Stranded Assets** – First, if a regulated utility were to close a gas-powered EGU based on a dispatch model’s response to price signals resulting from the CAR, this closure could potentially strand hundreds of millions of dollars’ worth of undepreciated capital assets, which would no longer be used and useful to the electric utility ratepayers. The UTC should provide guidance on whether those capital assets, so stranded, would continue to be recoverable in utility rates or considered a shareholder loss.
 - b. **Cross-subsidization** – Secondly, it may be the case that a parent company operating an EGU also operates a natural gas utility. ERUs generated by the electricity business could potentially be traded or used for compliance by the co-owned natural gas utility. This raises questions of potential cross-subsidization between the two sets of regulated utility ratepayers. The UTC would need to address what price the natural gas utility should be required to pay to compensate the electric utility ratepayers for any such ERUs, possibly based on market rates or renewable energy credits (REC) price proxies.
4. **We concur with the proposed transition to the Clean Power Plan (CPP).** WAC 173-442-040(4) (p. 6) provides an exemption for stationary sources, like natural gas power plants, which may eventually be regulated under the federal CPP. We agree that the CPP offers a more comprehensive framework to address multi-state emissions and concur with the approach that provides a glidepath for transition into the CPP if and when that regulation is in force.
5. **Emissions Reduction Activities and Programs – The eligibility and process is unclear.** WAC 173-442-160, (p. 15) has multiple passive voice statements – “Ecology will accept” and “the following must occur” – that leave it unclear *who* may generate ERUs via activities and programs, or by what process they are recognized. We recommend a clear statement that “Any party operating in the state of Washington who can potentially generate ERUs, including parties not regulated by the CAR, may register with Ecology as an operator of emissions reduction activities and programs” per a simple, prescribed process. This will also foster transparency, as the covered parties will have access to lists of potential sources of ERUs to achieve compliance.
6. **The energy efficiency pathway requires additional specification.** We recommend that Ecology coordinate with the Dept. of Commerce (Commerce) and the Utilities & Transportation Commission (UTC) to develop concurrent rules that achieve the following:
 - a. **ERUs derived from energy efficiency should also reflect transmission and distribution losses.** WAC 173-442-160(5)(a) (on p.16) and/or WAC 173-442-160(5)(c) (on p. 17) – Each MWh conserved at the retail level avoids slightly more than one MWh of generation due to the presence of transmission and distribution losses. ERU generators from conservation should get credit for those avoided

emissions as well. Federal and California Air Resources Board formulas for grid losses are roughly as follows:

Emissions Rate_{total} = Emissions Rate_{generation} / (1 - TL_{grid subregion})
with transmission losses in percentage decimal form.

A grid loss rate of 0.0694 may be appropriate (based on the 2009-2012 average of EPA eGRID loss factors for the WECC NWPP subregion). These are available at <https://www.epa.gov/energy/egrid>.

- b. **ERUs derived from energy efficiency should reflect multi-year energy savings. This will require additional reporting to Commerce and the UTC.** Utilities currently report *first-year* MWh conservation totals relative to a biennial target, but each conservation measure persists for many years. So, one MWh of reported conservation might result in 5-20 MWh saved over its lifespan. (See Table 2, below, for example calculations and potential market sizing). We recommend the following:

The CAR should specify that conservation ERUs reflect multi-year savings by the following formula:

$$ERU_{\text{utility,biennium}} = ER * (EE_{\text{utility, biennium}} - \text{Target}_{\text{utility,biennium}}) * ML_{\text{utility,biennium}}$$

where

$ERU_{\text{utility,biennium}}$ = The emission reduction units generated by each utility in that biennial reporting period, in MT CO₂e

ER = Avoided emissions rate, including T&D losses (see above), in MT CO₂e / MWh

$EE_{\text{utility, biennium}}$ = First-year energy efficiency achieved by the utility in the biennium, in MWh

$\text{Target}_{\text{utility,biennium}}$ = The utility's Energy Independence Act target for the biennium, in MWh

$ML_{\text{utility,biennium}}$ = [NEW Reporting] Weighted average measure life, in years, reported by the utility for measures installed in the biennium.

We recommend that Commerce and the UTC modify their EIA reporting requirements to add average measure life for CAR purposes only. Measure lives should be reported at the utility level each year, reflecting a weighted average measure life across all the measures installed, weighted by the energy conserved. Measure lives should reflect adopted protocols of the Regional Technical Forum (see <http://rtf.nwccouncil.org/measures/>), where available. In the case of more customized industrial or commercial measures, utility estimates may be used.

7. The rule should use a higher energy-to-carbon conversion rate that reflects marginal dispatch conditions in the region, per EPA guidance and the AVERT model.

WAC 173-442-160(5)(c) (on p. 17) adopts Washington’s emission performance standard of 970 lbs CO₂e / MWh as the conversion rate of energy efficiency or renewable energy MWhs to carbon equivalents. EPA guidance and carbon mitigation literature suggest that renewable energy and energy efficiency programs be credited at the *marginal* effect they have on emissions and at the regional level, since power is traded widely across the region. Washington’s emission performance standard governs “baseload electric generation” per RCW 80.80.040, defined in RCW 80.80.010 as units with a capacity factor (utilization) of more than 60%. As a result, this choice is not necessarily reflective of *marginal* generation, especially in the short term. Marginal generation may also involve peaker plants with higher emissions rates, particularly if co-incident with system peaks.

Kartha and Lazarus (<http://www.oecd.org/environment/cc/1943333.pdf>) suggest that emissions rates should be the average of the “build margin”, reflective of long-term changes in the system and the “operating margin”, reflective of short-term changes in dispatch. This method may be appropriate since both renewable energy and energy efficiency programs have multi-year lives and possibly different short-term and long-term effects.

Table 1 – Carbon Conversion Factor Calculation for EE & RE

AVERT Model Outputs for NWPP, 2015 Data File

Marginal Capacity or Energy	Type	Hourly Profile	MWH Displaced	CO ₂ reduced (Short Tons)	lbs CO ₂ / MWH
1 aMW	Energy Efficiency	Constant	8,800	6,400	1,455
1 MW	Wind	Default	2,200	1,600	1,455
1 MW	Utility PV	Default	1,700	1,300	1,529
1 MW	Rooftop PV	Default	1,300	1,000	1,538

EE Operating Margin w T&D Losses	1,563
Average RE Operating Margin	1,507
Build Margin (Emissions Performance Standard)	970
EE Recommended Emissions Rate (Build Margin + Operating Margin)/2	1267
RE Recommended Emissions Rate (Build Margin + Operating Margin)/2	1239

SOURCE: <https://www.epa.gov/statelocalclimate/avoided-emissions-and-generation-tool-avert>

Per the Kartha and Lazarus methodology:

- Washington’s emission performance standard may be considered an upper limit for the build margin.
- The EPA’s AVERT model can supply estimates of the operating margin for the region. (available at <https://www.epa.gov/statelocalclimate/avoided-emissions-and-generation-tool-avert>)

As shown in the above calculation table, a conversion rate of 1267 lbs CO₂e/MWh for energy efficiency programs and 1239 lbs CO₂e/MWh for renewable energy programs (RECs) may be appropriate using this methodology. The Commerce Department and the Northwest Power and Conservation Council should commission a study to identify and evaluate an appropriate factor. In addition to the elements described here, the factor may also need to consider interactions with the state’s renewable portfolio standard, as California has done. The CAR should also provide for a periodic update cycle (annually, or no less than once a compliance period) to reflect annual updates to the AVERT model and 5-year updates to the emissions performance standard.

8. **The NW Energy Coalition is concerned that the CAR energy efficiency pathway may degrade utilities’ I-937 compliance. The rule could give all utilities an incentive to lowball their efficiency targets.** Under the Energy Independence Act (I-937), utilities set their own energy efficiency targets using methods that are supposed to reflect conservation potentials determined by the NW Power and Conservation Council for the region. However, there is considerable judgment exercised in the setting of those targets, and we’re perennially concerned that some utilities do not set their targets high enough. Indeed, utilities routinely exceed their targets by substantial amounts, which suggests the targets were too gentle. The targets are supposed to reflect a) what’s technically possible, b) what’s cost effective, and c) what’s achievable programmatically. By far, the largest falloff occurs in that last step, which is also the most subject to judgment. By allowing utilities to sell energy efficiency that exceeds their 937 targets, the CAR may encourage utilities to aim low in order to maximize the MWhs that are available for sales into the CAR. At the same time, the revenue opportunity may provide an incentive to pursue more conservation, so the net effect is hard to determine in advance. One solution would be to allow all energy efficiency achieved under 937 to generate credits under the CAR, while also steepening the compliance curve for covered parties accordingly to arrive at the same net result. However, we do not have a recommendation for how to implement that method at this time.
9. **Voluntary participants should be subject to an emissions reduction pathway the same as mandatory participants.** WAC 173-442-030(6) (on p. 4) – We concur with comments filed by the Stockholm Environment Institute that voluntary participants should also receive an emissions reduction pathway and generate ERUs relative to that pathway, to avoid potential gaming of the system.
10. **Double counting of emissions reductions appears to be highly prevalent in this system and will likely exceed the 2% reserve capacity set aside to address it.** Of the potential compliance pathways, all of the natural gas efficiency would appear to be double counted as would any emissions reduction programs involving transportation fuels. In addition, some of the REC, energy efficiency, and combined heat and power work will be double counted, though the level may be complex to determine. We recommend that Ecology:

- a. Establish a statewide aggregate cap on covered emissions.
- b. Periodically revisit the reserve requirement levels and emissions reduction pathways in light of actual double-counting experience.
- c. Periodically lower the covered parties' emissions reduction pathways (i.e. increase the compliance obligation) to keep the state at its aggregate cap depending on the level of double counting found.

Thank you for your consideration, and feel free to contact me at (206) 295-0196 or jj@nwenergy.org if you would like to discuss these issues further.

Regards,

JJ McCoy

CC: Glenn Blackmon, Greg Nothstein, Tony Usibelli, Dept. of Commerce
David Danner, Philip Jones, and Ann Rendahl, UTC
Lauren McCloy and Brad Cebulko, and Deborah Reynolds, UTC

Table 2 – Illustration of Recommended Energy Efficiency ERU Generation Method and Sizing Relative to Commerce
Adapted from Commerce 2012-2013 Energy Independence Act Report

Conservation Targets and Acquisitions			
Utility	2012-13	2012-13	2014-15
	Conservation Target (MWh)	Conservation Acquired (MWh)	Conservation Target (MWh)
Avista	108,589	171,570	76,086
Benton PUD	26,981	32,984	23,740
Chelan PUD	29,609	35,887	18,221
Clallam PUD	18,151	19,061	12,054
Clark Public Utilities	99,338	116,360	87,863
Cowlitz PUD	73,584	158,224	56,940
Grant PUD	99,843	118,695	32,675
Grays Harbor PUD	14,980	21,096	12,702
Inland Power	6,912	15,582	9,110
Lewis PUD	15,155	17,160	11,563
Mason PUD #3	10,674	19,762	5,791
Pacific Power	76,291	111,924	74,703
Peninsula Light	8,234	13,146	5,729
Puget Sound Energy	666,000	782,591	621,120
Seattle City Light	210,328	257,268	207,437
Snohomish PUD	150,672	210,629	116,508
Tacoma Power	99,338	134,524	70,956
Total	1,714,678	2,236,463	1,443,197

Note: Pacific Power reported a 2012-13 target of 76,291 to 79,322 MWh.

Source: Utility reports submitted June 1, 2014. Available at: <http://www.commerce.wa.gov/EIA>

Prepared 6/9/2014
Revised 7/14/2014 (Pacific Power revision)
Revised 9/2/2014 (Puget Sound Energy revision)
Revised 9/24/2014 (Avista revision)

NWEC Calculations				Year
First-Year Conservation Achieved Above Target (MWh)	Total Conservation with Assumed Persistence (MWh)	ERUs at Conversion Rate (MT CO2e)	Value to Utility at Assumed Price (Dollars)	
62,981	503,848	289,563	\$ 1,737,375	20
6,003	48,024	27,600	\$ 165,598	20
6,278	50,223	28,863	\$ 173,179	20
911	7,286	4,187	\$ 25,123	20
17,022	136,176	78,261	\$ 469,564	20
84,640	677,116	389,140	\$ 2,334,841	20
18,852	150,819	86,676	\$ 520,056	20
6,116	48,928	28,119	\$ 168,714	20
8,670	69,358	39,860	\$ 239,162	20
2,005	16,040	9,218	\$ 55,310	20
9,088	72,703	41,783	\$ 250,697	20
35,633	285,060	163,825	\$ 982,949	20
4,912	39,296	22,583	\$ 135,501	20
116,591	932,728	536,041	\$ 3,216,245	20
46,941	375,527	215,816	\$ 1,294,896	20
59,957	479,659	275,661	\$ 1,653,966	20
35,186	281,491	161,774	\$ 970,642	20
521,785	4,174,283	2,398,970	\$ 14,393,818	20

*from Ecology CAR Cost-Benefit Report, p. 18			
Assumed Conversion Rate (see comment)	1267	lb CO	
Assumed Weighted Average Measure Life	8	years	
Assumed Price per ERU	\$6		



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July 22, 2016

Washington Department of Ecology
Air Quality Program
ATTN: Sam Wilson
PO Box 47600
Olympia, WA 98504-7600

SUBMITTED VIA ECOLOGY WEBSITE:

<http://www.ecy.wa.gov/programs/air/rules/wac173442/150inv.html>

RE: CARBON CAP RULE, CHAPTER 173-442 WAC

The Northwest Gas Association (NWGA) is a trade association representing the four regulated, investor-owned local distribution companies (LDCs), referred to in the proposed rule as natural gas distributors (NGDs), and two natural gas transmission pipelines operating in Washington State. Collectively, our members employ more than 4,500 individuals in Washington State and serve more than 1.2 million residential, commercial and industrial natural gas consumers.

We support public and private sector efforts to reduce air pollution and greenhouse gas (GHG) emissions. In fact, recent GHG emission reductions across the U.S. are credited to the abundance, availability and affordability of natural gas, demonstrating that it is a key part of the solution to climate change immediately and in the long term. Unfortunately, the rulemaking under development by the Department of Ecology (Ecology), Chapter 173-442, Clean Air Rule (CAR), moves the state in entirely the wrong direction. We appreciate the opportunity to provide the following comments on the carbon cap rule.

Authority to Regulate

The NWGA questions the general applicability of the authorities cited by Ecology to establish a cap on carbon emissions. More specifically, we question Ecology's authority to indirectly regulate the emissions of natural gas consumers through LDCs. LDCs deliver a commodity to consumers. They do not combust natural gas except in small volumes as part of their operations. The carbon emitted directly by any one of the four LDCs in Washington State does not even begin to approach 100,000 tons per year (Mt/y), the initial threshold at which a party will fall under the cap. The LDC's responsibility ends with safely and reliably delivering the commodity to the more than 1 million homes, businesses and institutions they serve. LDCs deliver natural gas; families, enterprises, schools and government institutions burn it.

Compliance

Of the three compliance pathways spelled out in the rule, only the purchase or generation of emission reduction units (ERUs) are viable options for LDCs. With more than 1.3 million consumers connected to their delivery systems, on-site emission reductions are impossible to implement or to verify. Mechanisms allowing an LDC to limit the emissions of its consumers if the emissions cap is in jeopardy of being exceeded simply do not exist.

Furthermore, LDCs have an obligation to safely and reliably deliver natural gas to consumers when demanded, in the volumes demanded (RCW 80.28.010[2]). This sets the LDCs apart from other

covered entities. LDCs deliver natural gas when their consumers demand it. LDCs do not control consumer decisions to heat space and water and to cook food. Families will warm their homes and schools their classrooms when it's cold outside, regardless of the limits imposed by the CAR.

The CAR allows for the purchase or generation of ERUs, the mechanisms most likely to be exercised by LDCs to comply with the rule. The NWGA questions the authority of Ecology to designate or accept ERUs. In addition, Ecology is betting on a robust market for ERUs where none exists today. The closest proxy is the market for renewable energy credits (RECs) which, according to the comments submitted by several NWGA members, are an extremely expensive compliance mechanism (e.g. see pages 26-27 of Puget Sound Energy's (PSE) comments, submitted on July 22, 2016).

In addition, the NWGA questions whether the market for RECs will be able to accommodate the influx of new demand without blowing out the REC price. For instance, the anticipated compliance obligation of Washington's LDCs in 2020 will be more than 4 million RECs, double the number generated in Washington in 2015. That figure balloons to 14 million RECs by 2035, representing all new demand for RECs without an associated or identified source. The NWGA wonders how Ecology can maintain that the cost of a REC will average \$3 in the face of these numbers. Finally, in the existing iteration of the rule, Ecology will exacerbate the problem of a limited market by placing geographic limitations on the purchase and generation of ERUs.

As for generating ERUs, the NWGA is hard pressed to identify opportunities to invest in emission reduction projects in Washington State that are consistent with the business model of regulated utilities. One might argue that Washington natural gas consumers could generate RECs by building wind farms in order to secure the RECs necessary to comply with the CAR. As absurd as that sounds, it is a real possibility referenced in the comments of both of Washington's dual fuel utilities, Avista, and PSE.

One potential opportunity exists in the transportation sector which produces the majority of greenhouse gas emissions in our economy. Natural gas is an affordable, clean burning transportation fuel that can make an immediate and meaningful impact in fleets, heavy and mid-duty vehicles, and in marine applications. The state should promote these emission reduction opportunities and the rule should explicitly allow and account for LDC investments in compressed and liquefied natural gas vehicles and infrastructure. Yet, the rule as currently constituted is notably silent in this regard.

Finally, the CAR fails to adequately account for weather variations and does not accommodate organic growth of natural gas demand. It is also wrong-headed with regard to how it will treat the emissions of covered entities when they fall below the compliance threshold. Rolling the residual emissions of covered entities in to the baseline calculations of LDCs will wreak havoc on the ability of LDCs to comply and will certainly drive costs for all other natural gas consumers significantly higher. We hold the same concern relative to the emissions of energy intensive, trade dependent industries during the compliance deferral period they enjoy in the CAR as currently composed.

Economic Impacts

According to the Association of Washington Business's (AWB) economic analysis conducted by Energy Strategies (ES), Ecology's analysis grossly underestimates the economic impact this rule will have on families and businesses in Washington State. There are more than 100,000 commercial natural gas consumers in Washington State that will be affected by this rule, the majority of which are small businesses such as restaurants and dry cleaners. The ES analysis projects that the rule will cost the state 34,000 jobs and more than \$7 billion by 2035.

As noted above, the CAR will inevitably add costs to energy bills all across the state. Tragically, those additional costs will fall hardest on the people that can least afford it. More Washington families will have to choose between food and warmth as a result of this rule.

Environmental Impacts

Natural gas is among the cleanest burning fuels available for all applications. When compared with coal and oil, natural gas produces 50 and 30 percent fewer GHG emissions respectively, and almost no particulates, NOx or SOx. Furthermore, natural gas is one of the most efficient delivered energies available. End use appliances in homes and businesses such as furnaces, water heaters or boilers and cooktops are also highly efficient. Clean, efficient energy delivery and use means fewer GHG emissions per unit of energy consumed.

Higher costs may motivate consumers to switch to less optimal energy resources for applications currently fueled by natural gas; sources that could include less energy efficient fuels and/or those with higher CO2 and other GHG constituents that may not be subject to regulation. The result would effectively amount to emissions "leakage" within our own state. For instance, individuals particularly sensitive to price increases may switch to wood as a heat source, increasing particulate emissions and exacerbating air quality issues. In any case, it is entirely likely that the CAR will in fact promote less optimal, less efficient, higher emitting energy use.

Regulatory Treatment

There seems to be an underlying assumption running through the CAR that LDCs are free to pursue whatever remedies are available without regard to cost. In fact, LDCs are utilities regulated by the Washington Utilities and Transportation Commission (UTC) under RCW 80.28. LDCs are not allowed to recover costs or earn a return on investments in infrastructure without the explicit approval of the UTC. There are no mechanisms in the current CAR that link UTC action to LDC compliance.

Conclusion

NWGA members each have provided detailed comments on the CAR, accompanied by exhaustive analyses of the certain and potential impacts we reference herein. We hope Ecology will give every consideration to their genuine efforts and truthful information.

RCW 43.21F.088 (1)(d) states the principle that natural gas is a cleaner energy source that should be developed to help the state reduce its dependence on other fossil fuels. We encourage Ecology and the State to abandon its efforts to indirectly regulate the emissions of natural gas consumers through LDCs and instead to acknowledge and promote the vital role of natural gas as a tool in reducing statewide emissions across all sectors.

Again, we appreciate the opportunity to submit comments on the CAR as circulated.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Kirschner". The signature is fluid and cursive, with a long horizontal stroke at the end.

Dan Kirschner, Executive Director
Northwest Gas Association

Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600



July 22, 2016

To the Department of Ecology,

We appreciate the opportunity to comment on the Clean Air Rule. NW Natural proudly started serving Washington in 1925 and currently has over 76,000 customers in Clark County. In addition to working closely with the Community Foundation of SW Washington, NW Natural is an active partner in myriad community activities and organizations. The company pays close to \$4 million annually to local jurisdictions in taxes and fees and, in 2015, initiated a five-year, \$25 million infrastructure investment plan, to better serve one of Washington's fastest growing counties.

NW Natural believes climate change is real. The company supports efforts to reduce greenhouse gases (GHG) and was the first standalone natural gas utility in the country to develop a voluntary offset program for its customers. We believe natural gas can be used as both a greenhouse gas reduction tool and as a low-carbon/low-cost fuel for rural and underserved populations, infusing equitable and affordable low-carbon solutions to communities that rely on more expensive and higher-polluting fuels like diesel, oil and wood.

Despite our position on climate change and our desire to reduce GHGs, NW Natural believes the Clean Air Rule (CAR) is an extremely complicated program that would have significant and far reaching impacts on our customers. As such, NW Natural has assembled the following comments that we hope will be considered during the final drafting of the rule. These comments should in no way be taken as an endorsement of the rule; indeed, NW Natural does not support this executive order and believes there are cheaper, easier and more effective ways to reduce greenhouse gas (GHG) emissions.

In addition to other violations of Washington statutory authority, we believe the CAR may violate the Washington Administrative Procedure Act and the Clean Air Act by imposing emission standards on non-emitting sources such as Local Distribution Companies (LDCs). LDCs are not subject to the Washington Clean Air Act and, as such, it is NW Natural's contention that it should not have a compliance obligation under the CAR. Further, we believe the requirement that ERUs and RECs are generated in the state of Washington may be in violation of the dormant commerce clause of the U.S. Constitution.

Regardless of whether LDCs are subject to the CAR, there are several issues with the current language that must be fixed in order for the program to result in real, verifiable GHG reductions. Additionally, many of the requirements in the draft rule serve only to drive costs up and do nothing to reduce GHG emissions or ensure emission reductions are real, and some will result in unintentional consequences like disincentivizing energy efficiency. Below, we've outlined some of these topics. We hope you'll take them into consideration as you finalize the rule.

- **Regulatory Treatment:** Natural gas distributors do not have full discretion either to force less use of natural gas by customers for climate policy purposes or to simply increase prices for

natural gas in order to buy climate policy credits. Should sufficient ERUs be available for purchase, it remains unclear how the Washington Utilities and Transportation Commission will treat the compliance costs associated with this program.

- **Customer Protections:** Since LDCs have no control over how their product is ultimately used by customers, one of the only ways an LDC can comply with this rule is through the purchase of ERUs. As such, one of NW Natural's biggest concerns about this rule is that ERUs will not be available for purchase or that they will be extremely expensive and have a significant impact on customer rates. If ERUs were unavailable for purchase, NW Natural would be in the impossible position of incurring the significant penalties outlined in the rule. Currently, there are no off-ramps or customer protections included in the rule to prevent this very real possibility.

As such, NW Natural recommends that compliance obligations should be contingent on proven availability of ERUs, much like the Federal Renewable Fuel Standard (RFS). Additionally, the final rule should include language regarding an ERU price cap; that is, should ERUs exceed an agreed-upon price, the program should be put on hold until more ERUs can be developed and brought into the system. Additionally, if ERUs are not available, allowances/offsets from other states should be permitted for compliance. This would help keep the cost of compliance down. In such a case, penalties should not be levied if there is a good faith effort to find, develop and purchase ERUs.

A related issue of great importance to NW Natural is specific protections for low-income customers. Other carbon pricing programs make great efforts to protect those citizens least able to afford even a slight increase in their energy bills. The final language should stipulate that low income customers be eligible for assistance through the state that addresses their specific cost of compliance.

- **Geographic Limitations:** Under the current language, ERUs and RECs must be generated within the state of Washington. While this has the noble goal of keeping ratepayer dollars within the state and therefore of ostensible benefit to Washington citizens, this requirement will harm Washington citizens.

And, not only will Washington citizens be adversely affected by this requirement, there is little to no information on the availability of RECs and ERUs within Washington, making planning and estimating the cost of compliance impossible. As a result, NW Natural is unable to model or determine the ultimate rate impact of this program on its customers.

Maximizing geographic diversity of GHG credits is proven to keep costs down while having the exact same impact on the environment. To this end, NW Natural recommends Ecology require a majority of ERUs and RECs (51%) to be generated within the state, and that the balance permitted to be generated outside of the state. This mirrors California's approach to offsets and would satisfy those who argue for keeping money in-state while still creating flexibility in compliance that would help stabilize and reduce allowance prices. Additionally, the benefit to the environment would be the same.

- **Compliance Timeline:** The geographic limitation coupled with the creation of a brand new environmental trading mechanism makes it extremely difficult or impossible for the utility to meet its obligation in 2020. In terms of process, a regulated utility must identify and get

regulatory approval for any new program, which would take approximately a year. For instance, if NW Natural wanted to issue an RFP for fleets in Clark County to convert to compressed natural gas (CNG), the Utilities and Transportation Commission must determine if it was a prudent expenditure, the company must create an RFP, market the RFP and then construct the facility, all of which can take several months to years. Only then can emission reductions begin to occur.

- **EITEs:** Under the current language, the utility would be responsible for EITE emissions once they've reduced their emissions below the threshold. This disincentivizes utility investment in energy efficiency measures in the EITE sector. Additionally, the utility's compliance obligation will increase significantly overnight, creating significant accounting, compliance, planning, and cost challenges.

NW Natural recommends that Ecology continue tracking EITEs in perpetuity once they have fallen below the compliance threshold. If their emissions increase above the threshold, they should again have a compliance obligation. However, the utility *should not* be responsible for their emissions once they've fallen below the compliance threshold. At the very least, Ecology should include a provision where the EITE baseline is included in the utility baseline; this would reduce – but not remove – the overnight shock of including an additional 50,000 mtCO_{2e}.

- **Generation of ERUs:** In this rule Ecology has created a brand new environmental market and trading instrument, complete with accounting protocols, monitoring and verification requirements, rules around protocol and methodology development, and equations for calculating emission reductions. These procedures are all crucial, since ERUs are generated when an odorless, colorless gas is *not* emitted.

It is clear Ecology is attempting to mimic rules around offsets used in other trading programs. However, it is unclear whether the Department plans to staff up to accommodate the complex requirements such a program requires. For example, who at Ecology will check to ensure protocols and methodologies are sufficiently stringent? Additionally, NW Natural would like to better understand the thinking around the requirement to switch third party verifiers every six years.

- **Project Types for ERU Generation:** Under WAC 173-442-160, activities and programs are pre-approved to generate ERUs. NW Natural is pleased to see combined heat and power on this list, as these projects have proven GHG emission benefits. However, NW Natural requests that CNG be added to this list, as this technology also reduces GHG emissions, in addition to benefitting overall air quality. Further, renewable natural gas (RNG) has the lowest carbon intensity of any transportation fuel, per California and Oregon's Low Carbon Fuel Standard programs. Adding CNG to the list of preapproved project types will help bring this GHG-saving fuel into the transportation mix.
- **Energy Efficiency:** The current language in the rule requires any natural gas energy efficiency to be converted to megawatt hours. This requirement is peculiar as natural gas is reported in therms, never in megawatt hours. If Ecology is interested in determining the GHG emissions saved through energy efficiency measures in order to determine the number of ERUs generated, NW Natural recommends that natural gas utilities report savings in number of therms. Then, Ecology or the LDC can easily translate this number into carbon savings; a therm to megawatt to CO_{2e} conversion would distort an otherwise straightforward calculation.

- **Program Sunset:** The current language does not provide for a sunset in the program should a ballot measure or legislative act create a program that seeks to price and curb carbon emissions. Ecology has repeatedly stated that it does not intend to charge customers twice for the same ton of carbon. As such, NW Natural recommends including language that stipulates the CAR will sunset if a ballot measure, or federal or state legislation, prices carbon through a tax, cap and trade program, or other such mechanism.

We hope you'll take these comments into consideration as you finalize the rule.

We appreciate your time and are available to answer any questions you may have.

Sincerely,

A handwritten signature in black ink that reads "Gary Bauer". The signature is written in a cursive style with a large, prominent "G" and "B".

Gary Bauer
Director, Government Affairs

NUCOR
BAR MILL GROUP
NUCOR STEEL SEATTLE, INC.

July 22, 2016

VIA U.S. MAIL & EMAIL

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
AQComments@ecy.wa.gov

Re: Nucor Steel Comments on the Proposed Clean Air Rule

Dear Mr. Wilson:

I am writing on behalf of Nucor Steel Seattle, Inc. (Nucor) to provide comments on the Washington Department of Ecology's (Ecology) proposed Clean Air Rule (CAR), published as a proposed rule on May 31, 2016. Nucor supports the comments submitted by the Association of Washington Business (AWB) and adopts those comments as its own to the extent that they are consistent with the comments below. However, because Nucor is particularly affected by certain issues, we offer these comments to supplement those submitted by AWB. These comments include background information on our business, a discussion of how the CAR will harm our business and yield increased emissions through leakage, and specific recommendations for this rule making.

I. Background

Nucor operates a West Seattle steel mill that was founded in 1904. As the only steel mill in the state, we are Washington's steel industry. Our Seattle plant produces predominantly rebar to service the building industry in the Pacific Northwest, northern California, and western and central Canada. Nucor employs approximately 330 teammates, who earn an annual average salary of more than \$90,000. Nucor is an important part of the Seattle community, engaging with 50 organizations and non-profits in the greater Seattle area and contributing more than \$200,000 each year to community improvement, scholarships, environmental advocacy groups, and local initiatives. We are also an important part of the local and state economies, contributing approximately \$4 million in state and local taxes every year.

Nucor Steel Seattle, Inc.
2424 SW Andover Street, Seattle, WA 98106-1100
Phone: 206-933-2222 Fax: 206-933-2207

Mr. Sam Wilson
July 22, 2016
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We are Washington's largest recycler, with the capacity to process over a million tons of scrap steel each year. Using an electric arc furnace—a steel recycling technology we helped to pioneer—we produce high-quality steel with over 98 percent recycled content. We recognize our role in protecting the environment and have demonstrated a long-standing commitment to do so. We have invested tens of millions of dollars in our Seattle facility to make it among the most efficient and environmentally responsible steel plants in the world. In addition to being ISO 14001 certified, we operate on an electric grid that is essentially carbon-free. Our plant uses 60-80 percent less energy than much of our competition. This, combined with the use of low-carbon, hydroelectric power at our facility, results in greenhouse gas (GHG) emissions for our primary product at a level of less than 20 percent of the global industry average.

Nucor consistently leads the world steel industry in a variety of environmental indicators from energy intensity to waste reduction. We have reduced our energy input, in MMBTU/ton of steel produced, by roughly 15 percent in the last 10 years. We frequently partner with Seattle City Light to install more efficient equipment, light fixtures, and control systems. We participate in a waste synergy group that strives to find beneficial reuse opportunities for our by-products. Several groundbreaking technologies were tested at Nucor and we continue to push the envelope in striving to reduce our environmental impact.

However, not all of our emissions can be reduced simply by using new technology. Approximately two thirds of Nucor's GHG emissions are process emissions, which are inherent to the production of carbon steel.¹ The Nucor facility includes a meltshop, where an electric arc furnace recycles scrap steel. Scrap steel has both essential and non-essential chemical elements. To remove the non-essential elements, both oxygen and fluxing agents such as lime are added to the steel. Because the oxygen also oxidizes the carbon, carbon must be added to bring the final product back to necessary levels. This process yields emissions inherent to these chemical reactions, and no lower-emitting commercially feasible alternative process is available. The plant also includes a rolling mill and other miscellaneous combustion sources that make up the remaining third of the plant's total emissions.

Most of our competition is from companies located throughout Asia, including China. These companies operate in a regulatory climate with lax environmental standards and heavy government subsidies. From 2005 to 2014, China's steel production soared at a rate nearly 20

¹ Process emissions are the emissions from industrial processes involving chemical or physical transformations other than fuel combustion. Nucor reports its process emissions to the U.S. EPA under Subpart Q of 40 C.F.R. Part 98.

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Page 3

times that of the rest of the world.² Faced with slumping demand in China itself, Chinese firms increasingly look to export their low-cost, high-carbon-intensity steel around the world. Recent rebar anti-dumping investigations filed by the United States against China demonstrate that a U.S. market flooded by high-carbon-intensity steel from China is a real prospect, not theoretical speculation.³ Every ton of steel manufactured at our Seattle plant reduces global GHG emissions by 4,320 lbs. as compared with that same ton of steel manufactured in China.⁴

We sell steel in a commodity market with extremely low margins. We have little to no ability to pass along additional operational costs to our customers. In our market, raising our product prices by only 10 percent would result in a 60 percent reduction in our sales volume.⁵ Current global market forces and unfair trade practices, combined with regulatory costs that impact us and not our competition, make it challenging to produce environmentally responsible steel products from our Seattle facility at a globally competitive price.

II. Impacts of the CAR: Nucor would lose market share to unregulated producers, and net emissions would rise due to leakage.

The CAR's direct and indirect impacts on Nucor will result in increased production costs, the transfer of steel production away from Nucor's efficient Seattle facility to out-of-state producers, and increased GHG emissions through leakage.

² See World Steel Association, Crude Steel Production, 1980-2014, *available at* <https://www.worldsteel.org/dms/internetDocumentList/statistics-archive/production-archive/steel-archive/steel-annually/steel-annually-1980-2014/document/steel%20annually%201980-2014.pdf>.

³ See U.S. International Trade Commission, Steel Concrete Reinforcing Bar from Belarus, China, Indonesia, Latvia, Moldova, Poland, and Ukraine (2013), *available at* https://www.usitc.gov/publications/701_731/pub4409.pdf.

⁴ The average Chinese steel producer emitted 2.6 MT CO₂e per MT steel in 2005, cradle-to-gate. See Trevor Houser et al., Leveling the Carbon Playing Field: International Competition and U.S. Climate Policy Design 47 (2008), *available at* http://pdf.wri.org/leveling_the_carbon_playing_field.pdf. This converts to 5,200 lbs. CO₂e per ton of steel produced. Nucor's cradle-to-gate emissions factor is 0.44 kg CO₂e per kg of steel, or 880 lbs. CO₂ per ton of steel. See ERM, Steel Industry Emissions Leakage Risk from the Proposed Washington Clean Air Rule dated May 31, 2016, (attached), at 2, 15 [hereafter Leakage Risk]. The net difference is 4,320 lbs. CO₂ per ton of steel produced.

⁵ See ERM, Leakage Risk, *supra* note 4, at 9.

A. The CAR's direct impacts would harm Nucor and cause leakage.

As applied to Nucor, the proposed CAR is a lose-lose proposition. The CAR would harm our business and directly impact our ability to continue paying teammates at the rate we do (including contributions to healthcare and scholarships). This would harm not just our teammates, but their families as well. Yet this impact on our business and the surrounding community would yield net emission increases, not decreases, contrary to the CAR's purpose.

Because Nucor has already invested so heavily in energy efficiency and because of our high percentage of process emissions, we have little ability to reduce our current GHG emissions other than by producing less steel. Nucor's only practical compliance option would be to purchase ERUs to meet reduction targets. The purchase of ERUs would represent an increased production cost. Because of the increased production costs, Nucor would more quickly reach the point where the marginal cost of production equals marginal revenue gained (i.e., the point beyond which it would not make economic sense to produce). Therefore, the CAR would result in a surcharge on the Seattle plant's production costs, forcing Nucor to reduce its production. Other producers not regulated by the CAR would supply the missing production to meet market demand. These other producers would include Chinese firms whose emission intensity for each ton of steel produced is far greater than that of our Seattle plant. The CAR's forced transfer of steel production away from Nucor to other less efficient facilities would yield a net increase in GHG emissions.

This detrimental and most likely scenario under the CAR is based on modeling tailored to Nucor and the CAR's EITE provisions.⁶ To support the model, Nucor first estimated its annual steel production from 2020 to 2040 without the CAR, using market-based estimates of increasing demand, plant production capacity, steel product prices, etc. Environmental Resources Management (ERM) then modeled annual steel production under the CAR. ERM relied on past production and emissions data in order to set an output-based baseline, and utilized the proposed non-EITE reduction rate of 1.7 percent (in the absence of a formula in the proposed rule for qualifying as efficient under WAC 173-442-070). ERM used market-based estimates of future production levels to calculate Nucor's set of emission reduction pathways from 2020 to 2040. In this manner, ERM calculated decreases in Nucor's production due to CAR compliance. ERM then estimated the difference in net emissions in light of the transfer of this production away from Nucor's efficient Seattle plant to facilities not regulated by the CAR (including some in China). ERM thus calculated the amount of GHG emission leakage that would result from Nucor's compliance with the CAR.

⁶ See ERM, Leakage Risk, *supra* note 4.

The modeling indicates that, as a result of the CAR, 790,000 metric tons (MT) (>5 percent) of Nucor's steel production would be transferred to CAR-unregulated producers from 2020 to 2040.⁷ These producers would generate an estimated 1,535,000 MT of GHG emissions through producing the steel products that would have been produced by Nucor Seattle, absent the CAR. This represents leaked emissions amounting to 23 percent of Nucor's total emissions absent the CAR, and more than offsets the modest 5 percent hypothetical reduction in Nucor's cradle-to-gate emissions under the CAR.⁸ In terms of net global effects, the CAR's application to Nucor would increase global GHG emissions from steel products production by 1,200,000 MT over 21 years. Therefore, the CAR would negatively impact our business, and this cost borne by Nucor would pay for the net increases in global GHG emissions.

B. The CAR's indirect impacts would further harm Nucor and cause additional leakage.

In addition to direct impacts, the CAR would harm Nucor in indirect ways that are not reflected in the modeling. First, the CAR would result in lost revenue for Nucor, and the model does not capture the impact of this lost revenue on our business. Second, the CAR would further increase Nucor's production costs, beyond what the model estimates, based on how the CAR would affect other businesses that are Nucor's suppliers. For example, Nucor uses natural gas delivered by Puget Sound Energy (PSE) in its production operations. Ecology anticipates that PSE will be subject to emission reduction requirements under the CAR starting in 2017, as a natural gas distributor.⁹ PSE may pass on costs of its CAR compliance to Nucor.¹⁰

As another example of increased production costs, Nucor would also face increased scrap steel prices due to the CAR. Petroleum product producers and importers would raise prices on their products to offset costs of CAR compliance (e.g., purchasing ERUs). These increased fuel prices would be passed downstream to the businesses whose trucks supply Nucor with scrap steel.

⁷ *Id.* at 2.

⁸ *Id.*

⁹ Ecology, Clean Air Rule: Potentially Eligible Parties, (June 2016), *available at* <http://www.ecy.wa.gov/climatechange/docs/CARcoveredparties0516.pdf>.

¹⁰ WAC 173-442-040(3)(a) does provide an emissions exemption for natural gas distributors that supply to a covered party with an emission reduction requirement. However, Nucor (as an EITE covered party) would not have an emission reduction requirement from 2017 through 2019, so this exemption would not apply during this period.

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These businesses would pass on their increased fuel costs to Nucor in the form of higher scrap steel prices. Increased scrap steel prices would further increase Nucor's production costs, which we are not able to pass along to our customers. Instead, these increased costs would lead to further reductions in production, increased amounts of production transferred away from Nucor's efficient facility, and increased emissions leakage.

Lastly, as described more fully below, the CAR would produce substantial business uncertainty for Nucor. Uncertainty as to the basic magnitude of Nucor's compliance obligation, and uncertainty as to the future price and availability of ERUs (including whether allowances from California's cap-and-trade program will be available), will create tremendous new challenges for Nucor. The cloud of uncertainty created by the CAR would discourage capital investment in our Seattle plant. The business uncertainty caused by the CAR would be a significant adverse impact on Nucor.

Nucor recognizes the State of Washington's desire to play a leading role in addressing the problem of global climate change. However, it is imperative that Ecology acknowledge and effectively address the problem of leakage and the vulnerability of trade-exposed industries to competition outside Washington. In Nucor's case, the CAR would result in a net increase in global GHG emissions by shifting steel production away from our efficient Seattle plant to more carbon intensive facilities in foreign countries or other states.

III. The CAR's EITE rules will not protect Nucor from leakage impacts.

Nucor appreciates Ecology's recognition of the heightened challenges faced by EITE industries, and we recognize that Ecology has attempted to provide safeguards for EITE facilities. However, the safeguards are woefully inadequate. The proposed CAR would fail to provide EITE covered parties like Nucor with adequate protections and certainty necessary to avoid leakage impacts.

A. The vagueness of the CAR's EITE rules will harm Nucor by undermining our ability to make informed capital deployment decisions.

The CAR's EITE provisions are extremely vague. WAC 173-442-070 does not define "sector," nor does it describe a process by which a party's sector will be determined (including whether parties will be able to provide input on why they should or should not be included in a particular sector). This vagueness undermines the feasibility of the entire EITE scheme because the CAR proposes to use "sector"-based data for comparing each party's efficiency measure (the "output-based baseline") to a spectrum of "sector" efficiency in order to assign an efficiency

reduction rate for the party.¹¹ Not knowing how a sector may be defined by Ecology, EITE covered parties risk being lumped into a sector that is not representative of the market in which the facility participates. For example, Ecology might define Nucor's sector as electric arc furnace iron and steel production, whereas general iron and steel production is a more accurate description of our market.

Even for covered parties deemed to be efficient within their "sector," however it is defined, the CAR provides no specifics on the emission reduction rate for these parties. The lack of this basic information makes it difficult for covered parties to conduct informed capital planning. For particularly efficient EITE parties—i.e., those whose "output-based baseline" efficiency measure is in the top quartile of the sector's efficiency spectrum—the CAR vaguely states that their annual emission reduction rate (termed an "efficiency reduction rate") will be a rate "less than" that which would have been required to meet the non-EITE emission reduction pathway under WAC 173-442-060.¹² The CAR sets the non-EITE emission reduction rate at 1.7 percent of baseline emissions per year. A rate "less than" this could be anything from zero to barely under 1.7 percent. The low and high ends of this range would entail drastically different compliance obligations for Nucor in the coming years.

Under the CAR as proposed, Nucor would remain in the dark as to the magnitude of its compliance obligation until January 30, 2021, when Ecology would issue its first regulatory order spelling out Nucor's emissions reduction pathways (including its efficiency reduction rate) for the years 2020-22.¹³ Not knowing the magnitude of its compliance obligation until 2021, Nucor would face difficulties in capital planning for the future. Nucor would either have to risk being subject to a higher rate than planned for (and suffer the impacts of being overly

¹¹ See proposed WAC 173-442-070(1)-(3).

¹² See proposed WAC 173-442-070(3)(b)(ii).

¹³ See proposed WAC 173-442-070(4).

optimistic), or else err on the side of conservatism and defer investments in the Seattle plant¹⁴ or shift them to plants in other states.¹⁵

In addition to this uncertain compliance obligation, uncertainty surrounding available means for CAR compliance also weakens Nucor's ability to plan effectively for the future. For example, the CAR assumes that covered parties will be able to use allowances purchased from California's cap-and-trade program. This appears to be a hope rather than an established means of compliance that covered parties can rely on for planning purposes. In fact, the ability of covered parties to purchase external allowances and use them for CAR compliance will depend on future decisions of the California Air Resources Board (CARB), outside Washington's jurisdiction.¹⁶ CARB is only now considering what the California program might look like from 2020 and thereafter, (i.e., when Nucor would become subject to the CAR), including whether it will permit its allowances to be used for compliance under the CAR. California's decisions on this issue will bind linked programs such as the Quebec program. If California allowances were not available for use as ERUs, this would greatly narrow the pool of available ERUs and drive up ERU prices.

In addition, barriers to the utilization of ERUs from emissions offset projects listed under WAC 173-442-160 would severely limit Nucor's ability to use offset projects as a compliance and cost-mitigation tool, and hinder Nucor's ability to effectively plan and allocate resources for compliance. Most limiting is Ecology's requirement that all ERUs (other than allowances from external markets under 173-442-170) must originate from emissions reductions occurring within Washington.¹⁷ This restriction limits covered entities' access to a larger pool of potential ERUs, inhibits linkages to other offset markets, and severely undercuts pathways for compliance. Moreover, a range of other factors could weaken -160 as a means for generating ERUs, and therefore limit the availability and drive up the cost of ERUs. These factors include: 1) the

¹⁴ In addition to uncertainty causing deferred investments, the CAR as proposed would discourage an EITE covered party's investments in emission reduction projects during the 2017-2019 period, because these projects could neither yield ERUs (because the party would not yet be subject to emission reduction requirements), nor improve the party's output-based baseline (which is calculated based on efficiency in the 2012-2016 period).

¹⁵ For example, Nucor operates a plant in Utah with production capabilities similar to the Seattle plant. Nucor could potentially shift production from the Seattle plant to the Utah plant.

¹⁶ See AWB comments, Section X.D.

¹⁷ See proposed WAC 173-442-100 (2).

limited number of eligible Washington-based offset projects currently registered and active on the two major offset exchanges listed in -160; 2) competition for Washington-based projects that are also registered under California's cap-and-trade program; 3) market factors, such as low natural gas prices, which could inhibit the development of the livestock and methane-reduction projects included under -160; and 4) limitations on third party/intermediary ownership of ERUs that could severely hamper prospects for future ERU project development. These factors are likely to drive up the cost/ton for existing offsets and limit additional ERU generation. However, these risks are not reflected in the cost/benefit analysis conducted by Ecology.

Further, although Ecology does provide for the review of projects and methodologies not explicitly listed under WAC 173-442-160, the complexity of the project development process and uncertainty of ERU approval from Ecology create significant risks for covered parties and diminish the likelihood of them pursuing new projects as a viable and cost-effective compliance path. For many potential projects under proposed -160, parties would first have to thoroughly evaluate, plan, propose, and commit to financing the project and then submit it to Ecology hoping for approval and official generation of ERUs. Given the risk and uncertainty of approval, this would not be a cost-effective allocation of resources. The acceptable criteria for many of these projects, and the number of ERUs that would be generated by these projects, are unknown to Ecology and to Nucor. For example, for "combined heat and power activities," the only criterion provided is that parties must submit a project to Ecology for approval.¹⁸ With respect to the number of ERUs that would be generated by commute trip reductions, "Ecology will [later] assign the appropriate quantity of ERUs."¹⁹ Because parties would not be able to plan on a known amount of clearly obtainable ERUs from these projects, the projects do not provide reliable means of CAR compliance. Additional guidance from Ecology may help, but unless parties have certainty that the projects will in fact yield a known amount of ERUs, the -160 projects will not afford parties with a workable compliance mechanism.

In summary, the CAR's uncertainty surrounding the efficiency reduction rates and compliance obligations for EITE covered parties, as well as uncertainty surrounding available means for CAR compliance, undermines Nucor's ability to plan for the future. Steel manufacturing is a capital intensive industry with 20–30 year investments. The Nucor plant in Seattle is part of a multi-facility corporation. The CAR and its resulting uncertainty will discourage capital investment in the Seattle facility, which has the long-term effect of shifting production from the Seattle plant. Because of the relative carbon efficiency of the Seattle plant

¹⁸ See proposed WAC 173-442-160(4).

¹⁹ See proposed WAC 173-442-160(3)(b)(v).

both within Nucor and throughout the steel industry, the resulting outcome would be increased global GHG emissions.

B. The EITE benchmarking rules require data that is not available to Ecology.

At the heart of the CAR's EITE scheme is a benchmarking process by which an individual party's efficiency measure (GHG tons per unit of production, or "output-based baseline") is compared to the efficiency of other facilities within the same sector.²⁰ In order to fill out its "ranking of efficiencies" for facilities in a given sector, Ecology must obtain facility-specific production data from every source in the sector. Ecology plans to obtain this facility-specific data primarily from "EPA's GHG Reporting Program."²¹ However, as described below, this data is not available via EPA's reporting program for Nucor's reporting category; nor is it available for other stationary sources.

Nucor reports GHG emissions to EPA under 40 C.F.R. Part 98 Subpart C (General Stationary Fuel Combustion) and Subpart Q (Iron and Steel Production). For these subparts as well as other stationary source subparts, EPA adopted a special rule for how emissions data is reported, specifically to protect proprietary and other confidential production data required for calculating GHG emissions.²² The proprietary production data is collected in a manner such that EPA never sees or possesses the data. Specifically, sources input the data into an "inputs verification tool" (IVT) (a tool within the EPA's online e-GGRT reporting system), which calculates results and generates a summary. EPA receives this summary of results, but the summary does not include the underlying data inputs. These data inputs are never accessible by EPA, nor are they retained by the IVT tool. This data is scrubbed from the e-GGRT database.²³

Ecology proposes to demand that Nucor submit the very production data that EPA takes care never to see.²⁴ But Nucor is the only steel plant in Washington. Ecology would need the same production data from every steel plant in Nucor's "sector" to determine what efficiency quartile the Seattle plant occupies. Therefore, Ecology cannot obtain from EPA's GHG

²⁰ See proposed WAC 173-442-070(3)(a)(ii).

²¹ See proposed WAC 173-442-070(3)(a)(i)(B)(I).

²² See 79 Fed. Reg. 63750 (Oct. 24, 2014).

²³ See 79 Fed. Reg. at 63755.

²⁴ See WAC 173-441-050(3)(d)(vii).

reporting program the facility-specific production data it needs to perform the benchmarking at the heart of the EITE scheme. The CAR also authorizes Ecology to try to obtain this data from other sources such as “trade associations” or “other similar sources,” but it is highly unlikely that these sources could provide facility-specific production data. Without facility-specific data to fill out a spectrum of sector-wide efficiency, the CAR’s benchmarking scheme would fail.

C. The CAR allows for EITE covered parties to be assigned more stringent emissions reduction pathways than non-EITE covered parties.

Ecology drafted WAC 173-442-070 with the goal of mitigating the impacts of the CAR on EITE industries and therefore avoiding emissions leakage resulting from these trade-exposed parties’ production being transferred to more carbon-intensive facilities outside Washington. One would therefore expect that EITE covered parties would never be assigned obligations under the CAR that are more stringent than the obligations they would have been assigned as non-EITE covered parties. But the CAR does allow for EITE covered parties to be assigned more stringent obligations.

“Equation 1” used for calculating an EITE covered party’s emission reduction pathway allows for EITE covered parties to face more stringent reduction requirements compared to non-EITE covered parties. For example, an EITE covered party that could not afford to purchase ERUs and could not find additional efficiency gains would have to comply by reducing production and would ultimately face a substantially greater compliance burden than it would have as a non-EITE party under proposed WAC 173-442-060.²⁵ Similarly, EITE covered parties with variable annual production levels could face more stringent emission reduction requirements under the EITE compliance pathway compared to the non-EITE pathway.²⁶

In summary, contrary to the purpose of the EITE rules, the CAR could yield more stringent emission reduction requirements for many EITE covered parties compared to the requirements they would have had under WAC 173-442-060. This backward result demonstrates that the EITE provisions are deeply flawed and are not sufficiently protective of EITE covered parties.

²⁵ See AWB comments, Section VI.K.

²⁶ See AWB comments, Section VI.K.; *see also* Ash Grove Cement comments.

IV. Nucor Recommendations

Nucor recommends the following actions to address problematic aspects of the CAR as proposed. The recommendations are independent ideas, each of which would improve the rule and mitigate impacts on businesses such as ours.

A. Ecology should exempt EITE facilities or withdraw and redesign the EITE program.

As described above, the CAR's EITE program suffers from several fundamental flaws. The rule's vagueness and uncertainty with respect to EITE parties' emission reduction requirements and potential means for CAR compliance undermine capital planning. The proposed benchmarking scheme requires facility-specific production data that Ecology cannot obtain. The CAR also allows for EITE covered parties to be assigned a more stringent emission reduction requirement than if they were non-EITE parties, contrary to the purpose of EITE rules. These flaws demonstrate that the proposed EITE scheme is not sufficiently protective of EITE covered parties. Therefore, Ecology should either exempt EITE facilities, or withdraw and redesign the EITE program with guidance from presumptive EITE covered parties as to how potential provisions would actually affect them based on real-world examples.

B. The CAR should exempt process emissions.

The CAR makes no allowance for process emissions, which make up roughly two thirds of Nucor's GHG emissions and which Nucor has no ability to reduce.²⁷ GHG emission reduction programs in other jurisdictions have made allowances for facilities with high levels of process emissions. For example, California's cap-and-trade program allocates some allowances to assist industries deemed to be at high risk for carbon leakage. For industries whose process emissions account for more than 50 percent of total emissions, the California program employs a specific adjustment factor that yields a greater allocation of allowances to these industries, in recognition of the lack of existing technology to reduce process emissions.²⁸ Similarly,

²⁷ Nucor reports process emissions to the U.S. EPA under Subpart Q of 40 C.F.R. Part 98, and reports combustion emissions under Subpart C. Together, these reports indicate the fraction of Nucor's emissions that are process emissions.

²⁸ See CARB, Proposed Regulation to Implement the California Cap-and-Trade Program, Initial Statement of Reasons, Appendix J, (2010), *available at* <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appj.pdf>; CARB, California's Cap-and-Trade Program, Final Statement of Reasons, (2011), *available at* <http://www.arb.ca.gov/regact/2010/capandtrade10/fsor.pdf>.

Quebec's cap-and-trade program provides special treatment to industries where more than 50 percent of emissions are process emissions.²⁹

California's program applies a special adjustment factor to three industries, which it has identified as having more than 50 percent process emissions. California has only one steel plant, and it did not meet the 50-percent process emissions threshold that Nucor easily does. California's special adjustment factor recognizes the limitation on process emissions reductions and thus confers a lower emissions reduction rate for those industries.³⁰ Based on the goal of having emissions reductions target only the energy use portion of emissions, the California program assigned these three industries lower annual reduction rates (or "cap adjustment factors"). The resulting cap decline rate is approximately 0.9 percent per year, instead of the 1.8 percent per year rate used for other industries.³¹

Unlike the programs in California and Quebec, the CAR makes no allowance for process emissions. Where the laws of chemistry and physics dictate that a certain amount of GHG will be emitted from a production process, and no lower-emitting commercially feasible alternative process is available, no further emissions reductions/efficiency improvements should be required. Ecology should exempt process emissions from the CAR.

C. Include emissions from purchased power in any benchmarking analysis.

As described above in Section III.B., Ecology would assign emission reduction rates to EITE covered parties through benchmarking; i.e., comparing each party's efficiency measure (GHG emissions per unit of production) to a sector-wide spectrum of efficiency measures. Ecology proposes to calculate the efficiency measure for each party (the "output-based baseline") simply as average emissions divided by average production over a baseline period. The output-based baseline does not account for how facilities obtain power for their operations.

²⁹ See Quebec Ministère du Développement durables, de l'Environnement, de la Faune et des Parcs, Regulation Respecting A Cap-and-Trade System for Greenhouse Gas Emission Allowances, Part II (C), (2012), available at <http://legisquebec.gouv.qc.ca/en/ShowDoc/cr/Q-2,%20r.%2046.1>.

³⁰ See Cal. Code Regs. tit. 17, § 95891 (Table 9-2), available at [https://govt.westlaw.com/calregs/Document/I1EBE8E709A3011E4A28EDDF568E2F8A2?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/I1EBE8E709A3011E4A28EDDF568E2F8A2?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)).

³¹ See CARB, Proposed Regulation to Implement the California Cap-and-Trade Program, Initial Statement of Reasons, Appendix J, (2010), available at <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appj.pdf>.

Likewise, the sector-wide spectrum of efficiencies does not reflect how other facilities obtain power. If a facility uses electricity in its production operations, the CAR would treat equally (in terms of calculating the output-based baseline and assigning the efficiency reduction rate) a facility that uses electricity from a coal-fired power plant, and a facility that uses electricity from a hydropower plant. Nucor's meltshop melts scrap steel in an electric arc furnace. Despite Nucor's relative efficiency, it is an extremely electrically intensive process. Nucor is Seattle City Light's largest customer, and the electricity that City Light supplies to Nucor is generated from nearly 100 percent renewable sources and is virtually carbon-free. Yet under the CAR, Nucor would receive no credit (in terms of its efficiency reduction rate) for its use of ultra-low carbon electricity and its corresponding lack of upstream emissions. Ecology should amend the output-based baseline formula and amend the benchmarking rules to account for upstream emissions and reward parties that power their facilities in a manner that avoids upstream emissions.

D. Revise benchmarking proposal to exempt facilities that are more efficient than the sector average.

Ecology should simplify its benchmarking scheme by exempting facilities that are more efficient than their sector's average.

A key flaw of the proposed benchmarking scheme is that Ecology cannot obtain sector-wide facility-specific production data, which is necessary to fill out its "efficiency intensity distribution." However, Ecology can obtain data indicating average emissions and production data for a sector, which allows for computation of average sector efficiency (i.e., average GHG emissions per unit of production for a sector). EPA and trade associations collect and publicize this information.³² To simplify its benchmarking scheme, Ecology should simply compare facilities to the nationwide average efficiency within the sector. Facilities that are more efficient than the nationwide sector average should be exempt from the CAR, or should receive a much lower efficiency reduction rate.

³² For example, EPA collects annual data on direct GHG emissions from individual steel plants and publishes them online, enabling estimation of overall GHG emissions by the steel sector. See <https://ghgdata.epa.gov>. The World Steel Association reports data of annual crude steel production by country (including the U.S.) in its Steel Statistical Yearbooks.

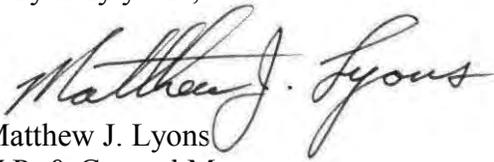
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V. Conclusions

Nucor recognizes the state of Washington's desire to play a leading role in addressing the problem of global climate change. Nucor also appreciates Ecology's recognition of the heightened challenges faced by EITE industries. However, the proposed CAR generally does not provide sufficient protections against leakage and actually may impose more stringent emission reductions on EITE covered parties than if the same parties complied with the rules governing non-EITE parties. Applied to Nucor in particular, the CAR would result in the transfer of 790,000 MT of steel production away from Nucor's efficient Seattle plant to more carbon-intensive out-of-state producers. In terms of net global effects, the CAR's application to Nucor would increase global GHG emissions from steel products production by 1,200,000 MT over 21 years. Therefore, the CAR would negatively impact our business and our ability to contribute to the surrounding community, and this cost borne by Nucor would pay for net emission increases, not decreases, contrary to the CAR's purpose. This is a lose-lose proposition and evidence that the CAR has not yet achieved an appropriate means of addressing EITE industries. Ecology should withdraw its proposed rule and work with us and other EITE industries to design a better rule that achieves Ecology's objectives.

If you have any questions about these comments, please contact me.

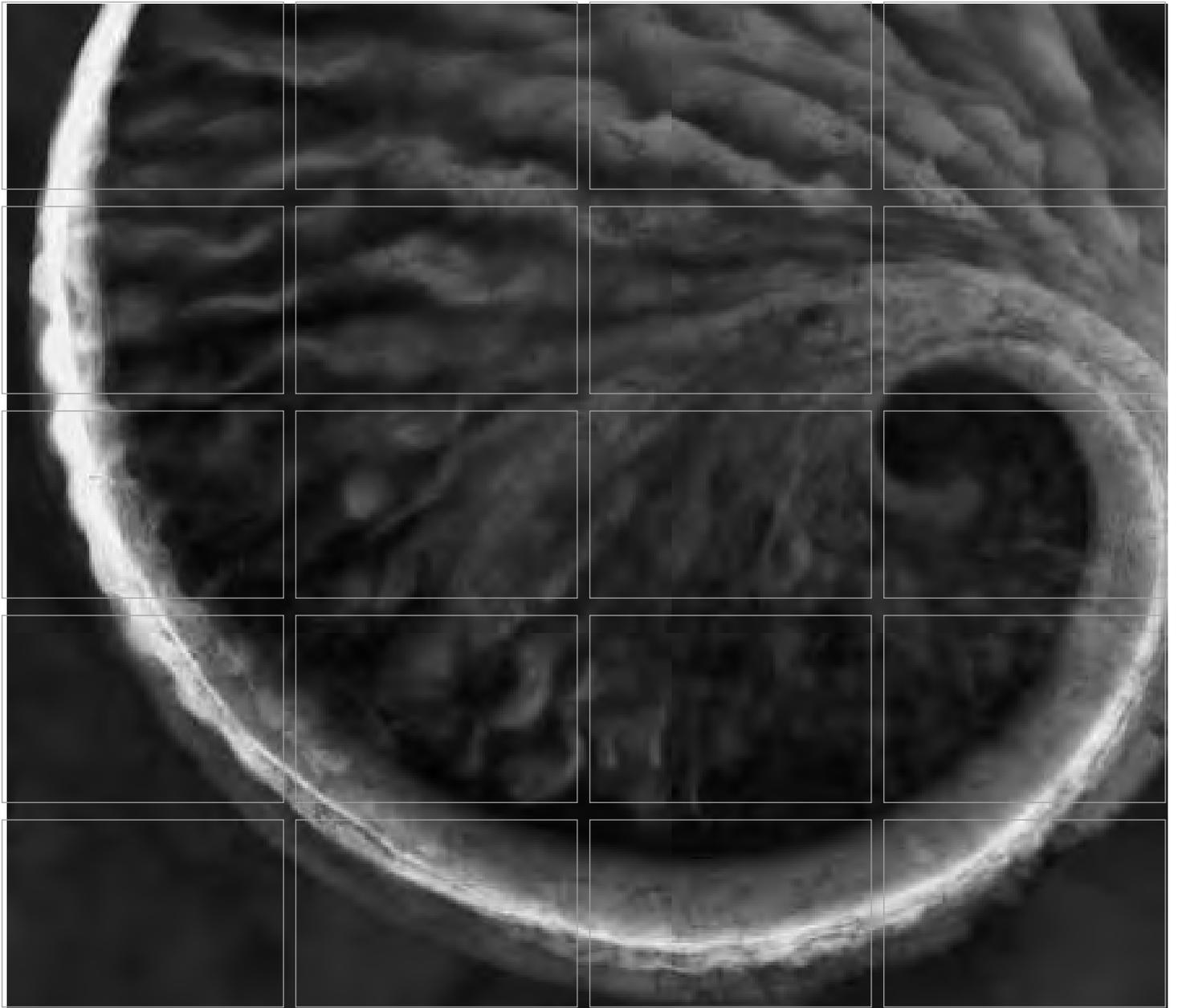
Very truly yours,



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Enclosures: Steel Industry Emissions Leakage Risk from the proposed Washington Clean Air Rule date May 31, 2016, ERM

cc: Sarah Rees
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Chris Davis
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Steel Industry Emissions Leakage Risk from the proposed Washington Clean Air Rule dated May 31, 2016

July 2016

Prepared for:
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Acknowledgements

The research and analysis presented in this report was prepared by ERM-West, Inc. (ERM), under contract to Nucor Seattle Steel. Ryan Stifter, Scott Weaver, Ariane Burwell and Michael Shelly all contributed research and analysis.

This report represents the findings and conclusions of ERM.

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SUMMARY

Nucor Steel Seattle (Nucor) comprises Washington State's entire steel industry. With 1,100,000 tons of melting capacity and 760,000 tons of finishing capacity, it produces steel products for the building industry in the Pacific Northwest, Canada and northern California. Nucor would be an Energy Intensive, Trade Exposed (EITE) covered party under the proposed Washington State Clean Air Rule (CAR). Based on its average annual GHG emissions from 2012 to 2016, Nucor would be subject to emission reduction requirements under the CAR starting in 2020.

Nucor asked ERM to evaluate the risk for GHG emissions leakage from Washington's steel industry resulting from its compliance with the CAR. Our study finds that Nucor's compliance with the CAR would induce significant GHG emissions from the steel industry outside of Washington State.

ERM developed an economic model of Washington State's finished steel product industry to estimate the volume of Nucor's future steel production without the CAR that would instead be produced by firms located outside of Washington State if Nucor becomes subject to the draft CAR proposed May 2016.ⁱ In the absence of the CAR, we assume that Nucor would capture its existing share of the finished steel product market it serves (subject to constraints on its production capacity), which we assume to increase in size during the 2020-2040 period at the growth rate in cement consumption projected by the Portland Cement Association. Having already exhausted the cost-effective means of reducing its emission intensity to become one of the most efficient producers in the global rebar steel industry, we expect Nucor would purchase allowances to generate sufficient Emission Reduction Units (ERUs) to comply with its emission reduction requirements. ERU purchases would increase Nucor's production cost. Modeling Nucor as a firm operating in a less-than-perfectly competitive industry, Nucor would need to reduce its finished steel production volume with the CAR to the point where the cost of producing an additional ton of finished steel is equal to the revenue gained on that ton. Therefore, Nucor's finished steel production volume with the CAR would be lower than without the CAR. Consumers comprising Nucor's market for finished steel will demand

ⁱ Ecology proposed the first draft of the CAR in January 2016 and withdrew it in February 2016 following feedback gathered through public comment and engagement with the regulated community.

virtually the same total quantity of rebar. So the difference between Nucor's finished steel production volume with and without the CAR is the amount of finished steel production which would be "transferred" to producers outside of Washington State as a result of the CAR. Emissions associated with this transferred production would therefore be considered "leaked" from the Washington State program since they would be generated in the locations outside Washington State where producers competing to serve Nucor's market are located. Because Nucor's competitors, particularly Chinese producers, emit substantially more carbon dioxide (CO₂) per ton of finished steel, emissions leakage resulting from Nucor's compliance with the CAR would result in a net increase of global GHG emissions.

Table 1 summarizes the key findings of our study. ERM's model estimates that 790 thousand metric tons (MT) of Nucor's finished steel production would be transferred to producers outside of Washington State during 2020-2040 with the CAR. That transferred finished steel production amounts to 5.2 percent of Nucor's finished steel production volume without the CAR. While ERU purchases increase Nucor's marginal production cost by 2.5 percent on average, Nucor's optimal steel production volume decreases by double that percentage because the market for finished steel is highly competitive, limiting the degree to which producers such as Nucor can pass cost increases through to consumers in the form of higher prices. Producers outside of Washington State would generate an estimated 1,535 thousand MT CO₂e of GHG emissions in producing the additional 790 thousand MT of steel that Nucor would have produced without the CAR. Those leaked emissions amount to 23.2 percent of Nucor's 2020-2040 emissions without the CAR, and would increase global GHG emissions by 1,200 thousand MT CO₂e over 21 years after subtracting the reduction in Nucor's emissions with the CAR. Global GHG emissions from finished steel production increase with the CAR primarily because Nucor's cradle-to-gate emission factor, 0.44 MT CO₂e per MT of finished steel, is substantially lower than other producers in the finished steel industry. Chinese steel producers, which collectively absorb 55 percent of Nucor's transferred steel production in our model, emit 2.6 MT CO₂e per MT steel on average.

Table 1. Findings from ERM’s Washington CAR Finished Steel GHG Emissions Leakage Model, 2020-2040

Model Output	Estimate
Transferred Nucor Finished Steel Production (000 MT) (% of Nucor’s Unregulated Production)	790 (5.2)
Leaked Cradle-to-Gate GHG Emissions (000 MT CO2e) (% of Nucor’s Unregulated Emissions)	1,535 (23.2)
Net Change in Global GHG Emissions (000 MT CO2e)	1,200

Following are important factors to bear in mind when interpreting the results of our model and study findings:

- While we model finished steel products and exclude semi-finished products, our model accounts for total facility emissions on the finished product volume, including emissions from both the melting (casting) and rolling (finishing) facilities.
- While the proposed CAR would regulate a covered party’s facility emissions, that is, those generated within its fence line, cradle-to-gate, that is, generating raw materials and activities associated with transportation to the facility in addition to facility emissions, is the relevant metric for measuring emissions leakage.
- Our model quantifies emissions leakage resulting from Nucor’s compliance with the CAR, and does not include emissions leakage that would result if the CAR increases Nucor’s energy or other productive input prices.
- There is uncertainty about the true value of certain model parameters, namely a) future growth of the steel market, b) future steel prices received, c) customers’ sensitivity to steel prices (price elasticity) reflected in Nucor’s steel demand curve and d) the average carbon intensity at which Nucor’s transferred steel production volume is produced, among others. While we present point estimates throughout this report, our model incorporates this uncertainty through Monte Carlo methods, which uses probability distributions for parameters by allowing for constructing intervals containing the true value of model outputs. The Monte Carlo analysis and results are described in the last section of this report.

BACKGROUND

CAR Emission Reduction Requirements

Washington State's Clean Air Rule (CAR) would establish Greenhouse Gas (GHG) emission reduction requirements for individual facilities within EITE-designated industries. Specifically, for each year that a facility is subject to the CAR's emission reduction requirements, Ecology would establish an "emission reduction pathway," which sets an annual allowed limit of covered GHG emissions in MT CO₂ equivalent (CO₂e). The emission reduction pathway (RP) is calculated for each EITE covered facility by a formula considering:

- the facility's GHG emissions intensity, known as its output-based baseline (OB), fixed at the average emissions per unit of output during 2012-2016;
- the facility's fixed reduction in GHG emission intensity, known as its efficiency reduction rate (RR), established based on its industry-specific efficiency intensity ranking, and
- the facility's average annual facility output during the previous compliance period (AP) (WAC 173-442-070).

At the end of each three-year compliance period, facilities must calculate their "emission reduction requirement," which is the facility's limit in MT CO₂e for a compliance period based on the sum of the emission reduction pathways (RP) for that period. Facilities within EITE industries, including finished steel, would be subject to their first compliance period in 2020-2022 if their baseline emissions level meets or exceeds the CAR's compliance threshold.

A covered facility can comply with its emission reduction requirements by measures that reduce emission intensity, including curtailing output, or purchasing Emission Reduction Units (ERUs), including allowance purchases from external emissions markets. For a market-determined price, an ERU permits a regulated facility to generate GHG emissions above its RP. Facilities that have already invested in the cost-effective means of reducing emission intensity would likely comply through ERU purchases.

Theory of Emissions Leakage

Policies seeking to limit GHG emissions within a defined area can increase emissions above baseline levels when regulated industries are characterized by trade flows extending beyond the policy area. Absent a perfectly competitive industry, in which producers take price as given and produce output up to the point where the cost of producing one more unit is equal to the market price, optimal production volume is reached when the cost associated with producing one more unit of output is equal to the revenue gained on that unit. Therefore, regulated producers will reduce production in response to policy-induced increases in operating cost, such as ERU purchases. While prices are higher at the reduced level of supply, the level of demand still exceeds the supply available to the market under regulation when consumers are highly sensitive to prices charged by individual producers. This excess market demand is absorbed by producers located outside of the policy area that do not face the increased operating costs that regulated producers inside the policy area face. GHG emissions generated by unregulated producers represent emissions “leaked” from within the policy area. When unregulated producers are more energy intensive than regulated producers, market transfer has the effect of increasing GHG emissions within the industry.

Washington State’s Steel Industry

Nucor Steel’s Seattle facility comprises Washington State’s entire steel industry. Its 998 thousand metric tons (MT) of capacity produces finished steel products to service the building industry in a primary market area comprised of the Pacific Northwest, northern California and western and central Canada. Reinforcing steel bar, or rebar, is Nucor’s primary finished steel product. Nucor’s existing rebar capacity amounts to 689 thousand MT annually and Nucor has plans to expand to 725 thousand MT sometime in the future. Table 2 reports historical production statistics provided by Nucor.

Table 2. Nucor Seattle Steel Production, 2002-2015 (000 MT)

Year	Cast (Melted) Steel	Rolled (Finished) Steel
2002	570	529
2003	669	623
2004	622	615
2005	693	637
2006	717	673
2007	709	671
2008	680	600
2009	536	463
2010	641	508
2011	716	502
2012	703	564
2013	677	539
2014	689	563
2015	609	510
Average	659	571

Source: Nucor Seattle Steel 2016d

Nucor Seattle’s competitors include both domestic and foreign producers. Approximately 30 to 40 percent of Nucor’s steel products are destined for Canada (Becker 2016, Jablonski 2016). Foreign competitors include Canadian producers and the ultra-low-cost, ultra-energy-intensive producers comprising the Chinese steel industry. China’s annual crude steel production volume more than doubled between 2005 and 2014, increasing 130 percent compared to only a 7 percent net increase in production by the rest of the world (World Steel Association 2015). China is a net exporter of reinforcing steel bar, shipping product to 167 countries (USITC 2013). During 2009 through 2012, Chinese steel bar exports increased 50 percent year-over-year (USITC 2013).ⁱⁱ Nucor’s market area is particularly accessible to Chinese producers, with major ocean ports located along the western coasts of both the United States and Canada.

Nucor’s CAR Compliance

ERM estimates that the draft CAR would establish Nucor’s RP at 120 thousand MT CO₂e on average during its first compliance period, 2020-

ⁱⁱ This includes both rebar and hot rolled alloy bar. Domestic parties to the USITC 2013 anti-dumping investigation contend that Chinese producers altered rebar with boron, technically classifying it as alloy hot rolled bar.

2022. Nucor’s RP would average 98 thousand MT CO₂e in the final compliance period studied, 2038-2040. Nucor’s highest RP (lowest allowable emissions) is 95 thousand MT CO₂e (2040), while the lowest RP (highest allowable emissions) is 128 thousand MT CO₂e (2025, 2026). Our estimate follows the CAR formula outlined in WAC 173-442-070 for calculating each facility’s RP. A facility’s RP in any year is the average total facility emissions during the previous three-year compliance period less the accumulated reduction in the facility’s RP in that year using the average total emissions in the previous compliance period as the basis. Specifically, the RP formula for any year, *x*, is

$$RP_x = (AP * OB) - (AP * OB * RR * (Y_x - 1)),$$

where *AP* is the average annual production in the previous compliance period, *OB* is the facility’s fixed output-based baseline emission intensity factor and *RR* is the facility’s fixed rate at which the RP decreases (allowable emissions decrease) for each year of compliance.

As proposed, Ecology will recalculate each facility’s RP for each year of the facility’s three-year compliance period using this formula. Therefore, beginning with its second compliance period, *AP* is the facility’s emissions-constrained production level.

Attachment A contains our estimated schedule of RPs for Nucor during 2020-2040. As detailed in the following sections, ERM estimated Nucor’s production with the CAR based on its estimated compliance cost and the slope of the finished steel product demand curve it faces.

Due to significant investment on the part of Nucor, its Seattle facility emits 80 percent less CO₂e (cradle-to-gate) per ton of steel than the average producer in the global reinforcing steel industry (Nucor Seattle Steel 2015a). As additional investment is unlikely to be a cost-effective means of compliance, Nucor would need to generate ERUs in order to legally emit GHG in excess of its RPs. We expect Nucor will purchase ERUs directly. Consistent with Energy Strategies (ES) 2016, we assume Nucor’s first source of ERUs would be allowances from the California AB-32 market. This study relies on the ERU price estimates developed by ES 2016, which projects a CAR ERU price curve from \$15.19 per MT in 2020 to \$73.66 per MT in 2035 (in 2015 dollars) based on carbon price curves developed by Puget Sound Energy (PSE).

STUDY APPROACH

ERM developed an economic model of Nucor's finished steel production to estimate the volume which would be transferred to producers outside of Washington State during 2020-2040 if Nucor became subject to the proposed CAR. Although Nucor produces both finished and semi-finished steel products, we simplify the model by focusing only on finished steel, but account for GHG emissions generated at both the melting (casting) and rolling (finishing) facilities.ⁱⁱⁱ We measure annual market transfer of Nucor's finished steel production as the difference between projected production with and without the CAR. We estimate Nucor's production volume without the CAR using annual growth rates in cement consumption in the Pacific Northwest during the period 2015-2035. Nucor's finished steel production volume with the CAR is estimated by equating its marginal revenue, to its increased marginal production cost from purchasing ERUs to comply with each year's RP. The model assumes Nucor faces a constant marginal production cost without the CAR during 2020-2040. Marginal revenue is calculated from the finished steel demand curve we estimate that Nucor faces, the slope of which remains constant during the study period. Multiplying Nucor's transferred steel production average cradle-to-gate GHG emissions factors for the geographic areas in which producers competing with Nucor to serve its market area are located yields an estimated of leaked emissions from Washington State's steel industry associated with the CAR-established set of RPs for Nucor's Seattle facility. Holding constant the cradle-to-gate GHG emissions factors for both Nucor's Seattle facility, the net change in global GHG emissions from steel production is estimated as the difference between the CAR-induced reduction in Nucor's emissions and the leaked emissions.

Attachment B is ERM's Washington State CAR finished steel GHG emissions leakage model. Steps in model development and key assumptions are described in the following sections.

Step 1: Project Nucor's annual finished steel production volume during 2020-2040 without the CAR

In the absence of a rebar production forecast from Nucor, ERM projected Nucor's annual steel production without the CAR by applying the 3.6 percent annual growth rate in cement consumption in Washington State,

ⁱⁱⁱ Finished steel products accounted for 87 percent of Nucor's melted steel during 2002-2015.

Oregon and California from 2015 to 2035 projected by the Portland Cement Association (PCA) to Nucor's reported 2015 finished steel production volume of 510 thousand MT. Nucor's 2035 production is held constant for 2036-2040. We relied on PCA's cement consumption forecast as a surrogate for future rebar consumption because it is estimated for a majority of the study period and corresponds well to the majority of Nucor's primary market area, whereas rebar-specific growth rates were only available at a national scale and for a limited time period. Nucor's finished steel production is highly correlated with national rebar consumption (0.97, 2002-2014), which is highly correlated with cement consumption (0.89, 1990-2015).^{iv} While projected rebar production is capacity constrained in the near term, Nucor had previously considered adding approximately 36 thousand MT of finished steel production capacity. Our model assumes Nucor would increase its finished capacity in 2026, for a total of 725 thousand MT.

Step 2: Project Nucor's annual finished steel production during 2020-2040 with the CAR

Firms operating in a less-than perfectly competitive market produce output up to the point at which the additional cost of producing one more unit (marginal cost) is equal to the additional revenue gained from that unit (marginal revenue). Nucor's annual finished steel production with the CAR is estimated by calculating Nucor's optimal production volume at the higher level of marginal cost associated with the need to purchase Emission Reduction Units (ERUs) to comply with its emission reduction pathway under CAR. This requires determining Nucor's marginal cost of production without the CAR, the incremental marginal cost from its ERU purchases required to comply with the CAR, and the slope of its marginal revenue curve. The following sections detail the methods and assumptions for deriving the elements of this calculation.

2.1 Estimating Nucor's marginal revenue curve

Nucor's marginal revenue curve represents the revenue gained by producing an additional ton of steel at any level of output. Its slope is twice the slope of its (assumed to be linear) demand curve, representing the average revenue per ton (price) it believes it will receive from its customers at each level of output. To calculate the

^{iv} Pearson's correlation coefficient ranges from -1.0 to 1.0. Measures above 0.5 are considered strong positive correlation. A measure of 1.0 is exact positive correlation. Positive correlation means that both series move in the same direction, whereas negative correlation implies the opposite.

slope of the rebar demand curve that we assume Nucor faces we used a reinforcing steel price elasticity of -6.0, our projection of Nucor’s 2020 rebar production without the CAR, 610 thousand MT, and an expected rebar price of \$523 per MT. The slope formula is

$$\begin{aligned} \frac{Rise}{Run} &= \frac{P_b^{MAX}}{Q_b^*} = \frac{[P_b^* (1 + \frac{1}{e})] - P_b^*}{Q_b^*} \\ &= \frac{[523 * (1 + \frac{1}{-6.0})] - 523}{610,000} = \frac{610 - 523}{610,000} = -0.000145 \end{aligned}$$

where P_b^{MAX} is the price at which customers will not purchase finished steel from Nucor, P_b^* and Q_b^* are Nucor’s optimal steel price and output volume, and e is the price elasticity of Nucor’s demand curve.

We used a -6.0 price elasticity of rebar demand faced by Nucor. This is based on the 3.0 to 6.0 range of rebar substitution elasticities published by the US International Trade Commission (USITC 2013). Industry participants used the 6.0 substitution elasticity estimate in the analysis prepared for the investigation. We use the substitution elasticity as a proxy for the elasticity of an individual producer’s demand curve, which is more elastic than the market demand curve and reflects consumers’ choices among producers based on the perceived differentiation of their finished steel product. A price elasticity of -6.0 means that customers reduce purchases by 6 percent in response to a 1 percent increase in price, or by 60 percent in response to a 10 percent price increase.^v Therefore, our model assumes Nucor faces a highly elastic, downward-sloping demand curve. This assumption is validated through discussions with Nucor. Recently, Nucor has lost entire contracts over a few dollars per ton. This information suggests its customers are highly price sensitive and that its demand curve is downward-sloping, meaning Nucor loses sales revenue when its prices increase and gains sales revenue when its prices decrease.

The \$523 per MT price corresponds to projected 2020 production volume without the CAR, and is developed based on Nucor’s finished steel prices received during 2011-2015. We used a uniform

^v Similarly, the lower-bound price elasticity of -3.0 implies a 3 percent reduction in purchases for a 1 percent increase in price, or by 30 percent in response to a 10 percent price increase.

price distribution with minimum and maximum prices of \$370 to \$677 per MT, yielding a middle value of \$523.^{vi} We incorporated this uncertainty in prices, among other parameters, by Monte Carlo methods in the sensitivity analysis described later. We followed this approach as an alternative to econometrically estimating finished steel price formation, in light of budget and time constraints and an absence of future values for factors that shift market supply and demand for steel that would necessarily be incorporated in an econometric model that could be used to generate a price forecast.

2.2 Calculating Nucor's marginal cost without the CAR

Assuming Nucor would produce the optimal volume of steel in 2020, we estimate its marginal cost without the CAR by setting it to be equal to its marginal revenue without the CAR. We estimate Nucor's marginal revenue without the CAR at \$436 per MT using the marginal revenue curve derived in the previous step:

$$MC = MR = \$610 - 0.00029(610,000) = \$436$$

The model assumes Nucor faces a constant marginal cost without the CAR during 2020-2040.

Figure 1 displays the estimated demand and marginal revenue curves used in the model.

^{vi} We used the @Risk software package to implement the Monte Carlo analysis. @Risk also includes a feature that ranks probability distributions by their ability to represent a given data series. While the @RISK software determined that both the generalized extreme value and laplace distributions were slightly better fit to the prices than the uniform distribution, each is unbounded boundless (range: $[-\infty, +\infty]$), meaning the model would be estimated using extremely low (even negative) and extremely high prices some percentage of the time. Given this and the marginal difference in the Akaike Information Criterion (AIC) used as the measure of best-fit, we used the uniform distribution in the model.

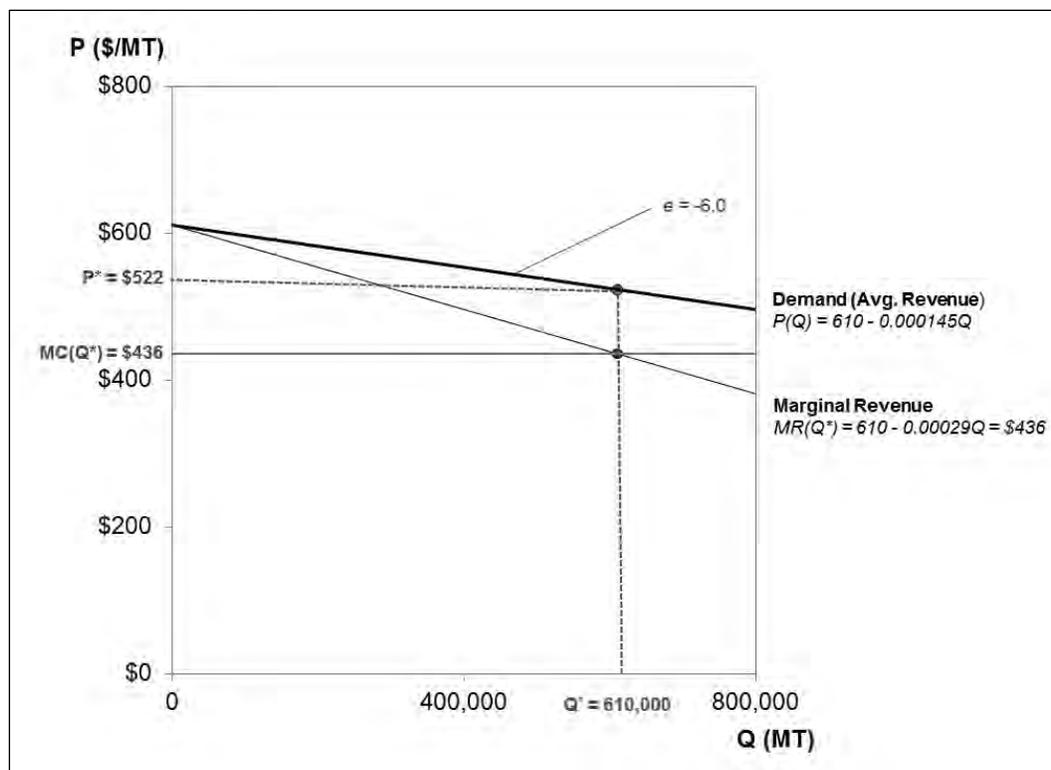


Figure 1. Estimated Rebar Demand, Marginal Revenue and Marginal Cost Curves Faced by Nucor Steel Seattle

2.3 Calculating Nucor's marginal cost with the CAR

We assume Nucor would comply with its CAR-established GHG emissions RPs by purchasing ERUs. Under this assumption, Nucor's marginal production cost without the CAR increases by the ERU price per MT of finished steel produced. Multiplying the ERU price per MT CO₂e by Nucor's OB, 0.215, yields the ERU price per MT finished steel. We used Nucor's facility emissions factor because we understand that the proposed CAR would only regulate facility level emissions. Adding the ERU price per MT finished steel in each year to Nucor's (assumed to be) constant marginal production cost without the CAR yields Nucor's marginal production cost with the CAR.

We used the ERU price curve projected by ES 2016 for the period 2018–2035. ES developed its ERU price curve as the weighted average of the high-and mid- set of carbon price curves developed by PSE in its Integrated Resource Plan (ES 2016). PSE states that the high set of prices "... comes from the Wood Mackenzie high gas price forecast" and that the mid set of prices "is based on [Northwest Power and Conservation Council's] estimated CO₂

price for California AB32” (ES 2016). The weights are the percentage limits for generating allowances from other markets specified in draft CAR (ES 2016, WAC 173-442-170). ES appears to assume all allowances would be sourced with the California AB32 market, such that a 100 percent allowance limit gives all weight to the PSE mid-price curve and no weight to the high-price curve. Because the ES forecast terminates in 2035, we hold the 2035 price constant for 2036-2040. Independent validation of the ES approach and assumptions is outside the scope of this study.^{vii}

The end result is that Nucor’s marginal production cost would increase by \$3.27 per MT finished steel in 2020 and \$15.85 per MT finished steel in 2040 based on an ERU price curve of \$15.19 per MT CO2e in 2020 and \$73.66 per MT CO2e in 2040. Marginal production costs increases to \$439 per MT in 2020 and \$452 in 2040. Because the ES ERU price curve is adjusted for inflation to 2015 dollars, marginal cost is also reported in 2015 dollars.

2.4 Estimating Nucor’s optimal steel production volume with the CAR

Nucor’s optimal steel production volume in each year is estimated assuming Nucor reduces rebar production by the amount required to equate marginal revenue to its new, higher marginal cost with the CAR. We can calculate Nucor’s optimal rebar production volume with the CAR as its projected production volume without the CAR less the incremental marginal production cost divided by the slope of Nucor’s marginal revenue curve.^{viii} Figure 2 graphically demonstrates this calculation using Nucor’s response to incremental marginal production cost imposed by the CAR in 2020. Marginal production cost, MC, increases to approximately to \$439 per MT finished steel with the CAR, *CAR*, from \$436 per MT finished steel without the CAR, *B*. Nucor chooses to reduce finished steel output from 610 thousand MT to 599 thousand MT. The difference between Nucor’s finished steel production volume with and without the CAR is the estimated volume of Nucor’s finished steel production transferred outside of Washington State in 2020.

^{vii} Puget Sound Energy provides no further details of the source documents for these forecasts. An internet search did not turn up any reference to any potential source documents. Energy Strategies also note in their report in footnote 1 that “ES need to verify these prices are in metric tons”, suggesting that they are experiencing similar difficulties in establishing the provenance of the price estimates used by PSE.

^{viii} $Q^{CAR} = Q^B - [(MCCAR - MC^B) / -0.00029]$.

We assume constant marginal revenue with and without the CAR and apply this same method to estimate Nucor’s finished steel production volume with the CAR for each year during 2021-2040. By 2040, marginal cost increases from \$436 to \$452 (in 2015 \$) per MT finished steel, reducing Nucor’s production volume from 726 thousand MT without the CAR to 670 thousand MT with the CAR.

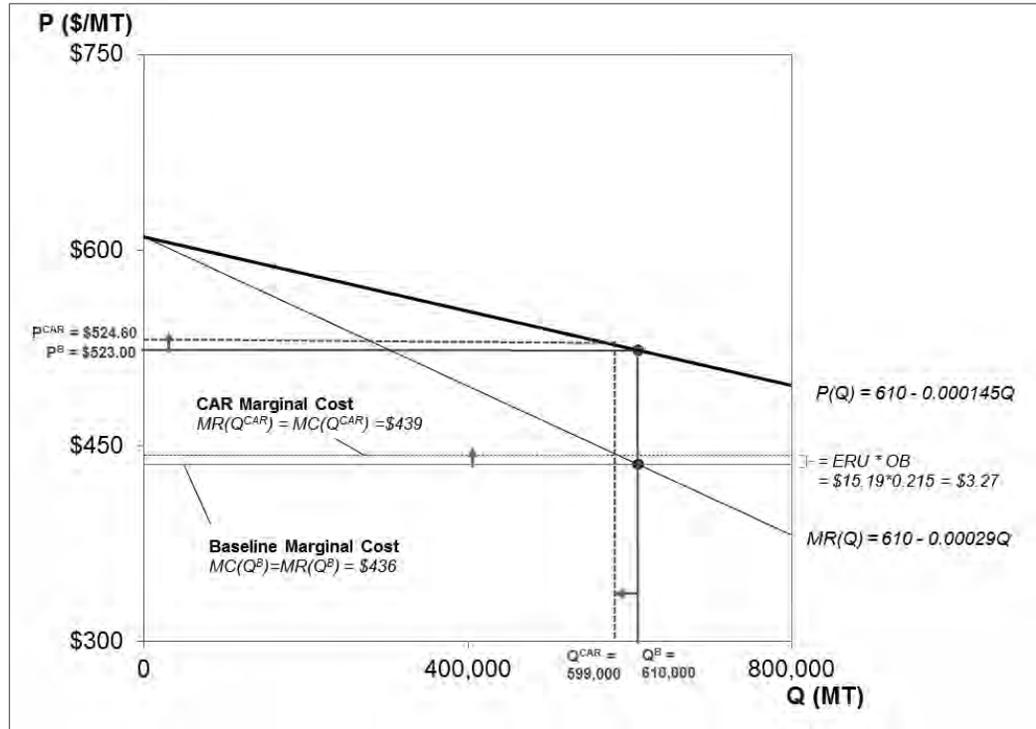


Figure 2. Nucor’s Response to Incremental Marginal Production Cost Imposed by the CAR in 2020

Step 3: Calculate the annual market transfer of Nucor’s finished steel production with the CAR

The annual volume of Nucor’s steel production transferred outside of Washington is calculated by subtracting Nucor’s finished steel production with the CAR (Step 2) from Nucor’s finished steel production without the CAR (Step 1).

Step 4: Calculate annual cradle-to-gate GHG emissions associated with the transferred steel production

The amount of leaked cradle-to-gate GHG emissions is estimated by multiplying Nucor's transferred rebar production volume by an emission factor (EF) of 1.93 MT CO₂e per MT of finished steel. EF is calculated as

$$EF = EF^{NA}(1 - u) + uEF^C,$$

where *NA* refers the United States and Canada, *C* refers to China and *u* reflects the percentage of Nucor's transferred rebar production absorbed by Chinese producers. Total emissions factors, measured as tons CO₂e per ton steel, for the United States (1.0), Canada (1.1) and China (2.6) are published in Houser *et al.* 2008, Figure 3.4.^{ix} This publication was used in developing the American Clean Energy and Security Act of 2009 (Waxman-Markey) and the California Global Warming Solutions Act of 2006 (AB-32).

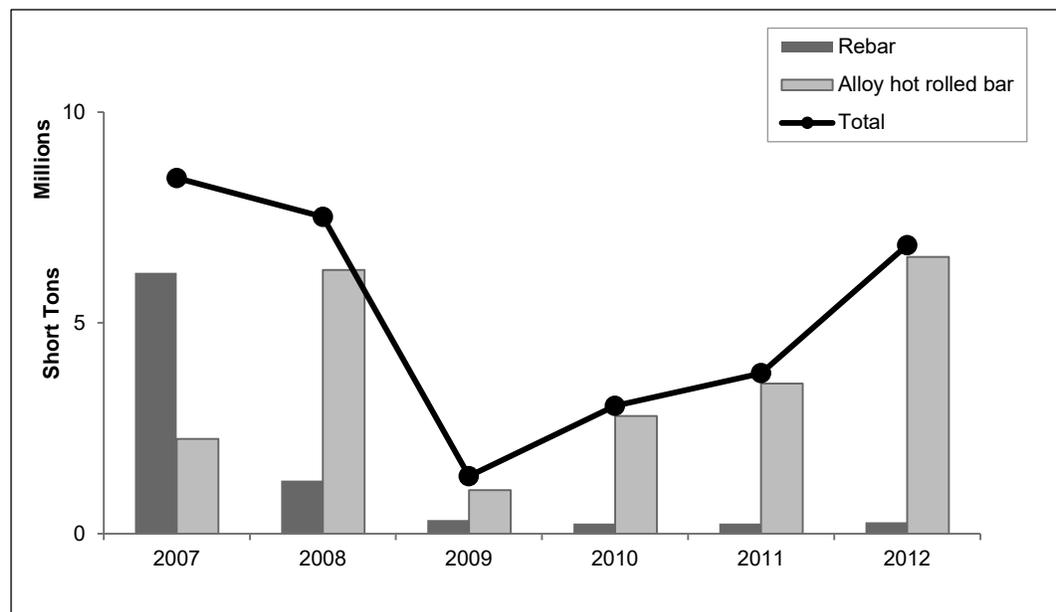
ERM understands that Nucor would expect Chinese producers to account for a significant portion of its transferred rebar production, which averages 35 thousand MT annually based on our model. Available trade data are insufficient to establish this percentage empirically.

- First, the data are available nationally, and do not correspond to sub-national areas representing distinct markets.
- Second, both U.S. and Chinese trade statistics may be unreliable due to the practice of transshipping and misclassification of rebar products. When goods are transshipped, the producer first ships the good to one nation before it is shipped from that origin to its intended market. Trade statistics reflect the point of shipment, rather than the point of production. China has been involved with transshipping allegations in other product markets, for example agricultural products such as farmed shrimp.
- Third, domestic parties to the USITC's 2013 rebar anti-dumping investigation presented evidence that Chinese producers altered their rebar products with other metals, thus classifying them as alloy hot rolled bar rather than rebar, in an attempt to avoid countervailing duties. Figure 3 demonstrates this phenomenon, supporting that a decline in rebar exports is not suggestive of a decline of Chinese steel

^{ix} The estimates are based on the authors' calculations, the Iron and Steel Association's 2006 *Steel Statistical Yearbook* and the International Energy Association's 2007 publication on CO₂ emissions in fuel combustion. The model uses Canada's total emissions factor for *EF*^{NA}.

bar exports. The data show that combined, Chinese exports increased 50 percent year-over-year between the height of the global recession in 2009, and 2012.

China’s steel industry is in a state of oversupply, which is likely to continue given the slowdown in their national economic growth rate in recent years. While the US and other nations have imposed tariffs and other duties on Chinese steel bar products, it has done little to curb Chinese exports. Chinese producers are among the lowest cost steel bar producers globally and they are able to maintain aggressive price competitiveness in the presence of tariffs. Due to these factors and the exposure of Nucor’s market area to Chinese product imported through the ports of Seattle and Vancouver, we modeled the percentage of Nucor’s transferred production to China using the Beta-PERT probability distribution with a range from 25 to 85 percent, and expected point estimate of 55 percent. This approach reflects the uncertainty in the average EF associated with substantial uncertainty about percentage of transferred production absorbed by each region.



Source: USITC 2013

Figure 3. Chinese Exports of Steel Bars

We also applied a 0.00005 MT CO₂e/km/MT steel emissions factor for marine vessel transportation between China and Seattle published by CN Transportation. We did not attempt to estimate rail transportation emissions associated with production transferred to other plants in the U.S. and plants in Canada for the reason that the exact customer

destinations are unknown, the relative transportation distance cannot be reliably estimated, and the difference between the with and without CAR is likely immaterial. In the final analysis, marine vessel emissions amount to 1 percent of leaked GHG emissions.

Step 5: Calculate the net change in cradle-to-gate GHG emissions

We estimated the net change in GHG emissions associated with finished steel production as the leaked GHG emissions induced by Nucor's response to the CAR, less the reduction in Nucor's cradle-to-gate GHG emissions.

STUDY FINDINGS

Table 3 summarizes the results of ERM's Washington CAR rebar steel industry emissions leakage model. Point estimates are presented for each of the key model outputs. In the following section, we describe the sensitivity analysis of key model outputs to uncertainty about the true value of certain model inputs. The sensitivity analysis was developed using Monte Carlo methods to derive the 90 percent confidence interval for the point estimates.

Table 3. Point Estimates from ERM's Washington CAR Finished Steel GHG Emissions Leakage Model

	2020-29	2030-40	Total	Annual
Nucor's Present Value Cost of ERUs (MM 2015 \$)	\$3.2	\$7.2	\$10.4	\$0.96
Reduction in Nucor's cradle-to-gate GHG Emissions (000 MT CO ₂ e)	101	245	346	16
Market Transfer of Washington Finished Steel Production (000 MT)	230	556	786	37
Market Transfer as Percentage of Washington Finished Steel Production without the CAR	3.3	7.0	5.2	--
Cradle-to-Gate GHG Emissions Leakage (000 MT CO ₂ e)	449	1,084	1,533	73
GHG Emissions Leakage Rate (% of Nucor's Emissions)	14.6	30.9	23.2	--
Net Change in Cradle-to-Gate Global GHG Emissions from Steel Production (000 MT CO ₂ e)	348	840	1,188	57

Notes: Periods may not sum to total due to rounding.

SENSITIVITY ANALYSIS

ERM used Monte Carlo methods to evaluate the sensitivity of key model outputs to the significant uncertainty that exists for several of the key parameters in the emissions leakage model. Instead of using point estimates for key model parameters, Monte Carlo methods allowed us to specify a distribution of values that we believe contain the true value. The key model outputs are recalculated 10,000 times, each time using a different combination of draws from the probability distributions describing each parameter developed with uncertainty. The end result is a distribution of model outputs (e.g., transferred steel production; leaked cradle-to-gate GHG emissions) from which we are able to identify the range of estimates that contain the true estimate with a specified level of confidence. This analysis uses the 90 percent confidence level.

Table 4 lists the model parameters we incorporated with uncertainty, along with the range of values and probability distribution specified for the Monte Carlo analysis.

Table 5 lists the point estimate from the model for each key output and the 90 percent confidence interval around the point estimate from the Monte Carlo analysis.

Table 4. Distribution of Key Washington CAR Steel Emissions Leakage Model Parameters in the Sensitivity Analysis

Model Parameter	Range	Distribution
Annual growth of Nucor's finished steel production volume without CAR (%/Yr.)	2.6 - 4.4	Uniform
Price elasticity of Nucor's demand curve	3.0,4.0,5.0,6.0 {.05,.05,.20,.70}	Discrete Probability
Price at which Nucor sells all rebar output in 2020 (\$/MT)	Minimum: \$370 Maximum: \$670	Uniform
Percentage of Nucor's transferred steel production absorbed by Chinese producers (%)	Minimum: 25 Most Likely: 55 Maximum: 85	Beta-PERT

Table 5. Point Estimate and 90 Percent Confidence Interval for Key Washington CAR Steel Emissions Leakage Model Outputs

	Point Estimate	90% Confidence Interval
Market Transfer of Washington Finished Steel Production (000 MT)	786	460-1,050
Market Transfer as Percentage of Washington Finished Steel Production without the CAR	5.2	3.1-7.0
Cradle-to-Gate GHG Emissions Leakage (000 MT CO ₂ e)	1,533	884-2,104
GHG Emissions Leakage Rate (% of Nucor's Emissions)	23.2	13.4-31.7
Net Change in Cradle-to-Gate Global GHG Emissions from Steel Production (000 MT CO ₂ e)	1,187	672-1,651

The “tornado” diagrams presented as Figures 4 and 5 demonstrate the sensitivity of model point estimates to the parameters incorporated with uncertainty. The red bar adjacent to each parameter shows the change in the mean estimate when that parameter is at its minimum and maximum value and other parameters in the model are at their mean, or most likely value. For example, when the 2020 rebar price is at \$370 per MT in the marginal revenue curve calculation, its lowest potential estimate, transferred production drops from a mean estimate of 5 percent of Nucor’s steel production volume without the CAR, to 3.8 percent (Figure 4). Similarly, when the percentage of Nucor’s transferred steel production absorbed by China is at its lowest value, 15 percent, the mean emissions leakage declines from 22 to 18.5 percent, holding all other model parameters at their point estimates (Figure 5).

Figure 4. Transferred Steel Production Volume as a Percentage of Nucor’s Steel Production without the CAR

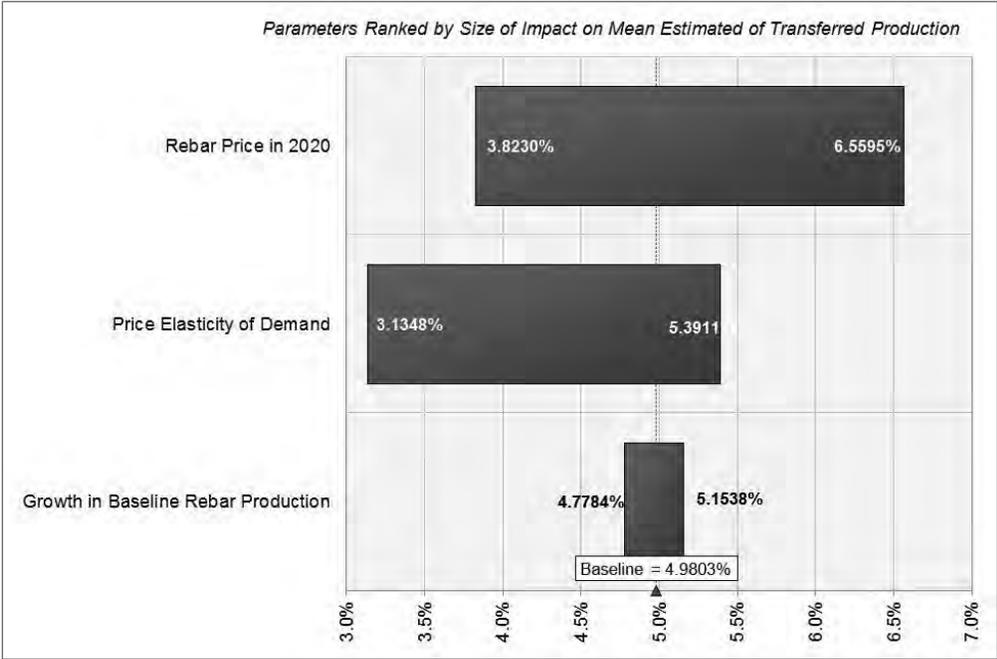
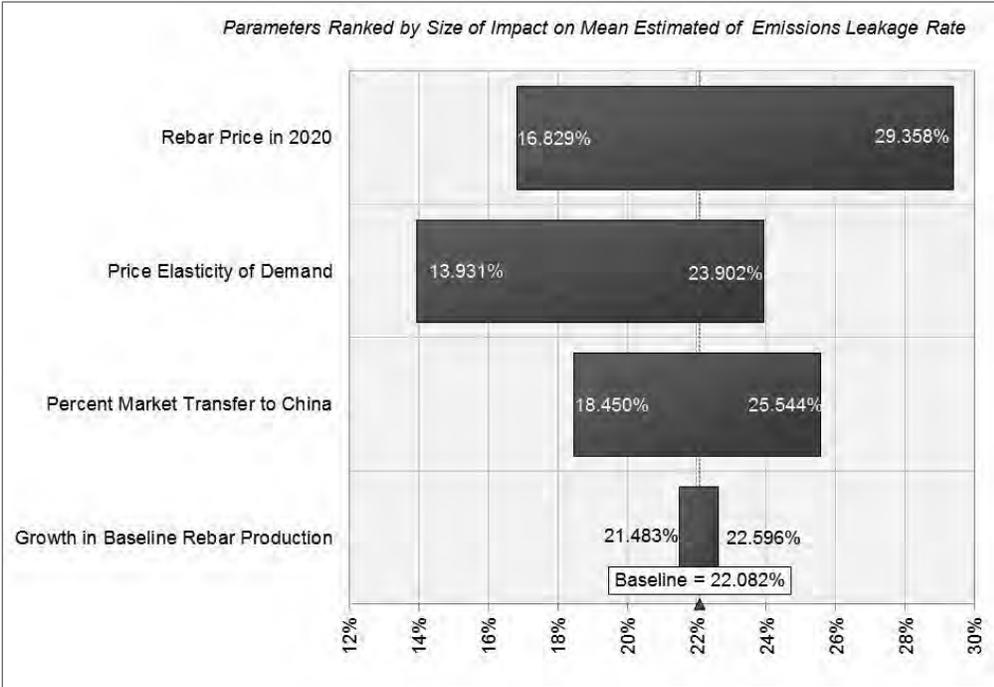


Figure 5. GHG Emissions Leakage as a Percentage of Nucor’s GHG Emissions without the CAR.



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Attachment A
Estimated Nucor GHG Emission
Reduction Pathways

Table A1. Nucor Steel Seattle CAR Emission Reduction Pathways Calculation

Calendar Year	<i>a</i>			<i>b</i>			<i>c</i>	<i>d</i>
	Nucor Finished Steel Production without CAR, MT	Calendar Years Nucor is Subject to CAR (Yx)	Nucor's CAR Compliance Period	Nucor Finished Steel Production with CAR, MT	Average Production (AP), MT	Output-based Baseline (OB)	Efficiency Reduction Rate (RR)	Emission Reduction Pathways (RPx), MT CO ₂ e
2015	510,140	-4	0	510,140				
2016	528,701	-3	0	528,701				
2017	547,937	-2	0	547,937				
2018	567,872	-1	0	567,872				
2019	588,533	0	0	588,533				
2020	609,946	1	1	598,510	568,114	0.215175	0.017	122,244
2021	632,138	2	1	620,040	568,114	0.215175	0.017	120,166
2022	655,137	3	1	642,354	568,114	0.215175	0.017	118,088
2023	678,973	4	2	658,443	620,301	0.215175	0.017	126,666
2024	689,461	5	2	667,665	620,301	0.215175	0.017	124,397
2025	689,461	6	2	666,333	620,301	0.215175	0.017	122,128
2026	714,545	7	3	685,696	664,147	0.215175	0.017	128,331
2027	725,748	8	3	695,129	664,147	0.215175	0.017	125,902
2028	725,748	9	3	693,262	664,147	0.215175	0.017	123,472
2029	725,748	10	4	689,174	691,363	0.215175	0.017	126,003
2030	725,748	11	4	686,938	691,363	0.215175	0.017	123,474
2031	725,748	12	4	684,567	691,363	0.215175	0.017	120,945
2032	725,748	13	5	680,750	686,893	0.215175	0.017	117,651
2033	725,748	14	5	677,972	686,893	0.215175	0.017	115,138
2034	725,748	15	5	675,021	686,893	0.215175	0.017	112,625
2035	725,748	16	6	670,293	677,914	0.215175	0.017	108,673
2036	725,748	17	6	670,293	677,914	0.215175	0.017	106,194
2037	725,748	18	6	670,293	677,914	0.215175	0.017	103,714
2038	725,748	19	7	670,293	670,293	0.215175	0.017	100,096
2039	725,748	20	7	670,293	670,293	0.215175	0.017	97,644
2040	725,748	21	7	670,293	670,293	0.215175	0.017	95,192

Notes:

[a] 1.036*Production in previous year

[b] Table A2

[c] The non-EITE RR of 1.7% is used because the CAR, as written, does not provide information required to compute the Nucor-specific RR.

[d] (AB*OB) - (AB*OB*RR*(Yx-1))

Table A2. Nucor Steel Seattle Output-based Baseline Calculation

	<i>a</i>	<i>b</i>	<i>c</i>
		Facility Emissions from Finished Steel Production, MT CO ₂ e	
Calendar Year	Finished Steel Production, MT	Finished Steel Production, MT CO ₂ e	Output-based Baseline (OB)
2012	564,396	110,119	0.195
2013	539,130	111,726	0.207
2014	562,953	140,865	0.250
2015	510,140	104,594	0.205
2016	530,577	115,218	0.217
Average	541,439	116,504	0.215

Notes:

[b] Includes emissions from both the melting (casting) and rolling (finishing) facilities.

[c] = [b]÷[a]

Attachment B
Washington CAR Finished Steel
GHG Emissions Leakage Model

Steel GHG Emissions Leakage Model

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
	689,461	689,461	689,461	689,461	689,461	689,461	725,748	725,748	725,748	725,748
CAR										
CAR, Q (MT)	609,946	632,138	655,137	678,973	689,461	689,461	714,545	725,748	725,748	725,748
	88%	92%	95%	98%	100%	100%	98%	100%	100%	100%
Steel (MT CO2e)	131,245	136,020	140,969	146,098	148,355	148,355	153,752	156,163	156,163	156,163
Finished Steel (MT CO2e)	268,376	278,141	288,260	298,748	303,363	303,363	314,400	319,329	319,329	319,329
MC(Q) (\$/MT)	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436
CO2)	\$15.19	\$16.07	\$16.98	\$27.27	\$28.95	\$30.72	\$38.32	\$40.67	\$43.15	\$48.58
	\$3.27	\$3.46	\$3.65	\$5.87	\$6.23	\$6.61	\$8.25	\$8.75	\$9.28	\$10.45
Q) (\$/MT)	\$439	\$439	\$439	\$442	\$442	\$442	\$444	\$445	\$445	\$446
Q(MC')	598,510	620,040	642,354	658,443	667,665	666,333	685,696	695,129	693,262	689,174
	87%	90%	93%	96%	97%	97%	94%	96%	96%	95%
Steel CAR (MT CO2e)	128,785	133,417	138,219	141,681	143,665	143,378	147,545	149,575	149,173	148,293
Finished Steel (MT CO2e)	263,345	272,817	282,636	289,715	293,773	293,186	301,706	305,857	305,035	303,237
Compliance Period (MT)	568,114	568,114	568,114	620,301	620,301	620,301	664,147	664,147	664,147	691,363
Factor (MT CO2/MT Steel)	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215
	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
CO2e)	122,244	120,166	118,088	126,666	124,397	122,128	128,331	125,902	123,472	126,003
(MT CO2e)	6,541	13,251	20,131	15,014	19,268	21,250	19,213	23,673	25,700	22,290
	\$0.099	\$0.213	\$0.342	\$0.409	\$0.558	\$0.653	\$0.736	\$0.963	\$1.109	\$1.083
	\$0.076	\$0.152	\$0.228	\$0.255	\$0.325	\$0.355	\$0.374	\$0.457	\$0.492	\$0.449
ns of Finished Steel with CAR (MT CO2e)	-5,032	-5,323	-5,625	-9,033	-9,590	-10,176	-12,694	-13,472	-14,294	-16,092
n CAR (MT)	11,436	12,098	12,783	20,530	21,795	23,128	28,849	30,619	32,486	36,574
without CAR)	1.9%	1.9%	2.0%	3.0%	3.2%	3.4%	4.0%	4.2%	4.5%	5.0%
CAR (MT CO2e)	22,303	23,595	24,931	40,039	42,506	45,105	56,264	59,714	63,355	71,328
le-to-Gate Emissions without CAR)	8.3%	8.5%	8.6%	13.4%	14.0%	14.9%	17.9%	18.7%	19.8%	22.3%
CO2e)	17,271	18,272	19,306	31,006	32,916	34,929	43,570	46,242	49,061	55,235

Steel GHG Emissions Leakage Model

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748
CAR											
CAR, Q (MT)	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748	725,748
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Steel (MT CO2e)	156,163	156,163	156,163	156,163	156,163	156,163	156,163	156,163	156,163	156,163	156,163
Finished Steel (MT CO2e)	319,329	319,329	319,329	319,329	319,329	319,329	319,329	319,329	319,329	319,329	319,329
MC(Q) (\$/MT)	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436	\$436
CO2)	\$51.55	\$54.70	\$59.77	\$63.46	\$67.38	\$73.66	\$73.66	\$73.66	\$73.66	\$73.66	\$73.66
	\$11.09	\$11.77	\$12.86	\$13.66	\$14.50	\$15.85	\$15.85	\$15.85	\$15.85	\$15.85	\$15.85
CO2) (\$/MT)	\$447	\$448	\$449	\$449	\$450	\$452	\$452	\$452	\$452	\$452	\$452
Q(MC')	686,938	684,567	680,750	677,972	675,021	670,293	670,293	670,293	670,293	670,293	670,293
	95%	94%	94%	93%	93%	92%	92%	92%	92%	92%	92%
Steel CAR (MT CO2e)	147,812	147,302	146,480	145,883	145,248	144,230	144,230	144,230	144,230	144,230	144,230
Finished Steel (MT CO2e)	302,253	301,209	299,530	298,308	297,009	294,929	294,929	294,929	294,929	294,929	294,929
Compliance Period (MT)	691,363	691,363	686,893	686,893	686,893	677,914	677,914	677,914	670,293	670,293	670,293
Factor (MT CO2/MT Steel)	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215
	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
CO2e)	123,474	120,945	117,651	115,138	112,625	108,673	106,194	103,714	100,096	97,644	95,192
(MT CO2e)	24,338	26,357	28,830	30,745	32,622	35,557	38,037	40,517	44,134	46,586	49,038
	\$1.255	\$1.442	\$1.723	\$1.951	\$2.198	\$2.619	\$2.802	\$2.984	\$3.251	\$3.432	\$3.612
	\$0.487	\$0.523	\$0.584	\$0.618	\$0.650	\$0.724	\$0.724	\$0.721	\$0.734	\$0.724	\$0.712
ns of Finished Steel with CAR (MT CO2e)	-17,076	-18,120	-19,799	-21,022	-22,320	-24,400	-24,400	-24,400	-24,400	-24,400	-24,400
n CAR (MT)	38,810	41,181	44,998	47,776	50,727	55,455	55,455	55,455	55,455	55,455	55,455
without CAR)	5.3%	5.7%	6.2%	6.6%	7.0%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%
CAR (MT CO2e)	75,689	80,314	87,758	93,175	98,931	108,152	108,152	108,152	108,152	108,152	108,152
le-to-Gate Emissions without CAR)	23.7%	25.2%	27.5%	29.2%	31.0%	33.9%	33.9%	33.9%	33.9%	33.9%	33.9%
CO2e)	58,612	62,194	67,958	72,154	76,611	83,751	83,751	83,751	83,751	83,751	83,751

Advocates for the West
 Affiliated Tribes of Northwest Indians
 AirWorks, Inc.
 Alaska Housing Finance Corporation
 Alliance to Save Energy
 Alternative Energy Resources Organization
 American Rivers
 A World Institute for a Sustainable Humanity
 Beneficial State Bank
 BlueGreen Alliance
 Bonneville Environmental Foundation
 Centerstone
 Citizens' Utility Board of Oregon
 City of Ashland
 City of Seattle Office of Sustainability &
 Environment
 Climate Solutions
 Community Action Center
 Community Action Partnership Assoc. of Idaho
 Community Action Partnership of Oregon
 David Suzuki Foundation
 Drive Oregon
 Earth and Spirit Council
 Earth Ministry
 Ecova
 eFormative Options
 Emerald People's Utility District
 EnergySavvy
 Energy Trust of Oregon
 Enhabit
 Environment Oregon
 Environment Washington
 HEAT Oregon
 Home Performance Guild of Oregon
 Home Performance Washington
 Housing and Comm. Services Agency of Lane
 Co.
 Human Resources Council, District XI
 Idaho Clean Energy Association
 Idaho Conservation League
 Idaho Rivers United
 Interfaith Network for Earth Concerns
 League of Women Voters Idaho
 League of Women Voters Oregon
 League of Women Voters Washington
 Montana Audubon
 Montana Environmental Information Center
 Montana Renewable Energy Association
 Montana River Action
 National Center for Appropriate Technology
 Natural Resources Defense Council
 New Buildings Institute
 Northern Plains Resource Council
 Northwest Energy Efficiency Council
 NW Natural
 NW SEED
 OneEnergy Renewables
 Opower
 Opportunities Industrialization Center of WA
 Opportunity Council
 Oregon Environmental Council
 Oregonians for Renewable Energy Progress
 Pacific Energy Innovation Association
 Pacific NW Regional Council of Carpenters
 Physicians for Social Responsibility Oregon
 Chapter
 Physicians for Social Responsibility Washington
 Chapter
 Portland General Electric
 Puget Sound Advocates for Retired Action
 Puget Sound Cooperative Credit Union
 Puget Sound Energy
 Renewable Northwest Project
 Save Our Wild Salmon
 Sea Breeze Power Corp.
 Seattle City Light
 Seinerger
 Sierra Club
 Sierra Club, Idaho Chapter
 Sierra Club, Montana Chapter
 Sierra Club, Washington Chapter
 Smart Grid Northwest
 Snake River Alliance
 Solar Installers of Washington
 Solar Oregon
 Solar Washington
 South Central Community Action Partnership
 Southeast Idaho Community Action Agency
 Spokane Neighborhood Action Partners
 Student Advocates for Valuing the Environment
 Sustainable Connections
 The Climate Trust
 The Energy Project
 The Policy Institute
 Trout Unlimited
 Union Of Concerned Scientists
 United Steelworkers of America, District 12
 US Green Building Council, Idaho Chapter
 Washington Environmental Council
 Washington Local Energy Alliance
 Washington State Department of Commerce
 Washington State University Energy Program
 YMCA Earth Service Corps



From: JJ McCoy
 Senior Policy Associate
 NW Energy Coalition

July 22, 2016

To: Washington Department of Ecology

Re: Comment on Clean Air Rule 2nd CR 102

Thank you for the opportunity to comment on the draft Clean Air Rule, which aims to lower Washington's carbon emissions via a "baseline and credit" mechanism that requires polluters to either reduce carbon emissions directly each year or acquire emissions reduction units (ERUs) through one of several pathways.

We appreciate the efforts of Gov. Jay Inslee and the Washington Department of Ecology staff to address this important issue. Climate science tells us that each day's carbon emissions – every time we turn the ignition key or flick on a light switch – will warm the atmosphere for more than 100 years and acidify the oceans for more than 1,000 years. These long-lasting consequences impose a huge burden on future generations of humans and every other species residing on the planet. It is vitally important to reduce these emissions now and drive the clean energy transition that is within our grasp. We also appreciate that Ecology is operating within a zone of restricted legal authority that provides, at best, incomplete and imperfect tools to address carbon pollution.

We would like to echo the comments of others that the rule should be far stronger than it is. Addressing many of these issues will require additional legislation, and we call on the Washington Legislature to act.

- The 30% reduction in covered emissions by 2035 is insufficient. Science-based limits would call for far steeper reductions for Washington to do our proportional share in keeping the planet from warming beyond 2°C, as prescribed in international agreements.
- The rule does not cover all emissions in the state: a more comprehensive framework is required.
- The rule also specifically does not cover emissions from electric power imported into the state. This creates a significant risk of emissions leakage if electricity generation migrates to other states via our multi-state transmission grid.

The NW Energy Coalition has the following technical comments and suggestions at this time:

1. **The regulation should address cases of total and permanent exit by electricity generating units (EGUs) in the same way it addresses curtailment by other covered parties.** This is necessary to address potential leakage issues and avoid perverse incentives. Several utility companies have stated publicly that they may consider shutting down EGUs in Washington and purchasing (or generating) power out of state in response to price signals generated by the CAR. The CAR as currently drafted would allow the EGUs to sell 100% of their former emissions (minus the compliance path) as ERUs forever, a source of ongoing revenue. This could be an incentive to shut down Washington facilities, resulting in high rates of carbon leakage and possibly net increases in global emissions if those out-of-state power purchases have higher emission rates than the closed Washington facility. The CAR must take steps to avoid this unwanted outcome.

We recommend the following be added to the definition of “Curtailment” in WAC 173-442-020(1)(k) (on p. 2):

“Permanent Shutdown – Complete and permanent shutdown of an EGU will be considered a curtailment from the date of shutdown. Any ERUs generated due to a complete and permanent shutdown will be deposited in the reserve account in the same manner as curtailments by other covered parties.”

We would also recommend that the applicability sections of WAC 173-442-030 (on pp. 3-5) and the reporting requirement sections WAC 173-442-210 (p. 21) address mandatory exit from the CAR in the case of total and permanent shutdown. As drafted, exit from reporting requirements is a voluntary choice by the covered entity if emissions fall below the compliance threshold. An EGU that completely and permanently shuts down may have an incentive to continue reporting under the CAR in order to sell ERUs to other covered parties. Ecology should compel exit from regulation under the CAR in the event of total and permanent shutdown on an appropriate timeframe.

2. **Temporary curtailment by EGUs should also be addressed.** WAC 173-442-020(1)(k)(ii) (p. 2) provides a blanket exemption from the curtailment rules for EGUs. We agree that capacity factors for EGUs vary widely for many legitimate reasons, including weather and hydro conditions. However, it should be possible to construct a minimum level of functioning that is beyond normal operations needs. In addition to the rule for complete and permanent closure suggested above, Ecology should consider a temporary curtailment standard for EGUs.

We recommend the following:

“An EGU will be considered to be in curtailment in any calendar year in which the EGU generates megawatt hours totaling less than 5% of its nameplate rating for power generation multiplied by 8,760 (i.e. the number of hours in a year). Ecology may deposit ERUs generated during a temporary curtailment into the reserve account. However, if the covered party demonstrates to Ecology that the temporary curtailment occurred due to normal electricity system operations (including hydro conditions), then Ecology may elect not to deposit the resulting ERUs into the reserve account.”

3. **Issues for Regulatory Consideration – The Utilities & Transportation Commission (UTC) should consider policy on the use of ERUs from closed or curtailed Washington electric generating facilities.** While this comment is beyond the scope of the CAR, the prospect of using ERUs from shuttered natural gas generating facilities raises several fundamental regulatory issues, which the UTC should monitor:
 - a. **Stranded Assets** – First, if a regulated utility were to close a gas-powered EGU based on a dispatch model’s response to price signals resulting from the CAR, this closure could potentially strand hundreds of millions of dollars’ worth of undepreciated capital assets, which would no longer be used and useful to the electric utility ratepayers. The UTC should provide guidance on whether those capital assets, so stranded, would continue to be recoverable in utility rates or considered a shareholder loss.
 - b. **Cross-subsidization** – Secondly, it may be the case that a parent company operating an EGU also operates a natural gas utility. ERUs generated by the electricity business could potentially be traded or used for compliance by the co-owned natural gas utility. This raises questions of potential cross-subsidization between the two sets of regulated utility ratepayers. The UTC would need to address what price the natural gas utility should be required to pay to compensate the electric utility ratepayers for any such ERUs, possibly based on market rates or renewable energy credits (REC) price proxies.
4. **We concur with the proposed transition to the Clean Power Plan (CPP).** WAC 173-442-040(4) (p. 6) provides an exemption for stationary sources, like natural gas power plants, which may eventually be regulated under the federal CPP. We agree that the CPP offers a more comprehensive framework to address multi-state emissions and concur with the approach that provides a glidepath for transition into the CPP if and when that regulation is in force.
5. **Emissions Reduction Activities and Programs – The eligibility and process is unclear.** WAC 173-442-160, (p. 15) has multiple passive voice statements – “Ecology will accept” and “the following must occur” – that leave it unclear *who* may generate ERUs via activities and programs, or by what process they are recognized. We recommend a clear statement that “Any party operating in the state of Washington who can potentially generate ERUs, including parties not regulated by the CAR, may register with Ecology as an operator of emissions reduction activities and programs” per a simple, prescribed process. This will also foster transparency, as the covered parties will have access to lists of potential sources of ERUs to achieve compliance.
6. **The energy efficiency pathway requires additional specification.** We recommend that Ecology coordinate with the Dept. of Commerce (Commerce) and the Utilities & Transportation Commission (UTC) to develop concurrent rules that achieve the following:
 - a. **ERUs derived from energy efficiency should also reflect transmission and distribution losses.** WAC 173-442-160(5)(a) (on p.16) and/or WAC 173-442-160(5)(c) (on p. 17) – Each MWh conserved at the retail level avoids slightly more than one MWh of generation due to the presence of transmission and distribution losses. ERU generators from conservation should get credit for those avoided

emissions as well. Federal and California Air Resources Board formulas for grid losses are roughly as follows:

Emissions Rate_{total} = Emissions Rate_{generation} / (1 - TL_{grid subregion})
with transmission losses in percentage decimal form.

A grid loss rate of 0.0694 may be appropriate (based on the 2009-2012 average of EPA eGRID loss factors for the WECC NWPP subregion). These are available at <https://www.epa.gov/energy/egrid>.

- b. **ERUs derived from energy efficiency should reflect multi-year energy savings. This will require additional reporting to Commerce and the UTC.** Utilities currently report *first-year* MWh conservation totals relative to a biennial target, but each conservation measure persists for many years. So, one MWh of reported conservation might result in 5-20 MWh saved over its lifespan. (See Table 2, below, for example calculations and potential market sizing). We recommend the following:

The CAR should specify that conservation ERUs reflect multi-year savings by the following formula:

$$ERU_{\text{utility,biennium}} = ER * (EE_{\text{utility, biennium}} - \text{Target}_{\text{utility,biennium}}) * ML_{\text{utility,biennium}}$$

where

$ERU_{\text{utility,biennium}}$ = The emission reduction units generated by each utility in that biennial reporting period, in MT CO₂e

ER = Avoided emissions rate, including T&D losses (see above), in MT CO₂e / MWh

$EE_{\text{utility, biennium}}$ = First-year energy efficiency achieved by the utility in the biennium, in MWh

$\text{Target}_{\text{utility,biennium}}$ = The utility's Energy Independence Act target for the biennium, in MWh

$ML_{\text{utility,biennium}}$ = [NEW Reporting] Weighted average measure life, in years, reported by the utility for measures installed in the biennium.

We recommend that Commerce and the UTC modify their EIA reporting requirements to add average measure life for CAR purposes only. Measure lives should be reported at the utility level each year, reflecting a weighted average measure life across all the measures installed, weighted by the energy conserved. Measure lives should reflect adopted protocols of the Regional Technical Forum (see <http://rtf.nwccouncil.org/measures/>), where available. In the case of more customized industrial or commercial measures, utility estimates may be used.

7. The rule should use a higher energy-to-carbon conversion rate that reflects marginal dispatch conditions in the region, per EPA guidance and the AVERT model.

WAC 173-442-160(5)(c) (on p. 17) adopts Washington’s emission performance standard of 970 lbs CO₂e / MWh as the conversion rate of energy efficiency or renewable energy MWhs to carbon equivalents. EPA guidance and carbon mitigation literature suggest that renewable energy and energy efficiency programs be credited at the *marginal* effect they have on emissions and at the regional level, since power is traded widely across the region. Washington’s emission performance standard governs “baseload electric generation” per RCW 80.80.040, defined in RCW 80.80.010 as units with a capacity factor (utilization) of more than 60%. As a result, this choice is not necessarily reflective of *marginal* generation, especially in the short term. Marginal generation may also involve peaker plants with higher emissions rates, particularly if co-incident with system peaks.

Kartha and Lazarus (<http://www.oecd.org/environment/cc/1943333.pdf>) suggest that emissions rates should be the average of the “build margin”, reflective of long-term changes in the system and the “operating margin”, reflective of short-term changes in dispatch. This method may be appropriate since both renewable energy and energy efficiency programs have multi-year lives and possibly different short-term and long-term effects.

Table 1 – Carbon Conversion Factor Calculation for EE & RE

AVERT Model Outputs for NWPP, 2015 Data File

Marginal Capacity or Energy	Type	Hourly Profile	MWH Displaced	CO ₂ reduced (Short Tons)	lbs CO ₂ / MWH
1 aMW	Energy Efficiency	Constant	8,800	6,400	1,455
1 MW	Wind	Default	2,200	1,600	1,455
1 MW	Utility PV	Default	1,700	1,300	1,529
1 MW	Rooftop PV	Default	1,300	1,000	1,538

EE Operating Margin w T&D Losses 1,563

Average RE Operating Margin 1,507

Build Margin (Emissions Performance Standard) 970

EE Recommended Emissions Rate
(Build Margin + Operating Margin)/2 1267

RE Recommended Emissions Rate
(Build Margin + Operating Margin)/2 1239

SOURCE: <https://www.epa.gov/statelocalclimate/avoided-emissions-and-generation-tool-avert>

Per the Kartha and Lazarus methodology:

- Washington’s emission performance standard may be considered an upper limit for the build margin.
- The EPA’s AVERT model can supply estimates of the operating margin for the region. (available at <https://www.epa.gov/statelocalclimate/avoided-emissions-and-generation-tool-avert>)

As shown in the above calculation table, a conversion rate of 1267 lbs CO₂e/MWh for energy efficiency programs and 1239 lbs CO₂e/MWh for renewable energy programs (RECs) may be appropriate using this methodology. The Commerce Department and the Northwest Power and Conservation Council should commission a study to identify and evaluate an appropriate factor. In addition to the elements described here, the factor may also need to consider interactions with the state’s renewable portfolio standard, as California has done. The CAR should also provide for a periodic update cycle (annually, or no less than once a compliance period) to reflect annual updates to the AVERT model and 5-year updates to the emissions performance standard.

8. **The NW Energy Coalition is concerned that the CAR energy efficiency pathway may degrade utilities’ I-937 compliance. The rule could give all utilities an incentive to lowball their efficiency targets.** Under the Energy Independence Act (I-937), utilities set their own energy efficiency targets using methods that are supposed to reflect conservation potentials determined by the NW Power and Conservation Council for the region. However, there is considerable judgment exercised in the setting of those targets, and we’re perennially concerned that some utilities do not set their targets high enough. Indeed, utilities routinely exceed their targets by substantial amounts, which suggests the targets were too gentle. The targets are supposed to reflect a) what’s technically possible, b) what’s cost effective, and c) what’s achievable programmatically. By far, the largest falloff occurs in that last step, which is also the most subject to judgment. By allowing utilities to sell energy efficiency that exceeds their 937 targets, the CAR may encourage utilities to aim low in order to maximize the MWhs that are available for sales into the CAR. At the same time, the revenue opportunity may provide an incentive to pursue more conservation, so the net effect is hard to determine in advance. One solution would be to allow all energy efficiency achieved under 937 to generate credits under the CAR, while also steepening the compliance curve for covered parties accordingly to arrive at the same net result. However, we do not have a recommendation for how to implement that method at this time.
9. **Voluntary participants should be subject to an emissions reduction pathway the same as mandatory participants.** WAC 173-442-030(6) (on p. 4) – We concur with comments filed by the Stockholm Environment Institute that voluntary participants should also receive an emissions reduction pathway and generate ERUs relative to that pathway, to avoid potential gaming of the system.
10. **Double counting of emissions reductions appears to be highly prevalent in this system and will likely exceed the 2% reserve capacity set aside to address it.** Of the potential compliance pathways, all of the natural gas efficiency would appear to be double counted as would any emissions reduction programs involving transportation fuels. In addition, some of the REC, energy efficiency, and combined heat and power work will be double counted, though the level may be complex to determine. We recommend that Ecology:

- a. Establish a statewide aggregate cap on covered emissions.
- b. Periodically revisit the reserve requirement levels and emissions reduction pathways in light of actual double-counting experience.
- c. Periodically lower the covered parties' emissions reduction pathways (i.e. increase the compliance obligation) to keep the state at its aggregate cap depending on the level of double counting found.

Thank you for your consideration, and feel free to contact me at (206) 295-0196 or jj@nwenergy.org if you would like to discuss these issues further.

Regards,

JJ McCoy

CC: Glenn Blackmon, Greg Nothstein, Tony Usibelli, Dept. of Commerce
David Danner, Philip Jones, and Ann Rendahl, UTC
Lauren McCloy and Brad Cebulko, and Deborah Reynolds, UTC

Table 2 – Illustration of Recommended Energy Efficiency ERU Generation Method and Sizing Relative to Commerce
Adapted from Commerce 2012-2013 Energy Independence Act Report

Conservation Targets and Acquisitions			
Utility	2012-13	2012-13	2014-15
	Conservation Target (MWh)	Conservation Acquired (MWh)	Conservation Target (MWh)
Avista	108,589	171,570	76,086
Benton PUD	26,981	32,984	23,740
Chelan PUD	29,609	35,887	18,221
Clallam PUD	18,151	19,061	12,054
Clark Public Utilities	99,338	116,360	87,863
Cowlitz PUD	73,584	158,224	56,940
Grant PUD	99,843	118,695	32,675
Grays Harbor PUD	14,980	21,096	12,702
Inland Power	6,912	15,582	9,110
Lewis PUD	15,155	17,160	11,563
Mason PUD #3	10,674	19,762	5,791
Pacific Power	76,291	111,924	74,703
Peninsula Light	8,234	13,146	5,729
Puget Sound Energy	666,000	782,591	621,120
Seattle City Light	210,328	257,268	207,437
Snohomish PUD	150,672	210,629	116,508
Tacoma Power	99,338	134,524	70,956
Total	1,714,678	2,236,463	1,443,197

Note: Pacific Power reported a 2012-13 target of 76,291 to 79,322 MWh.

Source: Utility reports submitted June 1, 2014. Available at: <http://www.commerce.wa.gov/EIA>

Prepared 6/9/2014
Revised 7/14/2014 (Pacific Power revision)
Revised 9/2/2014 (Puget Sound Energy revision)
Revised 9/24/2014 (Avista revision)

NWEC Calculations				Year
First-Year Conservation Achieved Above Target (MWh)	Total Conservation with Assumed Persistence (MWh)	ERUs at Conversion Rate (MT CO2e)	Value to Utility at Assumed Price (Dollars)	
62,981	503,848	289,563	\$ 1,737,375	20
6,003	48,024	27,600	\$ 165,598	20
6,278	50,223	28,863	\$ 173,179	20
911	7,286	4,187	\$ 25,123	20
17,022	136,176	78,261	\$ 469,564	20
84,640	677,116	389,140	\$ 2,334,841	20
18,852	150,819	86,676	\$ 520,056	20
6,116	48,928	28,119	\$ 168,714	20
8,670	69,358	39,860	\$ 239,162	20
2,005	16,040	9,218	\$ 55,310	20
9,088	72,703	41,783	\$ 250,697	20
35,633	285,060	163,825	\$ 982,949	20
4,912	39,296	22,583	\$ 135,501	20
116,591	932,728	536,041	\$ 3,216,245	20
46,941	375,527	215,816	\$ 1,294,896	20
59,957	479,659	275,661	\$ 1,653,966	20
35,186	281,491	161,774	\$ 970,642	20
521,785	4,174,283	2,398,970	\$ 14,393,818	20

*from Ecology CAR Cost-Benefit Report, p. 18			
Assumed Conversion Rate (see comment)	1267	lb CO	
Assumed Weighted Average Measure Life	8	years	
Assumed Price per ERU	\$6		



Via email: AQComments@ecy.wa.gov

July 22, 2016

Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

RE: Proposed Draft Washington Clean Air Rule, Chapter 173-442 WAC

The Northwest Food Processors Association (NWFP) submits the following comments on the proposed *Draft Washington Clean Air Rule*. NWFP represents 152 food processing companies in Washington, Oregon and Idaho with over 250 production facilities throughout the Northwest in fruit and vegetable, seafood, dairy, poultry, bakery, specialty and fresh-cut food products. Many of our members are located in the state of Washington, several are potential covered parties, and others deliver products to Washington or transport products through Washington.

General Comments

Northwest food processors are nationally recognized for their leadership and efforts to promote sustainability, to become more energy efficient and to reduce greenhouse gas emission levels. Through voluntary efforts, food processors are on track to meet their goal set in 2009 to reduce industry-wide energy intensity by 25% in 10 years.

NWFP shares the goal of the state of Washington to protect and improve the environment and to reduce greenhouse gas emissions. However, NWFP opposes state solutions that would impose carbon taxes or mandate cap and trade. Such approaches will increase the price of energy and make food processors in those states less competitive while having little impact on overall carbon reduction. Climate change and greenhouse gas emissions are a global issue and a single national program is the best approach to addressing a global issue. At the state and federal level, NWFP supports policies that address greenhouse gas emissions directly and through collaboration between industry and government. We support incentives and innovative programs that promote and advance voluntary reductions in greenhouse gas emissions.

NWFP has reviewed the draft Clean Air Rule and has found it to be lacking in specificity and processes for how this program would operate and what the basis for Ecology's decisions would be. It is also very vague in many important areas. Much further development is necessary to produce an operational Rule. Therefore, we strongly recommend that Ecology withdraw this

Rule, work with the regulated community and other stakeholders on necessary improvements and a consensus approach.

NWFPA also asks to go on record in support of the comments of the Association of Washington Business submitted under cover letter of Gary Chandler, July 22, 2016.

NWFPA has the following comments on specific sections of the Rule.

Specific Comments on the draft Clean Air Rule

Applicability - Section 173-442-030(5) and Compliance Report - Sections 173-442-210 (7)(a) and (7)(c).

The 50,000 MT CO₂e level should be deleted and replaced with the 70,000 MT compliance threshold because 50,000 MT unnecessarily and unfairly imposes a second threshold on covered parties with additional financial and resource burdens.

As proposed, once parties have demonstrated three years of emissions levels below the compliance threshold of 70,000 MT CO₂e, they still have compliance obligations under the program. While there is no express mandate under the Rule that these parties further reduce their emissions below the threshold, there is an effective mandate that they continue to do so. Parties will remain subject to compliance reporting obligations until they have reduced their emissions below 50,000 MT CO₂e. These obligations will impose substantial financial costs and diversion of staff resources upon these parties. Moreover, it unfairly imposes burdens on these parties that other entities who are not covered parties, but who have CO₂e emissions between 70,000 and 50,000 MT, do not have to bear.

NWFPA believes there is no cause for concern that parties that reduce their emissions below the compliance threshold of 70,000 MT CO₂e will be bumping in and out of the program because their emissions levels will fluctuate above and below the threshold. There is no need to establish a “buffer” that requires continued reductions to escape compliance reporting obligations. Once a company is below the compliance threshold of 70,000 MT CO₂e, there are sufficient incentives in the form of financial costs and dedication of staff resources to assure that parties remain below 70,000 MT. Further, other entities with cap and trade programs do not have such a “buffer” but allow exemption from compliance reporting after three years of reported emissions below the compliance threshold (California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Title 17, CCR, Section 95812(d); Quebec Environmental Quality Act, Title II, Chapter III, Section 19; Ontario, Regulation 143/16, Section 8). NWFPA request that Ecology delete the 50,000 MT CO₂e level in the appropriate sections of the Rule and replace it with the 70,000 MT CO₂e compliance threshold level.

Language changes:

173-442-030(5)(a) After three consecutive years of covered GHG emissions less than ~~50,000~~ 70,000 MT CO₂e;

173-442-210(7)(a)(i) After three consecutive years of covered GHG emissions less than ~~50,000~~ 70,000 MT CO₂e/yr;

173-442-210(c) A covered party must resume submitting a compliance report when total covered GHG emissions exceed ~~50,000~~ 70,000 MT CO₂e/year.

Energy Intensive and Trade Exposed Parties – 173-442-070

The simple approach outlined in the Rule will not produce defensible benchmarks and emission reduction pathways. More importantly, improper benchmarking can result in more stringent pathways for EITE's than non-EITE companies with similar emission levels. AWB's comments identify many key issues and questions that must be addressed and answered to develop valid benchmarks and pathways. In 2010, Ecology contracted with Stockholm Environment Institute (SEI) to identify issues and options for developing GHG benchmarks. Governor Gregoire had directed Ecology to work with businesses and stakeholder to develop these benchmarks. SEI produced its *White Paper: Issues and Options for Benchmarking Industrial GHG Emissions* (June 30, 2010), which raises many of the same concerns identified by AWB. In addition, California Air Resources Board (CARB) staff has been working on benchmarking for five years and has had to continually review, update and revise its benchmarks as issues must be addressed and new and better data becomes available.

Because of the heterogeneous nature of the food processing sector, benchmarking this industry is not a simple endeavor. CARB staff reports that "Food and beverage processing are complex systems to benchmark because one type of input can go through a series of process steps to end up in a variety of products. Facilities commonly produce several different products by utilizing complex processing that incorporates the exchange of mass and heat among processing lines. It requires detailed engineering understanding of the manufacturing process to develop robust benchmarks." (*Appendix C: New and Modified Product-Bases Benchmarks*). EPA has developed ENERGY STAR Energy Performance Indicator benchmarking tools for several industrial products. EPA found that it had to significantly narrow its manufacturing types to specific products. In the food processing sector, it has developed tools for Frozen Fried Potato Processing Plants (31141143B1 and 31141144C1), Juice Processing Plants (specific 10-digit product classes), Cookie and Cracker Baking Plants (specific 10-digit product classes) and Wet Corn Milling. NWFPA has been working on benchmarking of energy intensity in food processing since 2008. However, because of the need to address the myriad of issues identified in the citations above, we have yet to produce a final benchmark. For example, we found that we had to use nine-digit classifications or lower to assure we were comparing like products and processes. Because facilities use various units of measurement for production, we had to convert different units of production to the same unit (pounds). We also found that the facility

sample size used to determine the benchmark and certain plant characteristics impacted a subsector's energy intensity value distribution.

Include stakeholders and covered parties for each sector in the development of benchmarks and reduction pathway calculations. Inclusion of these entities will contribute data, knowledge of the sector, knowledge of products and processing technologies, and other information and feedback that will assist Ecology in developing benchmarks that are technically sound and meaningful. EPA used industry sector professionals to help develop, review and test its ENERGY STAR Energy Performance Indicator benchmarking tools. Ecology's contractor, SEI, worked closely with sector stakeholders, including NWFPA, in developing its *White Paper: Issues and Options for Benchmarking Industrial GHG Emissions* (June 30, 2010). CARB staff works with industry sectors and stakeholders to ensure data is correct and calculated appropriately, to perform further analysis if necessary, and to assure that abnormal events are not skewing the benchmarks for its cap and trade program. Open and transparent processes can gain industry understanding and reduce the likelihood that Ecology's decisions will be challenged.

Allow EITE-covered parties the option of EITE treatment or non-EITE treatment. Because the determination of benchmarks and pathways for EITE companies is so highly complex and the adverse impacts of inappropriate determinations are potentially so significant, EITE covered parties should have the option to proceed as an EITE party or non-EITE party. Fairness requires that in no case should an EITE party's compliance obligation be greater than the obligation of non-EITE parties with similar levels of emissions. This result runs contrary to Ecology's stated purpose to reward prior actions for EITE companies. Instead, the Rule would penalize some companies, impact their competitiveness, and increase the potential for leakage.

Allow EITE covered parties to request Ecology for review and modification of determinations under this section of the Rule. Definition of subsectors and calculation of the efficiency intensity distributions for each sector or sub-sector (or sub-subsector) are very complex and require use of appropriate data, plant characterizations, application of emissions drivers, etc. This is also true of individual plant evaluations. Fairness to covered parties would be lacking if they had no opportunity to request a review of the data relied upon and the bases for the decisions made, as well as modification of the determinations themselves if warranted.

Language changes:

173-442-070(3)(a) Ecology must calculate an efficiency intensity distribution for each sector with an EITE covered party that meets the requirements in WAC 173-442-030. Ecology shall work with stakeholders and EITE covered parties in each sector to develop technically sound benchmarks and reduction pathway calculations.

173-442-070(5) Petition for Review of Determinations. EITE covered parties may petition Ecology for review and modification of determinations made under this section.

173-442-070 GHG emission reduction pathway and emission reduction requirement for EITE covered parties. Ecology must establish . . . to EITE covered parties. Parties defined as EITE covered parties under 173-442-020(1)(I) may opt-out of EITE classification.

Limitations on the use of allowances 173-442-170

Delete entire section 173-442-170. This section places a significant burden on the ability of covered parties to comply. The declining use of allowances coupled with vintage limitations severely restricts ERUs that are available for compliance. It may even result in inability to use some acquired ERUs. There is no need to restrict use of these ERUs. Each approved ERU is a certified reduction of GHG emissions.

Language change:

~~173-442-170 Limitations on the use of allowances.~~

Reserve 173-442-240

The requirement to contribute 2% of a covered party's emission reduction pathway annual decrease imposes additional compliance requirements above the reduction requirements determined for EITE and non-EITE parties. This approach inflicts additional costs on parties and compels contributions to "fund" the Reserve. NWFPA questions the authority of Ecology to impose requirements to fund some of the Reserve uses absent legislation.

Many of the Reserve uses do not support Ecology's stated objective to encourage businesses to expand and keep production in Washington. Ecology received feedback that it needed to assure that the Rule was not a barrier to expansion and business growth of covered parties. However, several uses of the Reserve have little or nothing to do with this objective. For example, the Rule provides for grants to an Environmental Justice Advisory Committee that will decide on projects based on environmental justice criteria defined by the Committee.

The provisions covering the implementation of the Reserve are so vague it is not possible to decipher how the Reserve would work; they must be revised. There needs to be a process for new covered parties and existing stationary sources that expand or modify their operations to request and receive ERUs from the Reserve. The current draft Rule states that Ecology "may retire" or "may assign" and provides no process for covered parties to apply to receive these ERUs. This places the decision on how ERUs are allocated entirely at Ecology's discretion. Access to ERUs will impact the economics of the facilities and the decision to locate these activities in Washington and certainty of receipt is critical. Companies need assurances of availability and commitment of ERUs from the Reserve to their facilities prior to construction, expansion, or modification. There needs to be a process and a time specified for commitment

of these ERUs that will provide the kinds of assurances companies require for expensive undertakings in Washington state.

Registry 173-442-230

Develop a registry similar to the California Cap and Trade Program's Compliance Instrument Tracking System Service (CITSS). The CITSS creates an "account" for every organization that is accessed by login. Users are able to view emissions data for their facilities, compliance obligations, compliance dates, compliance instrument tracking, compliance history, and to generate reports in these areas. Such a system would provide transparency to covered parties and assist them in managing and tracking compliance. See <http://arb.ca.gov/citss>

Enforcement 173-442-340

The draft Rule fails to specify a specific date when compliance instruments must be surrendered and when violations will accrue; this date should be the Compliance Report Deadline. Covered parties need to know by what date compliance instruments must be surrendered and when violations and penalties will accrue. NWFPA recommends that this date be the Compliance Report Deadline in 173-442-250. Covered parties will have completed final calculations and verification and should be given time to acquire additional compliance instruments to meet their obligations, if necessary. This is the approach used in California's cap and trade regulations. Section 95856(f), provides that "The covered entity must transfer sufficient valid compliance instruments to its compliance account to fulfill its triennial compliance obligation by November 1, 5 p.m. [PST] of the calendar year following the final year of the compliance period." If covered parties fail to submit sufficient instruments to meet their obligations by this deadline, then violations begin to accrue (section 96014). California penalties do not accrue daily but every 45 days following the November 1 deadline.

Language changes:

173-442-340(2) Each metric ton of covered GHG emissions that a covered party emits that exceeds the covered party's compliance obligation, and is not covered by an ERU as of the compliance report deadline in 173-442-250 is a separate violation.

173-442-340(3) Each day following the compliance report deadline in 173-442-250 that a covered party does not meet the compliance obligation is a separate violation.

Confidentiality 173-442-350

Production data required to be reported by EITE covered parties must be considered confidential information meeting the requirements of RCW 70.94.205. Production data is unique to the facility and if released to the public or to a competitor will likely adversely affect the competitive position of the owner or operator of that facility. NWFPA has direct experience

with the proprietary nature of this data and importance of this confidentiality to food processors. NWFPA collects energy use and production data from food processors to use in tracking progress of the industry against the industry's goal to reduce industry-wide energy intensity by 25% in 10 years and by 50% in 20 years. In order to receive this information, NWFPA must sign a non-disclosure agreement with each individual contributing company. This data is stored on a secure drive with access limited to designated NWFPA staff. Data can only be released in the aggregate with protections to assure that no data can be linked to individual facilities.

Language changes:

173-442-350(3) Production data. Production data submitted by EITE covered parties is confidential and meets the requirements of RCW 70.94.205.

173-442-350(3)(4) Confidentiality requests. A covered party . . .

173-442-350(4)(5) Verification status. Ecology's determination . . .

Thank you for this opportunity to comment on the draft Rule. This draft Rule defines a major initiative that has the potential for major impacts on the regulated parties as well as impacts on the citizens and economy of the state of Washington. NWFPA urges Ecology to withdraw this Rule and work with the regulated community and other stakeholders on necessary improvements and a consensus approach. Please contact me if you have any questions regarding our comments or would like additional information.

Sincerely,



Pamela Barrow
Vice President of Energy, Environmental & Sustainability

June 20, 2016



Ms. Sarah L. Rees
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Re: Request to extend comment period for Clean Air Rule

Dear Ms. Rees:

The Northwest Gas Association (NWGA) respectfully requests that the comment period for the Clean Air Rule be extended to September 9, 2016, a little more than 45 days beyond the current deadline of July 22, 2016.

The NWGA represents the interest of the natural gas local distribution companies and pipelines serving the communities and people of Washington State. As affected entities under the rule, we are seeking more time to develop and provide thoughtful, fact-based analysis and commentary on the rule and its potential impact on more than 1.1 million natural gas consumers in the state.

Thank you in advance for your consideration. Please feel free to contact me with any questions.

Sincerely,

Dan S. Kirschner
Executive Director

c: Chris Davis
Stu Clark

NORTHWEST INDUSTRIAL GAS USERS

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July 22, 2016

AQComments@ecy.wa.gov

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Proposed Clean Air Rule

Dear Mr. Wilson:

As Executive Director of the Northwest Industrial Gas Users (NWIGU), I writing to express some of our members serious concerns with the proposed Clean Air Rule (CAR) initiated by the Washington State Department of Ecology (WDOE) on June 1, 2016. The CAR would establish an emissions cap on greenhouse gas emitted from covered sources including firms in the industrial sector, the power sector, and waste sector, as well as retail natural gas distributors and petroleum fuel refiners and distributors. While the CAR initially targets some NWIGU members that are large natural gas transport users in the state, its impacts will also be felt by smaller members that receive natural gas service through their local distribution companies.

Let me first state who NWIGU is and what we represent. Our membership includes approximately 40 businesses in Washington, Oregon and Idaho. It is a diverse group both in size and in the type of commercial activities each engages. The diversity ranges from food processing, paper and pulp, and steel production to high tech firms and other commercial entities. Some of our members are large users of gas and as covered entities they will incur costs directly in complying with the emissions standards proposed in the CAR. Others are smaller natural gas users not covered under the rule but who will ultimately experience higher costs for gas service as natural gas local distribution companies pass-thru their compliance costs in their

purchased gas commodity rates. In each case, the cost of using natural gas by some NWIGU members will rise and impact costs of operations, productivity and the overall economic performance of some NWIGU members businesses.

The Washington Department of Ecology has acknowledged that the proposed CAR is a 'significant legislative rule' and thus requires WDOE to both perform analysis and review public comments on the three following areas: the environmental impacts of the rule; both the direct and indirect impacts on small business resulting from the rule; and a benefit/cost analysis of the rule that demonstrates the cost effectiveness of its implementation

As the rule is currently written, NWIGU has many questions regarding the statutory authority WDOE has implicitly assumed in crafting the language of the rule. However, we will defer to the comments on statutory authority and legal status that are being submitted by Association of Washington Business (AWB). We concur with AWB's conclusions and support their comments as written.

Beyond the legal arguments, NWIGU has the following additional concerns:

1. The rule will impose substantial compliance costs on large gas customers whose operations exceed a 100,000 metric ton threshold of carbon dioxide (CO₂). Such customers have limited options to manage their gas usage which is set by the fuel specifications of their production processes. Basically, only the following four options exist:
 - reduce production output thereby consuming less natural gas in production operations
 - invest in demand side resources to enhance on-site efficiency of gas consumption
 - pursue off-site offsets for emissions reductions
 - relocate operations to another state or shut down productions lines

A reduction in operations carries a severe economic cost. Lost income, jobs, sales and economic competitiveness are just a few of the economic penalties that will be paid by these large firms should they face the necessity to reduce operations as a means to reduce emissions. In effect, if compliance requires reduction in production or shut down of facilities, then one can expect a slowing of economic development, reduced tax revenues and slower or negative growth in the state.

2. The rule increases the risk of both economic and emissions 'leakage'. Leakage occurs when industrial activity currently taking place in one geographic location

relocates or moves out-of-state to avoid greenhouse gas (GHG) emission compliance costs. Recent reports presented at a California Air Resources Board Workshop on GHG emissions and economic leakage have indicated California's 'cap and trade' program has resulted in leakage which has imposed economic cost and hardship on the state economy. Many energy intensive industries in Washington are susceptible to leakage if the CAR as proposed is adopted. These industries have operations in other states and can, if compliance costs are high, choose to shift production to other existing facilities that do not face GHG regulatory costs. To simply assume, as WDOE apparently has, that leakage will not occur or that it will be effectively managed by merely postponing the compliance date for Energy Intensive Trade Exposed industries is a risk WDOE has not analyzed. This exposes Washington businesses, employees and their communities to the risk that Washington industries will move out of state and jobs and tax base will be lost.

3. The majority of CO₂ emissions from the CAR covered entities in industry are the result of natural gas end use. One option for reducing emissions on site is through demand side investments aimed at improving the efficiency of natural gas utilization. However, NWIGU members already have a long history of capital investments in demand side resources. Such investments have already paid dividends via more efficient operations, lower fuel costs, and lower GHG emissions. The ability to expand energy efficiency beyond the existing measures now in place will be limited and more costly. For example, a recent (2015) Cadmus study estimated that potential economically achievable energy savings was only 20% for Puget Sound Energy's (Puget's) industrial customers. The percentage is low due to the fact that most of those industrial customers on Puget's system are already operating efficiently with regard to fuel utilization. The low hanging fruit is gone yet the CAR requires between a 28-33 percent further reductions in CO₂ emissions without giving these industrial consumers who have done so much already any credit for their early action. So the compliance option of investing in onsite demand side resources as an emissions reduction strategy is limited, costly, and will not enable covered industrial entities to meet the threshold emissions reductions as proposed in the CAR.
4. The CAR arbitrarily limits the supply of Emissions Reduction Units (ERUs) by requiring them to be sourced from Washington in-state projects. The fact is that WDOE did not conduct a realistic assessment of the feasibility of any such projects, at what pace would they develop, their costs, and whether they would result in a supply of ERUs large enough and at a reasonable cost to enable Washington's

covered entities to comply with the emissions standards of the rule and stay in business. WDOE has replaced analysis with conjecture. Furthermore, based on the California's GHG emission program, we can expect the opportunity to create ERUs within the state to be limited, resulting in a shortage of supply. This lack of supply coupled with high expected demand for ERUs will result in the market price of ERUs being high. Under such circumstances, a compliance path for covered large gas customers that centers on the acquisition of ERUs will prove to be very costly. Remedies that can help to keep the lid on ERU prices include providing ERU credit for early action undertaken by in-state entities to improve their energy efficiency and allowing out of state projects to earn ERUs that can be sold to covered entities.

5. The proposed CAR's inclusion of natural gas distributors is both troubling and problematic. The natural gas local distribution companies (LDCs) operate under the regulatory oversight of the Washington Utilities and Transportation Commission (WUTC). A core component of that regulation is the 'regulatory compact'. The compact allows the distributor to operate solely in a specified service territory in exchange for an 'obligation to serve.' That is, the local distribution company must provide the amount of natural gas required to meet customer demand. It cannot simply choose to provide less than what is demanded. Should the LDC seek to meet its compliance with the CAR by selling less gas than demanded, it would be in violation of the regulatory compact and would be subject to severe penalties from the WUTC, including the potential loss of its franchised service territory.

Natural gas load growth has been significant since 1990. There has been a 75% increase in the number of commercial customers for Washington LDCs between 1990 and 2014. This has resulted in a 41% increase in delivered natural gas to these customers, despite the fact that as a class of customers there has been substantial capital investment in energy efficient utilization. The CAR runs the risk of serious unintended consequence. As this load growth has expanded the demand for fuel, it places the LDC in a position of having to ensure greater supply. Should the LDCs seek to reach compliance either by restricting supply (see note on obligation to serve) or through increased cost (via an adder to the commodity component of the rate charged some customers for emissions compliance) the net result is that many firms will, to the extent they can, explore options to fuel switch. Such fuel switching away from natural gas to electricity would be counter-productive to the goal of carbon dioxide emissions reduction (since direct natural gas utilization is more efficient than the generation and transmission of power) and increase the difficulty of the power generation industry in meeting their own compliance targets.

6. The CAR runs counter to current state energy policy objectives that promote overall energy efficiency and creates great uncertainty regarding current operations and future development of combined heat and power (CHP). Many Washington based entities have sought to improve their efficiency of operations through capital investment in CHP. Others plan to do so in the future. Washington's state energy policy has encouraged such investments as part of the promotion of gas-based efficiency in the state economy. Yet these CHP units, for the most part, are gas-fired operations. The entity that seeks to increase their overall energy efficiency through utilization of CHP technology will see their direct emissions go up. Therefore the possibility of mandatory compliance penalties for this increased use of natural gas immediately calls into question whether the economics of any new or existing CHP unit is still valid. Additionally, all entities who may be considering future capital investments in CHP will now be uncertain as to the prudence of such an investment. This CHP example is clearly a case of the CAR working in the opposite direction of what the state has encouraged regarding natural gas utilization and efficiency in fuel use.

7. Washington's Regulatory Fairness Act (RFA) requires WDOE to prepare a Small Business Economic Impact Statement (SBEIS) that evaluates the economic impacts the proposed CAR would have on Washington businesses sales and revenues, jobs and small businesses. WDOE's economic analysis falls short of the requirements of the RFA. It has failed to perform the economic analysis in a meaningful manner, it reached a factually incorrect conclusion, and has simply assumed away the potential of economic harm to small businesses in the state. The fact that the proposed CAR imposes compliance obligations on LDC's, petroleum refiners and distributors will result in higher natural gas and fuel costs or, in a worst case scenario, restricted supply. Either way, small businesses that purchase bundled natural gas sales service directly from their LDC and consume transportation fuels will experience harmful economic impacts. Such impacts, beyond their direct economic costs, will additionally encourage fuel switching away from natural gas. As I have already pointed out, the state has been promoting an expanded natural gas base for its businesses and industries. The proposed CAR will prove counter-productive for achieving this objective.

The SBEIS that WDOE did conduct in relation to the proposed CAR did not adequately assess the potential increase in fuel costs or fuel substitution that may occur with the adoption of the CAR. WDOE's argument that uncertainty in specific compliance strategies by impacted entities results in too much uncertainty to model

such impacts is not grounds for simply assuming that the CAR will have no impact on small businesses. Such a conclusion is unfounded and should not be allowed to stand. (NWIGU endorses AWB's analysis and comments on the SBEIS.) A full SBEIS must be performed by WDOE prior to adopting the proposed rule in order to comply with the Administrative Procedures Act.

9. As previously mentioned, covered entities under the proposed CAR have only four compliance paths to meet threshold emissions: reduction in productive output; enhanced efficiency; purchase of ERU's; and closing operations. The cost of each of these options is a critical element in whether compliance costs is manageable versus harmful to the covered entities. The compliance costs as projected in the Benefit/Cost Analysis (BCA) that WDOE undertook is woefully incomplete, if not simply inaccurate, in estimating realistic compliance costs. The most draconian compliance path, reducing or shutting down in-state manufacturing operations, carries with it a significant multiplier effect that would be extremely harmful to the local communities where the manufacturers are located as well as to the state economy, a potential outcome not adequately addressed by WDOE. Efficiency enhancements, as discussed above, will be limited due to the high cost of incremental improvements given the prior capital investments already made in demand side resources. This leaves the purchase of ERUs as the most likely compliance path that covered entities will seek. But again, with the proposed rule dictating that ERUs must be Washington based, the supply of such instruments will be very limited. This, in turn, will lead to high ERU prices since demand will be great and will grow each year as caps are ratcheted down. Compliance cost via the ERU path will, therefore, be costly. The compliance costs estimates contained in WDOE's BCA are inadequate and do not represent the real cost likely to be incurred by Washington businesses.
10. WDOE has made no attempt to quantify what the availability or cost will be for Washington-based ERUs, yet the rule arbitrarily prohibits the use of out-of-state offsets and places significant limits on the number of California Air Resources Board (CARB) allowances that can be used to achieve compliance. The ability of covered entities under the rule to meet the CAR's CO₂ emissions reduction requirements could not be more uncertain or cost prohibitive because of the restrictions WDOE proposes to place on compliance options. NWIGU recommends that WDOE lift the restrictions the CAR places on the use of CARB allowances and allow covered entities to meet 100% of their compliance obligation with these compliance instruments. In addition, the prohibition against out-of-state offset projects in the rule should be removed. Carbon dioxide emissions from anywhere

in the world have the same impact on climate change. WDOE should be indifferent as to where the carbon dioxide emissions occur. Carbon dioxide emission reductions from projects in another state have the same impact on alleged future damages as reductions in Washington.

11. WDOE's Benefit/Cost Analysis greatly overestimates the benefits to the state that will be derived from the CAR. The state Administrative Procedure Act requires that WDOE prepare a preliminary benefit/cost analysis to assess whether the proposed rule will produce meaningful net benefits to the citizens of Washington. As we have argued above, the cost side of the analysis is inadequate due to WDOE's assessment of ERU supply and other compliance costs. Applying the federal social cost of carbon to the benefit side of the analysis overstates the benefits to the State of Washington by calculating 'global' benefits and not the domestic or local benefits of CAR. The result is that the B/C Analysis fails to demonstrate the Washington benefits from the adoption of CAR. In fact, when the estimated costs and benefits are properly adjusted, the analysis would likely demonstrate that costs exceed benefits for the citizens of the state.

The CAR Benefit/Cost Analysis estimates benefits of \$14.5 billion and costs ranging between \$1.5 billion and \$2.8 billion over twenty years. It achieves this lopsided result by (1) comparing local costs with global benefits using the federal social cost of carbon, and (2) severely understating the costs of the rule. The result is a cost-benefit analysis that fails to meet the threshold determination required by the Administrative Procedure Act.

12. The proposed CAR creates a large amount of uncertainty for some NWIGU members. The future costs of fuel (natural gas or a substitute fuel), the availability and cost of necessary ERUs, and the total cost of compliance under the rule produce uncertainty and risk with regard to future business operations. As a matter of conducting everyday business, entities seek to reduce uncertainty and risk in their operations. The CAR moves in the opposite direction, increasing such uncertainty and risk and, by doing so, presenting potential future economic cost that will need to be managed. This, in turn, increases the likelihood that management will seek to manage those future costs by either relocating out of state (leakage) or reducing production which carries additional negative effects on Washington's economy in terms of reduced jobs, sales/output, income, tax revenues and all the other indirect impacts of losing a major manufacturer in a community.

It is our expectation that WDOE will consider the seriousness of the comments above and adopt the remedies provided where we suggest them. Many NWIGU members participate in difficult and highly competitive markets today. The CAR will have virtually no meaningful effect on global temperatures or create any other quantifiable benefit for Washington residents but it will increase the cost of energy, the cost of operating a business, reduce the competitiveness of Washington businesses, and have significant negative impacts on the Washington economy and individual NWIGU members businesses. WDOE must conduct a more thorough economic impact analysis of the rule as required by the Administrative Procedures Act and Regulatory Fairness Act before adopting regulations that could have such far-reaching impacts.

Sincerely

/s/ Edward A. Finklea

Edward A. Finklea
Executive Director
Northwest Industrial Gas Users



380 W. Marine Drive, Kalama WA 98625

July 13, 2016

Sam Wilson (AQComments@ecy.wa.gov)
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Proposed Clean Air Rule

Dear Mr. Wilson:

Please accept these comments on the proposed Clean Air Rules (CAR). Northwest Innovation Works, Kalama, LLC (NWIW) is a member of the Association of Washington Business (AWB) and supports and endorses the comments submitted by AWB. This letter presents additional comments about portions of the proposed CAR that would uniquely affect NWIW.

Background

We are developing a methanol plant at the Port of Kalama. The plant will reform natural gas to produce methanol. The methanol will be exported to Asian ports where it will be used as a feedstock to produce olefins and other materials. NWIW is partially owned by Chinese Academy of Sciences Holdings (CAS Holdings), which is owed by the Chinese government. A primary objective of CAS Holdings and NWIW is to produce methanol, and the plastics and other materials made from methanol, using technologies that will emit less greenhouse gas (GHG) than conventional methods.

NWIW and the Port of Kalama are pursuing the proposed project with the stated goal of reducing GHG emissions globally by producing methanol from natural gas rather than coal. Global demand for methanol for use in production of olefins is high. Economic forecasts predict an increase in worldwide demand for methanol from 60 million tonnes in 2013 to 109 million tonnes in 2023. Increased demand for methanol in Asia is being met primarily by the construction of facilities in China that manufacture methanol from coal, which emits very high levels of GHG and generates toxic byproducts and wastes. Producing methanol from natural gas produces substantially lower levels of GHG emissions and fewer chemical byproducts.

As we originally proposed and publicly announced, the Kalama facility would have used combined reforming technology. Combined reforming is widely regarded as the cleanest and most efficient technology for producing methanol from natural gas. In fact, in the prevention of significant deterioration permit for a methanol plant permitted in Louisiana in 2013, the US Environmental Protection Agency determined that combined reforming constitutes best available control technology (BACT) for GHG emissions. EPA, *Prevention of Significant Deterioration*



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Permit Preconstruction Draft Permit for Celanese, Ltd. Clear Lake Plant, Pasadena, Texas (PSD-TX-1296-GHG; June 2013).

During the preliminary engineering for our facility, we explored other technologies that would reduce the GHG and other emissions compared to combined reforming. This exploration led to consideration of the what is known as ultra-low emissions (ULE) technology. ULE technology has been used to produce other chemicals from natural gas, but is a new technology for methanol production. Johnson Matthey developed the technology at a small-scale methanol plant in Australia through three generations of engineering and implementation. ULE technology has not been applied at any full-scale methanol production facility. We conducted a detailed engineering evaluation and feasibility analysis of the ULE technology in 2015. Based on the favorable conclusions from that analysis, we determined to change the proposed technology for the project from combined reforming to ULE specifically to reduce air quality impacts.

As discussed in detail in the Draft Environmental Impact Statement for the Kalama Manufacturing and Marine Export Facility (March 2016), ULE technology will reduce GHG emission from methanol production by more than 61 percent compared to combined reforming technology. Due to transmission line constraints, the Kalama project will need to generate approximately half of its electrical power onsite. Taking into account the onsite power generation emissions, ULE will still reduce GHG emissions compared to combined reforming (which is considered BACT as explained above) by more than 31 percent. By using ULE technology, our Kalama plant will become the world leader in clean technology for methanol production. It will have the lowest GHG emissions per ton of methanol of any full-scale methanol plant in the world.

In light of our GHG objectives and its aggressive pursuit of clean technology, we are keenly interested in the proposed CAR and how it may affect both the development and financing of our project and its eventual operations.

Comments on Proposed CAR

We applaud Ecology in attempting to develop regulatory concepts that are sensitive to industries that produce commodities and compete in world trade. Under the proposed CAR, our methanol plant would qualify as an energy intensive, trade exposed (EITE) source. Specifically, the manufacture of methanol from natural gas falls within NAICS code 325199, which is included in the proposed definition of "EITE covered party." Our comments, therefore, are directed primarily at aspects of the CAR as it would apply to EITE sources.



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Benchmarking for World Leading Sources

As we understand the intent of the proposed CAR, a lower level of GHG reduction would be expected from sources that already perform very well compared to other sources in their industry.¹ The proposed rule, however, provides no guidance on how Ecology is supposed to set the efficiency reduction rate for these high efficiency sources. It merely indicates that the efficiency reduction rate should be less stringent than the rate that applies to non-EITE sources. That means Ecology could set the efficiency reduction rate anywhere between 0 and 1.69 percent. Without guidance in the rule, it is hard to see how any such determination by Ecology could be anything other than arbitrary and capricious.

This point is of critical importance to us because, as explained above, our facility will be the best performing full scale methanol production plant in the world with respect to GHG emissions. Given this very high level of performance, it's not reasonable to expect our facility to make any further reductions in GHG. Even if the final rule will require some level of reduction from all sources, including a world leading source such as ours, it should be written so that the required reductions are proportionate to a source's relative efficiency. For example, the CAR could be written so that sources in the best performing 25 percent would be required to reduce emissions according to an equation based on where they fall within that first quartile. Applying this concept, a source at the 5th percentile could be required to reduce emissions by an annual rate of 0.3 percent, while a source at the 20th percentile could be required to reduce emissions by an annual rate of 1.4 percent (a ratio of 0.06 percent reduction per percentile rank).

¹ In this regard, please note that WAC 173-442-070(3)(b)(i) and (ii) are erroneously drafted to yield precisely the opposite result. As drafted, subparagraph (i) would apply to an EITE covered party with an output-based baseline less than the 25th percentile of its sector. Because the output based baseline is expressed as MT CO₂e/units of production, the sources in the lowest 25th percentile will be the sources with the lowest emissions--*i.e.*, the best performing sources. Contrary to the stated intent of the proposed rule, this subparagraph would require these high efficiency sources to reduce their GHG emissions by an amount greater than poor efficiency sources. We assume this is not the intent and that Ecology will correct this error in the final rule.



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KALAMA

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Natural Gas Distributor

Our methanol plant will purchase a large amount of natural gas. Some of that natural gas will be combusted to produce steam for the reforming process and to produce electricity. The largest portion of the gas, however, will be consumed as feedstock to produce methanol--it will not be combusted. Paragraph 173-442-040(3)(a) would exclude from a natural gas distributor's covered GHG emissions "Emissions from the combustion or oxidation of products supplied to a covered party that has an emission reduction requirement." As an EITE source, we will be subject to a emission reduction requirement, so we understand that the natural gas we combust will be excluded from a natural gas distributor's covered emissions. Because the language refers specifically to natural gas that is combusted, we are concerned that the natural gas we consume as feedstock would not be excluded. Excluding the feedstock natural gas is particularly important because the carbon content of the feedstock gas will be sequestered in methanol or the products made from it; it will not be emitted at all.

So that all the gas we consume is excluded from covered GHG emissions, we propose that paragraph (3)(b) be revised to read as follows:

"Emissions from the combustion, ~~or~~ oxidation or other use of products supplied to a covered party that has an emission reduction requirement."

Thank you for considering these comments. Please let us know if you have any questions you would like us to address.

Very truly yours,

A handwritten signature in black ink, appearing to read "Murray V. Godley, III".

Murray V. Godley, III
President of Northwest Innovation Works



NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, INC.
West Coast Regional Center
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Brad Upton
Principal Research Engineer
bupton@ncasi.org

April 26, 2016

MEMO TO: Chris McCabe
FROM: Brad Upton and Barry Malmberg
COPY: Steve Stratton, Kirsten Vice, Reid Miner, Kathryn VanNatta (NWPPA)
SUBJECT: Industrial combined heat and power as an alternative emission reduction measure under the proposed Washington State Clean Air Rule

On January 5, 2016, Washington State Department of Ecology (Ecology) proposed a new rule: Chapter 173-442 WAC – Clean Air Rule (CAR). CAR is a “cap and reduce” program in which Ecology establishes an “emission reduction pathway” for each covered facility. Covered facilities can demonstrate compliance with their emission reduction pathway via emission reports that document reductions in facility direct emissions, and by use of tradable emission reduction units (ERUs). ERUs may be generated through a variety of mechanisms (see WAC 173-442-120), including via alternative emission reductions such as “combined heat and power, as documented through a methodology submitted to and approved by Ecology” (173-442-180(5)(b)). Ecology provides no guidance, however, on appropriate methodologies for developing ERUs via combined heat and power (CHP). ***A method that could be used for assigning ERUs to industrial CHP systems is presented herein.***

Emission reductions corresponding to industrial CHP are equivalent to the difference in emissions between generating a given quantity of electricity using CHP and purchasing the same quantity of electricity (e.g., from the utility grid or from a state-of-the-art natural gas-fired turbine operating in combined cycle mode). This approach is equivalent to assigning ERUs to the emissions avoided by use of industrial CHP. In addition, use of industrial CHP avoids transmission and distribution (T&D) losses associated with utility power that on average account for about 7% of all electricity generation¹. ERUs corresponding to CHP power can therefore be calculated using a simple formula:

$$\begin{aligned} ERU_{CHP} &= \text{Emissions from purchased electricity} - \text{Emissions from CHP electricity generation} \\ &= [\text{Purchased electricity emission rate} - \text{CHP electricity emission rate}] \times \\ &\quad [\text{CHP electrical output}] / [1-0.07] \end{aligned}$$

¹ 80 Federal Register at 64757

Steam turbine CHP systems are common within the US forest products industry. Low pressure and medium pressure steam are extracted from a turbine and used in the pulp manufacturing process; generated electricity is used onsite or sold. Because of large onsite steam requirements, forest product CHP systems are optimized for steam production, with electricity as a secondary product. Power-to-heat ratios tend to be lower for pulp mill CHP systems than for utility CHP systems (where the primary goal is electricity generation). The most common fuels used within Washington State forest product industry CHP systems are pulping liquors, wood residuals, and natural gas.

Based on descriptions of typical pulp and paper CHP in *Catalog of CHP technologies*², a hypothetical CHP system consisting of boilers (i.e., a recovery furnace fueled by spent pulping liquor³, a solid biomass boiler, and a natural gas boiler) feeding into a common steam header, mated with a 15 MW back pressure steam generating turbine is characterized in Table 1. Calculated CHP electricity greenhouse gas (GHG) emission rate (kg CO₂ eq/MWh) and annual ERUs (mt CO₂ eq) are also presented in the table, with calculation details presented in Appendix A.

Table 1. Operating Characteristics and Greenhouse Gas Emissions from Example 15 MW Paper Mill Combined Heat and Power System^a

Annual electrical output	126,000 MWh
Annual thermal output	3,310,000 MMBtu
Annual fuel input ^b	5,270,000 MMBtu HHV
CHP electricity GHG emission rate (CPP method ^c)	24.8 kg CO ₂ eq/MWh
Purchased electricity GHG emission rate ^d	720 kg CO ₂ eq/MWh
Annual emission reduction units (ERUs)	94,100 mt CO ₂ eq

^a based on 8400 operating hours per year

^b comprised of spent pulping liquor (70% of heat contribution), wood residuals (20%), and natural gas (10%)

^c 80 Federal Register at 64996. *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*

^d US Environmental Protection Agency; *eGRID 2012 subregion GHG output emission rates*, Western Electricity Coordinating Council Northwest Region (WECC NW) non-baseload output

² *Catalog of CHP technologies*. 2008. US Environmental Protection Agency, Combined Heat and Power Partnership.

³ Spent pulping liquor is a biomass fuel. Emission intensity rates presented in Table 1 include CH₄ and N₂O from combustion, but do not include biogenic CO₂.

Industrial CHP systems are typically associated with capacity factors close to 0.6⁴. eGrid characterizes power generation with capacity factors less than 0.8 as non-baseload⁵. In calculating ERUs for industrial CHP systems relative to utility grid power, therefore, the CHP electrical emission rate should be compared to the emission rate for non-baseload power^{5, 6}. Comparing the forest product industry CHP GHG emission rate to the emission rate of the utility grid, it is obvious that deployment of forest product industry biomass-based CHP can represent a significant GHG emissions reduction. Calculated ERUs for the current example are 94,100 metric ton CO₂ eq/yr.

Summary

- ERUs may be generated through alternative emission reductions such as “combined heat and power as documented through a methodology submitted to and approved by ecology” (173-442-180(5)(b)).
- ERUs associated with CHP can be calculated as the difference in emissions between generating a given quantity of electricity using CHP and purchasing the same quantity of electricity. A method for calculating ERUs is proposed herein.
- Forest products industry CHP electricity GHG emissions rates are much lower than those of purchased power. For example, a 15 MW pulp and paper mill CHP system fired with spent pulping liquor, wood residuals, and natural gas could result in almost 100,000 ton CO₂ eq avoided emissions annually from the utility sector. These emissions savings, which are not reflected in current Washington state GHG reporting programs, will continue to accrue throughout the operational life of the CHP system.

⁴ US Department of Energy, Energy Information Administration. 2012. *Annual Energy Outlook 2012*.

⁵ Rothschild, S.S., Pechan, E.H., and Diem, A. 2009. *Total, non-baseload, eGRID subregion guidance on the use of eGRID output emission rates*. 18th Annual International Emission Inventory Conference: Comprehensive Inventories – Leveraging Technology and Resources. Baltimore, April 14-17. <http://www3.epa.gov/ttnchie1/conference/ei18/session5/rothschild.pdf>.

⁶ Diem, A., and Quiroz, C. 2013. *Using EPA’s eGRID to Estimate GHG Emissions Reductions from Energy Efficiency*. International Energy Program Evaluation Conference. Chicago, IL, August 2013.

Appendix A

The CHP electricity GHG emission rate is the GHG emission intensity of the electrical output of a CHP system. It can be calculated by as many methods as there are ways to allocate CHP system total emissions to the two energy outputs (typically electricity and steam). The analyses herein use CHP electricity GHG emission rates calculated according to the method presented in *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units* (Clean Power Plan, CPP method)⁷. Calculations are illustrated using the 15 MW steam turbine CHP example presented herein, with select operating characteristics presented in Table A1.

Table A1. Operating Characteristics and Greenhouse Gas Emissions from 15 MW Paper Mill Combined Heat and Power Fired with Spent Pulping Liquor^a

Annual electrical output (MWh)	126,000
Annual electrical output (MMBtu)	430,000
Annual thermal output	3,310,000 MMBtu
Annual fuel input	5,270,000 MMBtu HHV
Prorated fuel emission factor ^b	5.716 kg CO ₂ eq/MMBtu HHV
Prorated boiler efficiency	0.70
Purchased electricity GHG emission rate ^c	720 kg CO ₂ eq/MWh

^a based on 8400 operating hours per year

^b includes CH₄ and N₂O from combustion of spent pulping liquor and wood residuals, and CO₂, CH₄, and N₂O from natural gas combustion; prorated based on the total heat input of each fuel

^c US Environmental Protection Agency; *eGRID 2012 subregion GHG output emission rates*, Western Electricity Coordinating Council Northwest Region (WECC NW) non-baseload output

The CPP method assigns an electricity GHG emission rate based on the CHP system fuel consumption that is incremental to stand-alone steam generation. In other words, total CHP system fuel consumption is adjusted by subtracting the amount of fuel that would be combusted in a “counter factual” stand-alone boiler (assumed fired with the same fuels as the CHP system) to produce the CHP system steam output, with the remaining CHP system fuel consumption allocated to electricity production. This is expressed mathematically in the Clean Power Plan:

$$\text{CHP Elec. Emission Rate} = \frac{(\text{CHP fuel input} \times EF) - \left(\frac{H}{e_H} \times EF \right)}{P}$$

where: EF = emission factor of counter factual boiler

H = useful thermal output of CHP system

e_H = efficiency of counter factual boiler

P = electrical output of CHP system

⁷ 80 *Federal Register* at 64996.

Because the CHP system used as an example herein comprises boilers burning three different fuels mated to the same steam turbine generator via a high pressure steam header, the “counter factual” boiler efficiency and fuel emission factor are obtained by prorating the values for each fuel type (0.7, 0.65, and 0.8 for spent pulping liquor, wood residuals, and natural gas, respectively) based on the percentage of fuel energy input to the CHP system (70, 20, and 10, respectively). Therefore:

$$\text{CHP Elec. Emission Rate} = \frac{(5,270,000 \times 5.716) - \left(\frac{3,307,000}{0.7} \times 5.716 \right)}{126,000} = 24.8 \text{ kg CO}_2 \text{ eq/MWh}$$

ERUs corresponding to CHP power can be calculated using the formula presented earlier:

$$ERU_{CHP} = \text{Emissions from purchased electricity} - \text{Emissions from CHP electricity generation}$$

$$= [\text{Purchased electricity emission rate} - \text{CHP electricity emission rate}] \times [\text{CHP electrical output}] / [1-0.07]$$

$$= [720 - 24.8 \text{ kg CO}_2 \text{ eq/MWh}] \times [126,000 \text{ MWh} / 0.93]$$

$$= 94,100,000 \text{ kg CO}_2 \text{ eq}$$



VIA E-mail: AQComments@ecy.wa.gov

July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: NWPPA Comments on Proposed Washington State Clean Air Rule (CAR)

Dear Mr. Wilson:

The Northwest Pulp & Paper Association (NWPPA) appreciates the opportunity to comment on the Department of Ecology's proposed Clean Air Rule (CAR) (Ch. 173-442 WAC).

NWPPA is a 60-year-old regional trade association representing 13 member companies and 16 pulp and paper mills in Washington, Oregon and Idaho. NWPPA members produce over 8 million tons of paper products each year and provide approximately 12,000 predominantly union-backed jobs that pay an average of more than \$75,000 a year, plus benefits. As one of the largest members of Washington's forest products sector (including private forest lands, sawmills, furniture, wholesaling and ports), pulp and paper mills contribute to a total of approximately 40,000 direct jobs and 107,500 direct, indirect and induced jobs. Because many of our members are located in economically stressed rural communities, these family-wage manufacturing jobs help sustain the local economy, with each mill job supporting three to five additional jobs in the community.

Locally, regionally and nationally, the pulp and paper sector has been, and continues to be, a leader in reducing greenhouse gas emission from fossil fuels. Nationally, the pulp and paper sector has reduced its greenhouse gas emissions by over 15 percent between 2005 and 2015.¹

Nationwide, 1,610 trillion BTUs are created annually from the combustion of spent liquor solids and other biomass residuals in pulp and paper mills. Sixty percent of the biomass material used for energy generation by U.S. industry was used by the Forest Products Industry. As a sector, Washington's pulp and paper mills use approximately 83% carbon-neutral biomass (Ch. 70.235.020(3) RCW) as their primary fuel source and, accordingly, contribute less than 2% of the state's total greenhouse gas emissions from direct fossil fuel emissions.

¹ <http://sustainability.afandpa.org/sustainability-goals/#greenhouse-gas-emissions>

From 2004 to 2012, Washington pulp and paper mills have reduced greenhouse gas emissions by over 300,000 MT CO₂e. Direct (Scope 1) greenhouse gas emissions intensity has been reduced by 12%. Overall, Scope 1 and Scope 2 greenhouse gas emissions have been reduced by 19%. Washington's pulp and paper sector must be recognized and credited in the CAR for these early capital investments to reduce GHG emissions from fossil fuels.

The Forest Products Industry is also a leader in the use of Combined Heat and Power (CHP). The U.S. Forest Products Industry CHP capacity is approximately 12.4 GW. Further, the U.S. forest products industry produced 33% of all the CHP-generated electricity by manufacturing industries, including 41,412 million kWh in 2010 and 8,152 million kWh sold in 2010. 92.6% of onsite electricity production at Forest Products Industry facilities is generated by CHP.

Within the manufacturing sector, Washington's pulp and paper mills are energy-intensive and trade-exposed (EITE). As such, Washington pulp and paper mills use large amounts of energy to make commodity products they sell locally, nationally and internationally. The unique position of Washington on the West Coast allows trade opportunities with Pacific Rim countries but also increases the risk of being unable to compete with lower cost commodity goods from jurisdictions without carbon pricing policies. Failure of the CAR to adequately address competitiveness challenges by unregulated jurisdictions will cause a net increase of global greenhouse gas emissions – also known as greenhouse gas emission leakage. GHG leakage occurs when EITE manufacturers either reduce their output or close their facilities domestically and products with a higher GHG footprint are imported to replace those domestic products. Numerous studies have indicated how sensitive EITE industries are to leakage.² Therefore, it is critical that the CAR provides adequate safeguards to prevent leakage and, by doing so, prevent global increases in GHG emissions.

Washington is one of the few locations in the world with significant forest resources and access to low GHG emitting electricity, due to Washington's vast hydropower system. Moving just 5% of Washington's pulp and paper production would increase annual GHG emissions from purchased electricity by 34,000 MT CO₂e (Canadian average), and 260,000 MT CO₂e (Chinese average). See attached Figures and 1 and 2.

NWPPA appreciates the commitment by Ecology to address the unique concerns of EITE covered parties, particularly within the pulp and paper sector. However, NWPPA is concerned that Ecology has not honored its commitment to avoid leakage (and thus net increases in GHG emissions globally) through the proposed EITE provisions. We believe that significant additional work is necessary on the EITE provisions before we have a rule that does not devastate our sector without any corresponding improvement of the environment.

² See: Duke University Leakage Study at: <https://nicholasinstitute.duke.edu/sites/default/files/publications/understanding-hr2454-protecting-energy-intensive-trade-exposed-industry-primer.pdf> and CARB/UC Berkeley leakage study: <http://www.arb.ca.gov/cc/capandtrade/meetings/20160518/rff-domestic-leakage.pdf>

Comments on Proposed CAR Rule

With this information in mind, NWPPA has specific comments on the proposed rule language. The order in which these comments are presented is not intended to identify their importance. We believe each issue with the rule has significant impacts on EITEs generally and the pulp and paper sector, specifically. We note that NWPPA supports the comments submitted by Association of Washington Business (AWB) and, to the extent that they are consistent with our comments below, incorporates the AWB comments by reference.

1. Applicability of Proposed Rule

a. Baseline

WAC 173-442-070(2)(c) requires that a covered party compute its baseline GHG emissions value for purposes of determining applicability of the CAR as the average emissions during the 2012 through 2016 period. A covered party should not be required to take the average of a five-year period to determine applicability. Proposed WAC 173-442-030(5)(a) specifies that a covered party is not subject to the CAR requirements if for three years it does not have emissions above the applicability threshold. If a covered party can exit the program based on 3 years of data, an EITE covered party should not have to take into account more than 3 years of emissions in determining initial applicability. Requiring that a full five years of data be used to determine applicability potentially penalizes a source that has engaged in early actions. NWPPA requests that the language in WAC 173-442-070(2)(c) be revised to require that an EITE covered party compute its baseline GHG emissions value for purposes of determining initial applicability as the average emissions of 3 years of its choosing during the 2012 through 2016 period.

b. Applicability for Facilities Emitting Between 70,000 and 100,000 Tonnes

The rule is ambiguous and open to different interpretations as to when EITE-designated facilities with less than 100,000 tonnes are covered by the proposed rule. The rule should clarify that facilities with an EITE-covered NAICS code are not included if the facility emissions are below the threshold emissions value for the covered period.

2. Production Data Reporting Requirements (WAC 173-442-070(1))

The proposed WAC 173-442-070(1) specifies that each EITE covered party “must report sector-specific production data” as part of its annual report. We believe that this section is imprecisely worded and should be revised. The second sentence is clear that facility production data must be submitted for the baseline years as well as each year with an emission reduction requirement. However, the first sentence of this proposed section of the regulation requires “annual sector-specific production data.” Either data are facility-specific production data (and covered by the second sentence) or they are broader sector-specific production data -- they

cannot be both. Either the first sentence in the proposed WAC 173-442-030 is requiring something other than the second sentence, or it is redundant. Covered parties are not privy to sector-specific production data and cannot be required to submit them. Data beyond production data are not relevant to the program and the requirement could be interpreted to require the reporting of almost anything. NWPPA requests that Ecology delete the first sentence of WAC 173-442-070(1) so that it is clear and precise as to the data that must be submitted. In addition, the rule should specify that “production” is intended to mean “salable product.” Not specifying this key point could result in different facilities reporting inconsistent numbers. The rule, both here and in WAC 173-442-350, should also be amended to clarify that production information will be considered Confidential Business Information (CBI) and not subject to public disclosure.

3. Output-Based Baseline (WAC 173-442-070(2))

a. Background

The proposed language WAC 173-442-070(2) is imprecise and not yet ready for adoption. NWPPA has profound concerns about the mandatory benchmarking approach that is presented in the draft rule. We understand that Ecology’s goal was to develop an alternative path for EITEs that seeks to minimize leakage in light of the fact that EITEs face severe trade exposure. If relief is not accorded to EITE covered parties, then there is a substantial risk that they could follow in the footsteps of other Washington EITE industries that closed down, shattering the lives of their employees and the communities in which they are located and ultimately leading to higher GHG emissions from displaced production being picked up elsewhere in the world. We appreciate the intent of Ecology to provide relief, but do not believe that meaningful relief has been provided. In fact, as the AWB comments reference, it is quite possible that the WAC 173-442-070 compliance approach is more stringent than the compliance pathway allowed for under WAC 173-442-060.

Developing an approach for EITE covered sources is a complicated process and Ecology cannot expect one approach to provide the necessary relief for all EITE sectors or even all covered parties within an EITE sector. The types of sources and sectors are simply too diverse for a “one-size-fits-all” approach. As discussed in detail below, we believe that Ecology must include a variety of compliance pathways for EITE covered parties -- not just one. We also firmly believe that the flaws identified below and in the AWB comment letter conclusively identify that substantial additional work needs to be performed on developing these compliance pathways. Therefore, NWPPA urges Ecology to remove WAC 173-442-070 from this rulemaking and to proceed on a slower rulemaking path for that regulation which allows for consideration of multiple compliance pathways and full vetting of the impacts of each pathway.

With that in mind, we identify several of our concerns concerning WAC 173-442-070(2) below. This is not intended to be an exhaustive list of all the infirmities of the proposed

rule or the possibilities for a final rule, rather to provide justification for why the EITE covered party compliance pathway requires considerable more work before it goes into final form.

b. Output-Based Baseline at Facilities Producing Multiple Products

In order for the proposed benchmarking concept to work, it is critical that there be accurate comparisons between the facilities being compared. If the facilities being compared are not engaged in the same activities, the benchmarking exercise will be misleading and result in inaccurate comparisons. This issue is of particular relevance to the pulp and paper sectors as mills may superficially appear similar, but they may manufacture differing products which result in differing GHG profiles.

The proposed language for WAC 173-442-070(2) does not identify any means to address sources that produce multiple products, particularly where production increases and decreases do not occur in lockstep fashion across all of those products. In a simple world, glass plants would just make one specific type of glass, steel mills would just make one specific grade of steel and pulp mills would all make an identical pulp. However, that is not the real world. Many of NWPPA's members make multiple different products using a variety of raw materials. A single mill may make softwood pulp, hardwood pulp, recycled pulp, paper from its own pulp, paper from other mill's pulp, sell steam to other sources, sell precipitated calcium carbonate, sell crude sulfate turpentine, generate electricity, and manufacture fuel and fuel feedstocks. Production levels of each of these products could independently vary from most, if not all, of the other products. A mill might be a net exporter of pulp one year and a net importer of pulp the next, or it might not have consistently imported pulp in past years only to have a year of considerable importation due to equipment failures or market shifts. A mill might sell a lot of steam to a third party one year and then very little the next year due to a downturn in the third party's business. Production levels of each of these manufacturing scenarios would significantly affect the overall source's GHG emissions inventory. Even if a mill only makes one type of paper (containerboard for instance), the range of basis-weight is huge and the energy intensity varies based on both basis-weight and the level of pulping required for quality (Kappa values). What product is produced in any given year is market dependent and can vary considerably making benchmarking an impossible exercise.

The proposed rule language does not appear to anticipate how Ecology would develop an output-based baseline for sites that produce multiple and oftentimes intermittent products, let alone how the benchmarking process would work under such a scenario. Instead, the rule anticipates that a mill makes one product and that it can directly equate GHG emissions to that product. That is simply not the case for many pulp and paper mills. The proposed output-based baseline approach is too simplistic to take into account these very common operating scenarios and neither the Department nor any individual mill is going to be able to procure all the data necessary to ensure that

meaningful comparisons are being made. For that reason, the proposed WAC 173-442-070(2) output-based baseline language does not work for our sector and should be considerably revised (or replaced with more flexible approaches) before being finalized in the rule.

c. Output-Based Baseline Approach Penalizes Early Actors

As proposed, not only does WAC 173-442-070(2) not recognize early action, the rule effectively penalizes early action. Over the past decade, NWPPA members have uniformly implemented energy efficiency projects, many of which required significant capital expenditures. The mills implemented these projects because they recognized the need to decrease their fossil fuel consumption. As noted above, the pulp and paper sector has led the way in implementing such projects and has been a large part of the solution to date. Given this proactive history, additional significant reductions become increasingly more difficult and more expensive. However, the proposed rule does not provide pulp and paper mills with any credit for these early actions and determines the output-based baseline on average intensity over the most recent five year period. Because of its longstanding focus on GHG emissions, the pulp and paper sector has good data to support output-based baseline calculations for periods prior to 2012-2016. Ecology must revise the approach to baseline calculations to remove this penalization of early actions. If an EITE covered party has data acceptable to Ecology with which to prove an earlier baseline period, it should be allowed to do so in order to enable that source to gain recognition of its proactive efforts. In addition, the baseline period should match the compliance period – that is, the baseline period should be a three-year average rather than a five-year average. EITE covered parties should be rewarded for early action and not penalized for doing the right thing.

d. Output-Based Baseline Approach Penalizes Combined Heat and Power (CHP)

CHP is widely considered one of the best means of reducing GHG emissions globally. As EPA has stated, the average efficiency of fossil-fueled power plants in the U.S. is 33 percent but CHP systems achieve efficiencies of 60 to 80 percent and minimize transmission and distribution loss.³ The pulp and paper sector has been a leader in implementing CHP projects. This sort of action by the pulp and paper sector is part of how it has been a recognized leader in the solution to rising GHG emissions. However, as proposed the output-based baseline penalizes mills that have implemented CHP projects. Because the baseline includes only direct emissions, and CHP reduces indirect emissions (e.g., the emissions associated with electricity purchase) while increasing direct emissions, a mill with extensive CHP will have more GHG emissions per unit of production. This will result in the mill faring poorly in efficiency intensity distribution and potentially having a more stringent compliance burden than its competitors in other parts of the country or world that choose to buy cheap, coal-fired generation rather

³ <https://www.epa.gov/chp/chp-benefits>

than install CHP. The ultimate consequence of the benchmarking process as the rule is proposed is that some facilities will have a lesser compliance obligation and some will have a higher compliance obligation. This creation of winners and losers in a commodity industry means that the losers will likely lose market share to mills elsewhere in the country or internationally that do not have to incur the expense of compliance with the CAR. If the result is that Washington mills have a higher output-based baseline due to investment in CHP as compared to mills in other parts of the country or internationally that do not have CHP, then the outcome of the CAR is that GHG emissions will increase, not decrease.

In short, the proposed rule provides significant disincentives to facilities to operate existing CHP systems or to invest in new CHP. Ecology must revise the rule to avoid this penalization of mills implementing CHP. NWPPA recognizes that fixing the CAR to properly credit EITE covered parties with existing CHP systems is a complicated issue that will take collaboration, time and thought. This is a process that we are committed to. However, this critical issue emphasizes the need to take more time developing the EITE provisions prior to issuance of that portion of the CAR.

4. Significant Issues with Developing Efficiency Intensity Distributions (WAC 173-442-070(3)(a))

a. Background

The facts indicate that it will be impossible to determine an accurate efficiency intensity distribution for each EITE sector as required under the proposed WAC 173-442-070(3)(a). There are several reasons for this. The primary reason is that it is extremely difficult to identify sectors that would allow the accurate comparison of a Washington mill to its peers nationally. As described in relation to the output-based baseline, the processes that make up any individual mill vary dramatically. In addition, the products produced and the fuel types used also vary tremendously. For these reasons, we do not believe that an accurate efficiency intensity distribution can be identified for NWPPA members in Washington.

b. Impossibility of Generating Accurate Efficiency Intensity Distribution

The issue with trying to benchmark facilities in the pulp and paper sector was thoroughly explored, and the overwhelming challenges discussed, in a 2011 paper by Duke University.⁴ The paper's authors noted the significant impact of variability in products produced ("it's well known that the production of different products often requires different amounts of energy inputs") as well as the more subtle impacts that can impair benchmarking between two mills that make the same product ("a plant's choice to produce some intermediate inputs onsite rather than purchase the same

⁴ *Distribution of Emissions Permits to the U.S. Pulp and Paper Sector under Alternative Output-Based Allocation Schemes* (November 2011); <https://nicholasinstitute.duke.edu/sites/default/files/publications/distribution-of-emissions-permits-to-the-u.s.-pulp-and-paper-sector-paper.pdf>.

material may cause plant-level emissions for the vertically integrated plant to be higher than those of a non-vertically integrated plant producing the same final product.”). Ultimately, the Duke University researchers came to the following conclusions:

- Differences in plant-level emissions intensity often unconnected to energy efficiency. Some key variables include: degree of integration, product mix, access to fuels, fuel type, use of CHP, and onsite bleaching;
- 6-digit NAICS codes are inappropriate for comparisons;
- Significant disparities still exist after accounting for degree of integration and bleaching; and
- Benchmarking results in significant transfers of wealth within the industry

Another issue raised by the Duke University study relates to the spatial scale of a benchmarking exercise. In order to generate a meaningful efficiency intensity distribution, there must be a robust data pool. With the tremendous segmentation of the pulp and paper industry and the regional and facility-specific variations in products and production methods, it is impossible to develop a robust enough data set to produce a meaningful efficiency intensity distribution. Under Ecology’s proposed approach, the future viability of a mill hinges on the efficiency intensity distribution. Where there are not enough comparable facilities to allow for a meaningful distribution, the approach necessarily fails.

Beyond these foundational issues with the proposed benchmarking approach, there are also practical details that are not specified in the rule and that thereby prevent meaningful comment. For example, there is no recognition in the rule that production data are not available for the pulp and paper sector. Pulp and paper mills typically do not make publicly available data about production of each product and intermediate product produced at the mill. In the absence of such data, the ability of the Department to generate an accurate efficiency intensity distribution falls apart. Ecology attempts to sidestep this important issue in the proposed WAC-173-442-070(3)(a)(i)(C) by saying that in the absence of such data being available, Ecology will employ existing benchmarking information that is “reasonably current.” For a sector as complicated and varied as pulp and paper, benchmarking information is out of date almost as soon as it is generated given the focus the sector has placed on improving energy efficiency so as to try to compete with imports. It is contrary to the Washington Administrative Procedures Act (APA) (Ch. 34.05 RCW) to suggest in the rule that generic benchmarking data can be applied to determine the efficiency intensity distribution.

5. Significant Issues with Efficiency Reduction Rate (WAC-173-442-070(3)(b))

The purpose of a rule is to identify with reasonable certainty the responsibilities of the implementing agency and the obligations to the regulated entity. In order to be lawful, a regulation must contain sufficient guidelines for the exercise of authority by the implementing agency. That threshold is not met in the proposed WAC 173-442-070(3)(b). Instead, with absolutely no implementing criteria and/or limitations on authority, the proposed rule grants Ecology the power to impose an unlimitedly high efficiency reduction rate if, after conducting an inherently flawed efficiency intensity distribution determination, Ecology concludes that the covered party is in the bottom quartile. The method for determining/establishing the efficiency reduction rate must be clearly and expressly described for facilities with output-based baseline lower than the 25th percentile, as well as for those facilities with baseline greater than 75th percentile of the efficiency intensity distribution. The current language is vague, arbitrary and capricious and creates great confusion for all EITEs, providing no meaningful protection. The current language leaves it to Ecology to “set the EITE covered party’s efficiency reduction rate at a level that would reduce emissions at a rate less than required” if the covered party were not an EITE. For example, Ecology could arbitrarily set an EITE efficiency reduction rate of 1.69% per year.

Furthermore, to penalize an EITE facility with a reduction baseline of more than 1.7% annually is bad public policy and is contrary to the intent of protecting EITEs and avoiding GHG leakage.

Similarly, Ecology must establish in the rule clear criteria to determine if a facility has “supplied sufficient information to complete [the assessment of the facility’s efficiency reduction rate]” per WAC-173-442-070(3)(b)(iv). As with the benchmarking process in WAC 173-442-070(3)(b)(i) - (iii), the punitive measures in WAC 173-442-070(3)(b)(iv) lack any regulatory basis or structure. What specific information does Ecology expect a facility to provide? This is not specified in the rule. Again, this punitive approach where an EITE covered party may not even have access to the requested data is unduly vague, making it both an improper delegation of authority as well as being arbitrary and capricious.

Finally, we believe that there is an important typographical error in WAC 173-442-070(3)(b) that, if applied literally, would penalize more efficient covered parties. The output-based baseline is calculated by dividing emissions by production generating a value in units of “tonne CO₂e/unit of production.” A higher value represents a higher emission rate per unit of production. This means that if one assumes calculating an efficiency intensity distribution is possible (an assumption we question), that distribution will reflect a range of sources from those with the lowest tonne CO₂e/unit of production value to those with the highest tonne CO₂e/unit of production value. The EITE covered party would then compare its own output-based tonne CO₂e/unit of production to that range. This means that a source whose output-based baseline “is less than or equal to the twenty-fifth percentile value of the sector’s efficiency intensity distribution” is actually a highly efficient source because it has a low intensity (tonne CO₂e/unit of production). However, the rule language assumes the opposite. We ultimately believe that this was an unintended consequence that Ecology can and will fix or

clarify. However, we believe it is indicative of the issues with the EITE rule that makes it difficult to meaningfully comment and drives the need to withdraw the EITE provisions, rework them and re-notice them.

6. Significant Issues with Emission Reduction Pathway (WAC-173-442-070(4))

NWPPA's assessment of Equation 1 and the proposed language in WAC 173-442-070(4) indicates that the proposed approach is deeply flawed. We understood that the intent of developing WAC 173-442-070 was to provide an alternative means of EITE covered parties complying with the CAR due to the high potential of leakage in EITE sectors. However, while there may be cases where the proposed approach achieves that goal, there are many scenarios where the Equation 1 approach will have the result of making an EITE covered party subject to significantly more stringent compliance burdens than a non-EITE covered party. One of the primary reasons for this punitive outcome for EITEs is that the production rate from the immediately prior compliance period is used to calculate the current emission reduction pathway. This means that a source that is reducing production in order to comply will have a dramatically more stringent compliance obligation than a comparable non-EITE source. Similarly, a source that has low production during a prior compliance period due to market forces will have a significantly more stringent compliance obligation during the next compliance period if demand increases. At the very least, compliance should be based on current emission intensity and current production, not on historic production.

We do not believe that the simple adjustment proposed above will correct all of the serious issues with Equation 1. The problem with the approach laid out in the proposed WAC 173-442-070 is that it assumes that all EITE covered parties are similar and that a single approach is feasible. This is not the case. The approach outlined in Equation 1 is deeply flawed and does not begin to comply with the statutory requirement to represent the least burdensome alternative under Washington's Significant Legislative Rule (Ch. 34.05.328 (1)(e)). What replaces the proposed rule language demands significant assessment by all of the EITE sectors to identify unintended consequences that could wreck Washington's employment base while increasing GHG emissions globally. There must be more than one EITE compliance pathway just as there must be more time to develop this portion of the CAR. We suggest that Ecology pull WAC 173-442-070 from the final rule and spend the time required to develop a suite of alternatives that work for Washington and achieve the intended policy goals.

Given the impossibility of ever ensuring that a single approach will work for all EITE sources, the WAC 173-442-070 compliance pathway should not be mandatory for all EITEs. The first compliance period for EITE covered parties should be deferred to 2023 to allow for finalization of the rule, establishment of baselines, determinations as to benchmark status and adjustments in the EITE markets. If prior to 2023 an EITE covered party ultimately concludes that it would prefer the -060 1.7% emission reduction pathway against baseline starting with the 2023-2025 compliance period, then that covered party should be allowed to voluntarily opt out of -070 and into the mass baseline approach in -060.

7. Significant Issues with Emission Reduction Units (WAC-173-442-160)

NWPPA supports the CAR allowing both new and existing CHP units to generate ERUs. As discussed above, the CAR is currently worded to penalize covered parties operating existing CHP systems. This is bad policy as it is acknowledged that one of the best ways to reduce GHG emissions is by maximizing the operation of existing CHP and adding new CHP wherever possible. One of the key ways to incent maximum utilization of existing CHP is to provide for the generation of ERUs for emissions avoided as a result of CHP. Allowing ERUs to be generated by new CHP is equally important, but new CHP should not be incentivized at the expense of the operation of existing CHP. We are submitting a methodology that is appropriate for calculating the benefit realized by our industry's operation of CHP units. (*See attached NCASI memo of April 26, 2016 re: Industrial combined heat and power as an alternative emissions reduction measure under the proposed Washington Clean Air Rule*).

NWPPA is greatly concerned about the proposed rule's reliance upon the creation and generation of adequate ERUs to support the CAR program. EITE covered parties will necessarily have to rely on the purchase of ERUs in order to comply with the CAR program. As proposed, reducing production to comply is simply not viable as Equation 1 compounds the required reductions as a result of using emissions during the prior compliance period as the basis for computing the next compliance period's obligations. The proposed WAC 173-442-170 allows the use of out-of-state allowances as ERUs, but there is no certainty that such allowances may be lawfully purchased. In addition, the proposed phase-out of the use of allowances is draconian. Even if other programs do allow the purchase of allowances for use in the Washington program, the ability to employ such allowances as ERUs dissipates so dramatically after just a few years as to render the option of negligible benefit. In order to ensure that there is not a shortage of ERUs, out-of-state allowances should be allowed to be used as ERUs at a much higher rate throughout the life of the program or, at least until there is a demonstrated market for in-state ERUs in sufficient quantities to enable compliance.

Notwithstanding these significant concerns, there is no cost-containment measure or ability of a facility to petition for exemption when the cost of the compliance burden materially threatens the viability of the covered party. Ecology should include cost-containment and reasonable means of reducing the compliance burden if compliance will significantly affect the covered party's business.⁵

8. Need for Alternative EITE Covered Party Compliance Pathways

In light of the flaws in the proposed WAC 173-442-070 language, NWPPA reiterates the need for alternative compliance pathways. At the very least, if Ecology proceeds with the proposed WAC 173-442-070 compliance pathway in the final rule, an EITE covered party must, as noted

⁵ We note that in the prior proposal of the CAR there were provisions for providing relief to distressed sources, but the criteria were so stringent that a source had to essentially be in bankruptcy before it could apply. We support the addition of more reasonable provisions than initially proposed.

above, be allowed to opt out of that approach and rely on the non-EITE pathway (i.e., WAC 173-442-060). However, we strongly believe that in order to avoid significant impacts to Washington's pulp and paper sector, the final rule should include the following alternative compliance pathways, which would accomplish the rule's objectives, but be less burdensome under Washington's Significant Legislative Rule (Ch. 34.05.328 (1)(e)).

a. Zero Emission Fuels:

Mills have invested in projects that have enabled high and increasing levels of zero emission biomass fuels. EITE covered parties employing zero emission fuels for large (and gradually increasing) percentages of their total heat input should be deferred from further compliance obligations under the CAR.

- The EITE party would establish its baseline consistent with WAC 173-442;
- Compliance obligation would be met for any period of the average CO₂ emission attributable to zero emission fuels equaled or exceeded a threshold;
- E.g.: 70% in 1st period, increasing to >80% by 2050

b. Site-Specific Energy Efficiency Assessment

EITE covered parties are each subject to unique site-specific considerations. This pathway would recognize the significant trade sensitivity of these facilities and enable them to comply by developing and implementing a site-specific GHG Reduction Assessment that focuses on both direct and indirect (electricity generation) GHG emissions.

- Upon Ecology approval of the Assessment, the EITE covered party meets its compliance obligation by achieving either the individual GHG reduction target or the emissions intensity target established by the Assessment (similar to a utility's energy efficiency assessment under I-937 Washington RPS law).

9. Enforcement Provisions are Unduly Punitive (WAC 173-442-340)

The proposed enforcement provisions in WAC 173-442-340 are unduly punitive. The proposed rule language states that a separate violation could be assessed for each tonne and for each day. A 10 or 100 or 10,000 metric ton/year violation yields \$36.5 million, \$365 million and \$36.5 billion potential enforcement liability, respectively. The potential liability created by a 10,000 metric tonne overage on the GHG cap is completely disproportionate. The exceedance of a compliance obligation should be a single violation and each tonne of overage should not constitute a separate violation. The extent of overage and the duration of the violation should be factors that Ecology assesses in determining whether to pursue enforcement. They should not be the basis for individual violations.

10. Third Party Verification of Compliance Reports is Excessive (WAC 173-442-210(b))

The proposed rule language requires third-party verification for each compliance report. Third-party verification should not be required for facilities unless they seek to generate/sell/trade credits in the marketplace, and in other (rare) special cases that have sufficient complexity. Third party verifications are expensive, and except for a few special cases, there is not additional benefit added, only cost. A mill manager/responsible official, combined with an internal certified energy professional or professional engineer should be sufficient. They will be providing signatures to the annual and triannual report package, so there is no basis for third party verification any more than third party verification is required for Title V permit compliance reports or NESHAP (e.g., Boiler MACT) compliance reports. Third party verification might be justified for ERUs generated from projects, but it is an excessive burden without demonstrated benefit for third party verification of compliance reports and ERUs generated by outperforming a source's emission reduction requirement.

Many of the third-party verifier requirements appear punitive and without a good policy basis. For example, there is no reason why a third party verifier should have to visit the covered site once a year. Also third party verifiers should not have to be approved by Ecology. And lastly there is no reason why a covered party should have to change its third party verifier after six years of use. The pulp and paper industry is highly complex and there are limited qualified resources that understand the intricacies of a pulp and paper mill. Requiring a revolving door of verifiers reduces the quality of the work performed and serves no beneficial purpose.

Conclusions

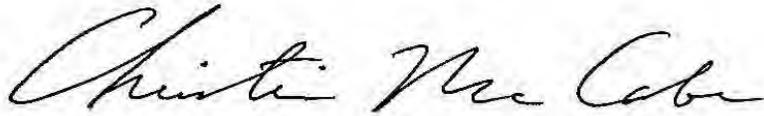
While NWPPA appreciates the effort that Ecology has put in to date to evaluate appropriate means of addressing EITE covered parties, the proposed rule falls far short of the mark. EITEs are, by definition, commodity manufacturers that are greatly exposed to foreign competition and that face a realistic possibility of closure or curtailment as a result of the CAR. It is very difficult to reverse the damage once a facility goes into that downward spiral as a result of the encroachment of competitors not subject to the same environmental obligations as a Washington mill. Therefore, it is critical that Ecology get it right for EITEs. Given the complexity of the issues, this requires that Ecology take the following steps at this time:

- Remove the EITE provisions from the CAR;
- Revise WAC 173-442-030(2) to state that applicability of the rule for EITEs does not begin prior to 2023 so as to allow adequate time to develop a robust EITE program; and
- Work with the EITE sectors to develop an array of compliance options that ensure that all EITEs have a reasonable compliance burden that does not unduly hamper their ability to compete against foreign producers. This should include more than just allowing EITE covered parties to choose between the proposed EITE and non-EITE compliance pathways, but, at an absolute minimum, an EITE covered party should be

allowed to opt out of the WAC 173-442-070 compliance pathway and comply with the WAC 173-442-060 pathway starting in 2023.

Please contact me if you have any questions about these comments. NWPPA and its members would be pleased to meet with you to further outline our concerns.

Sincerely,

A handwritten signature in black ink that reads "Christian M. McCabe". The signature is written in a cursive, flowing style.

Christian M. McCabe, J.D.
Executive Director
Northwest Pulp & Paper Association

cc: NWPPA members

Attachments:

- Figure 1.: GHG Emission Factors for Purchased Electricity – Pulp and Paper Producing States
- Figure 2.: GHG Emission Factors for Purchased Electricity – Select Pulp and Paper Producing Countries with Export Potential;
- NCASI Combined Heat and Power memo, April 26, 2016

Figure 1.

GHG Emission Factors for Purchased Electricity – Pulp/Paper Prod

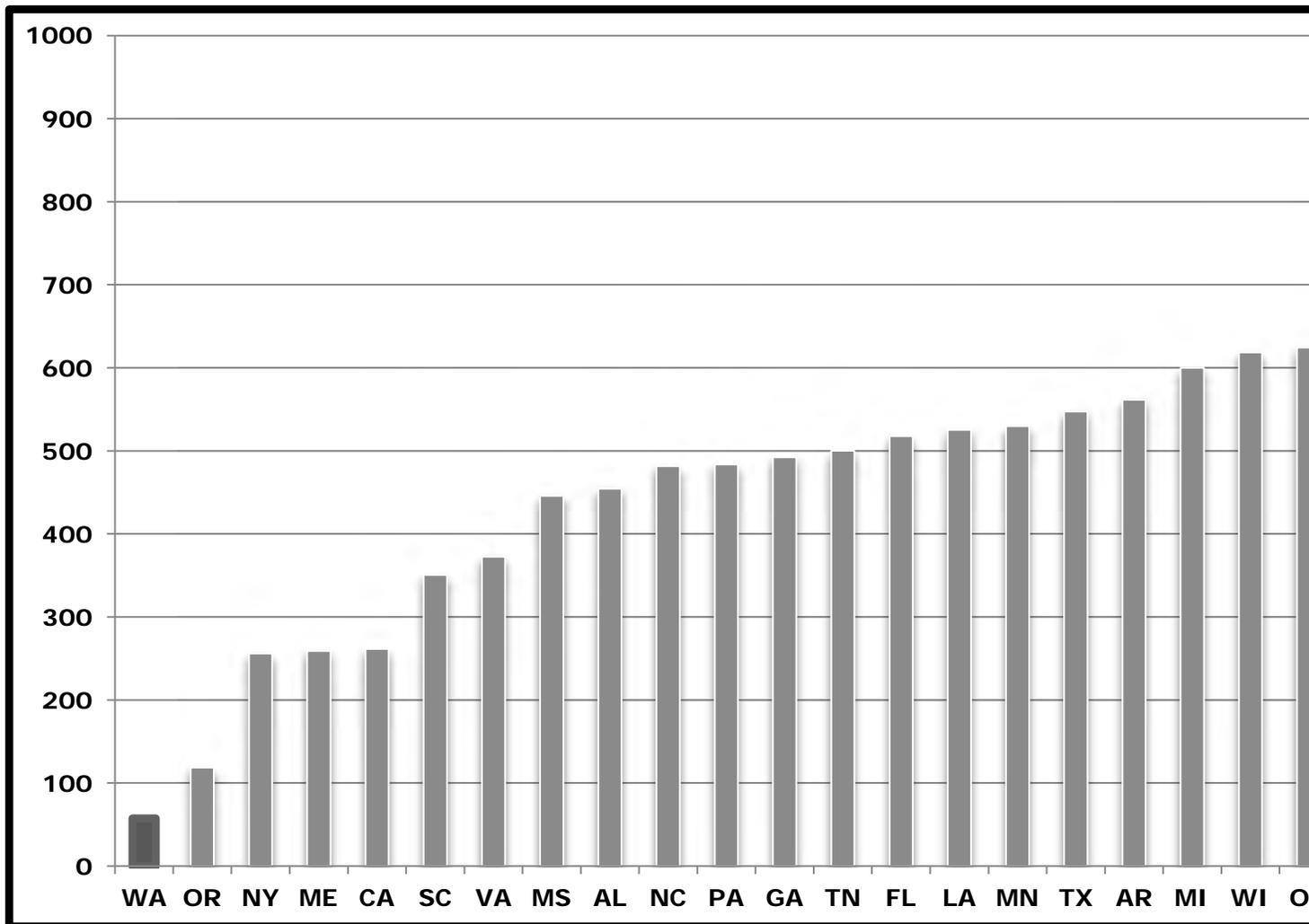
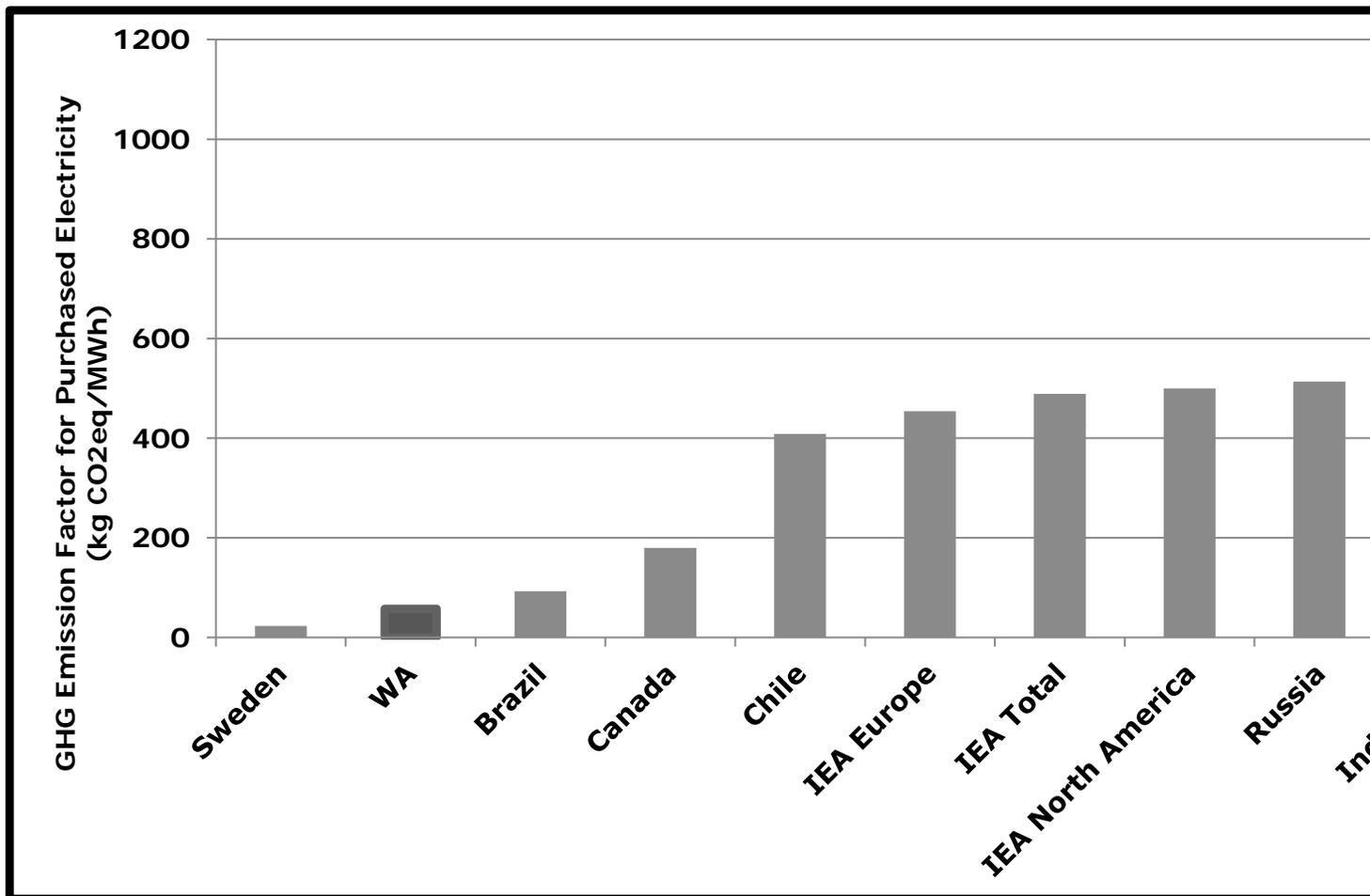


Figure 2.

GHG Emission Factors for Purchased Electricity – Select Pulp and Paper Producing Countries with Export Pot





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**RENEWABLE
NATURAL GAS**

July 22, 2016

Via Electronic Submission: AQComments@ecy.wa.gov

Mr. Sam Wilson
Air Quality
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: Proposed Clean Air Rule (WAC 173-442) Comments

Dear Mr. Wilson:

On behalf of the solid waste industry, the National Waste & Recycling Association (NWRA), the Solid Waste Association of North America (SWANA), and the Coalition for Renewable Natural Gas (RNG Coalition) are pleased to provide comments on Washington State Department of Ecology's (Ecology) proposed Clean Air Rule (CAR). NWRA, SWANA and the RNG Coalition represent companies, municipalities and professionals in the solid waste industry. The NWRA is a not-for-profit trade association representing private solid waste and recycling collection, processing, and management companies that operate in all fifty states. SWANA is a not-for-profit professional association in the solid waste management field with more than 8,000 members from both the private and public sectors across North America. The RNG Coalition is a not-for-profit association of entities involved in converting organic waste into pipeline-quality or transportation-fuel-grade renewable natural gas.

The NWRA, SWANA and the RNG Coalition have had to opportunity to review comments developed by the Washington Refuse and Recycling Association (WRRRA). We support those comments and include the following additional technical information to further support them. The CAR aims to cap and reduce carbon emissions in Washington. Although we support the Department of Ecology's (Ecology) work to cap carbon emissions, we believe that the proposed

rule should not include landfills. Landfills are necessary for public health and the proper management of waste. For reasons stated in WRRRA's letter and expanded upon below, we believe solid waste landfills should be exempt from the CAR.

Landfills are essential public facilities

Landfills are essential public facilities that are handling municipal solid waste providing the failsafe public health protection necessary to handle the material remaining after other diversion, recycling and other forms of recovery. This is true whether the landfill is a public or private facility. MSW landfills are the management mechanism when no other diversion alternative exists. The public expects that waste is disposed of at a regulated, highly engineered MSW landfill facility that protects the environment and public health. This avoids unlawful dumping in Washington communities, where public health and the environment would be adversely affected. Because access to and use of MSW landfills are a vital element of local governments' solid waste management plans, they are not suitable candidate facilities for a cap and trade regulatory program, no more than other essential public services such as wastewater treatment facilities.

The solid waste management and recycling industry has accomplished steady and significant GHG reduction since the 1990's, far more reductions than any other sector. A cap and trade regulatory system should be reserved for source categories that are well above their 1990 levels and have not been subject to significant Command and Control regulations such as the NSPS and EG rules for MSW landfills.

MSW Landfill emissions are already successfully regulated and EPA has just strengthened the regulatory requirements.

Rather than a cap and trade regime, MSW landfills are better suited for regulation under performance standards, as they are under the federal Clean Air Act (CAA) requirements, which regulate the collection and combustion of LFG from MSW landfills (40 CFR Part 60 Subparts WWW and Cc). The initial landfill NSPS (Subpart WWW) and EG (Subpart Cc and state rules) resulted in significant methane reductions as a result of the NMOC control.

On July 14, 2016, EPA issued revisions to both the federal New Source Performance Standards (NSPS) (40 CFR Part 60, Subpart XXX) for new and modified landfills and equivalent revisions to the Emissions Guidelines (EG) (40 CFR Part 60, Subpart Cf) for existing landfills. According to EPA, the combined rules will reduce methane emissions by an estimated 334,000 metric tons, the equivalent of reducing 8.2 million metric tons of CO₂e in 2025. The rules also cut CO₂ emissions directly, yielding an estimated 303,000 metric tons of additional reductions. In the current NSPS and EG rules, a threshold of 50 Mg/year of non-methane organic compounds (NMOC) emissions triggers an installation of a LFG collection and control system. However, this threshold has been decreased to 34 Mg/year resulting in more MSW landfills being required to manage landfill gas. These regulatory changes will control and reduce MSW landfill emissions to an even greater extent than already achieved.

LFG collection and control systems and landfill cover are effective and important environmental control techniques that greatly reduce the GHG impact of landfills. EPA has acknowledged this in its recent *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2013*. In its Inventory, EPA's estimates of the annual quantity of waste placed in MSW landfills increased by 26 percent from 1990 to 2013, yet methane emissions decreased by more than 38 percent. EPA concludes that these significant reductions are due to MSW landfills operating under the federal CAA requirements, which is a stringent Command and Control regulation as opposed to a market-based program such as cap and trade, as proposed by Ecology. In *Washington State's Greenhouse Gas Inventory Report for 2012*, GHG emissions from the solid waste management sector have declined to 2.8 MMT CO₂e, or 3 percent of the total GHG emissions for the state of Washington.

The command and control regulation has required landfills to reduce methane emissions, regardless of cost. It is not appropriate to implement a market based approach such as cap and trade on top of the existing regulation because the most cost effective methane emissions from landfills have already been achieved. By requiring that landfills make cost-effective GHG reductions outside of the cap and trade market, they are at a cost disadvantage and cannot market the most cost effective reductions.

Diverting waste from large landfills could increase emissions

In addition, CAR may divert waste from landfills with landfill gas collection systems and beneficial use projects to smaller landfills or to out-of-state landfills. This would actually increase global GHG emissions through the potentially reduced capture rates at smaller landfills and the increase in emissions generated by transporting waste longer distances.

Leading carbon reduction and cap-and-trade programs exempt landfills

We recommend that Washington's Clean Air Rule follow the precedent set by the most prominent carbon reduction and cap and trade programs around the globe. Other programs recognized that landfills do not lend themselves to regulation under cap and trade program because of the challenges in determining emissions. These programs include California's AB-32; the Regional Greenhouse Gas Initiative (RGGI), a mandatory cap-and-trade program covering nine states on the east coast; the European Union's (EU) cap-trade-program; and the Clean Development Mechanism of the Kyoto Protocol.

Biogenic emissions should be excluded from CAR

When evaluating the long term carbon life cycle, biogenic emissions are defined as emissions related to the natural carbon cycle, as well as those resulting from the combustion, harvest, digestion, fermentation, decomposition, or processing of biologically based materials. CAR intends to include biogenic emissions produced by a facility, except for the biogenic emissions generated from the combustion of woody biomass. Biogenic emissions from organic waste decomposition represent a significant portion of calculated GHG emissions from landfills.

Ecology should treat combustion of LFG in the same way that RCW 70.235.030(3) treats CO₂ emissions from fuel wood, wood waste, and wood by-products and residuals. CO₂ emissions from combustion of LFG in flares, or combustion in engines, turbines or industrial boilers should be considered carbon neutral. Failure to do so will create fundamental inconsistencies between the proposed CAR and many existing GHG reduction programs at the state, federal and international levels. For example, CAR's treatment of biogenic CO₂ from LFG directly conflicts with the State of Washington's Renewable Portfolio Standard (RPS) under Initiative 937, which considers landfill gas to be a renewable energy source. In addition, treating biogenic CO₂ from LFG in the same manner as fossil CO₂ emissions is inconsistent with the U.S. EPA's annual GHG Inventory of Emissions and Sinks, and the United Nations protocol for GHG inventorying developed by the Intergovernmental Panel for Climate Change (UN IPCC), upon which EPA bases its inventory methods. EPA's methodology for reporting GHG from MSW landfills considers combustion of LFG in flares, engines, turbines and boilers to be biogenic CO₂ and carbon neutral.

Ecology's treatment of biogenic CO₂ emissions in CAR will have very significant consequences for the economic and regulatory burden associated with achieving desired GHG reductions, both from the cap and trade program and from regulating power plants under the EPA's Clean Power Plan. The decision will also have enormous consequences for the State's priorities to promote production and use of renewable fuels and reliable, base-load renewable electricity. In addition to the programs mentioned above, Ecology has ample scientific justification and policy precedent to exclude biogenic CO₂ emissions from landfill gas from GHG regulation.

The existing EPA Mandatory Reporting Rule (MRR) program (40 CFR 98), which serves as basis for the CAR inventory methodologies, excludes most biogenic emissions from municipal solid waste landfills. The California cap and trade program, which uses a market-based mechanism to lower GHG emissions, also excludes biogenic emissions from landfills.

Further, the EPA's "Framework for Assessing Biogenic CO₂ Emissions from Stationary Sources" (EPA, November 2014) considers carbon dioxide emissions from landfills to have a biogenic accounting factor of zero, meaning that the carbon dioxide from landfills is biogenic and part of the natural carbon cycle. As such, they would occur anyway whether in the landfill or elsewhere. Thus, it makes no sense to regulate these emissions.

If Ecology fails to revise its proposed CAR, all sources of biogenic CO₂ except those specifically exempted in RCW 70.235.030(3), would be lumped together and treated like fossil fuel CO₂ emissions. For biogenic CO₂ emissions from MSW, such an approach would be scientifically incorrect, stigmatize an environmentally beneficial energy source, and make it harder for utilities to comply with the limits proposed under the EPA's Clean Power Plan, as well as entities ultimately regulated under Ecology's proposed CAR. Therefore, we request that biogenic emissions be excluded from Washington's CAR consistent with EPA's Framework, existing federal regulations and existing prominent cap and trade systems.

Landfills should generate “Emission Reduction Units”

Landfill gas can be collected and eliminated through combustion and other methods, producing electricity, fuel, or used for other industrial purposes. The use of landfill gas routinely generates "credits" or reductions under other emission reduction programs, even when landfills are exempt from the program itself.

Every major emission reduction program in the United States allows for emission credits to be generated from methane capture programs. Landfills are not regulated under California's AB 32 or the RGGI, yet landfills can generate credits under these programs through methane capture and reduction. The EU cap-and-trade program allows Landfills generate credits for methane reduction. Again, landfills notably are exempt from the EU program, but still rewarded for emission reducing efforts. Under Australia's recently newly established Safeguard Mechanism carbon cap, which went into effect on July 1, 2016, landfills may generate reduction credits through methane capture and combustion. Landfill methane reductions have also created GHG credits under the Climate Action Reserve, CDM, and other voluntary programs.

Contrary to other leading carbon reduction programs, CAR precludes a number of excellent carbon neutral, green, and innovative energy and fuels projects which use landfill gas as a feedstock from generating Emission Reduction Units (ERU). In this respect, CAR is at odds with other leading carbon reduction programs, many of which exclude landfills from emissions caps. Given this, we request Ecology to reconsider landfill methane capture and reduction projects in the rule.

Landfill emissions are difficult to accurately measure and are based upon EPA models, which measure potential emissions ONLY and often overestimate emissions.

One of the basic elements of a cap and trade system is the ability to provide accurate measurement of emissions to assure accountability and integrity of allowances. A characteristic of MSW landfills is the difficulty in providing precise estimates of GHG emissions. Emissions are difficult to measure or model because MSW landfills are large, complex operations that often cover many acres of land, and their GHG emissions occur gradually for many years following waste disposal. Since 1996, to control those emissions, federal and state regulations require the collection and combustion of LFG. Since 2005, the recovery and combustion of LFG has grown by nearly 70 percent.

Unlike measuring GHG emissions from a facility stack, landfill emissions are more difficult to measure because landfills comprise large areas with fugitive, rather than point sources of emissions. As a result, emissions from landfills are most often modeled using national default assumptions to estimate the amount of LFG produced by degrading waste in place, gas collection system efficiency, and methane control by landfill cover. First Order Decay (“FOD”) models are used to estimate methane emissions and incorporate these default assumptions. However, FOD models are best used to estimate landfill methane emissions across many sites at the global or national level, but not to accurately assess and measure methane emissions at

individual MSW landfills. Landfills are complex systems not easily represented by mathematical models and, hence, FOD models are not good predictors of site-specific landfill emissions. This is because most FOD models rely on default input parameters that, while considered adequate in aggregate, are rarely reflective of actual emissions of specific MSW landfills, and are instead arbitrary and unverifiable. EPA acknowledges there is significant uncertainty with its LandGEM FOD model ranging from approximately 30% to 400% of measured values. Under a cap and trade program, GHG emissions must be measured with certainty and FOD models simply do not provide the level of precision and accuracy required.

Additionally, the FOD Model, as embedded in EPA's GHG reporting rule, was meant to be only used as an applicability tool and is not utilized as a compliance measure. EPA has never used the results of the annual GHG reporting regime to set an applicability threshold and has used the FOD model for reporting purposes only. Using the FOD model as a method to measure a MSW landfill operator's compliance under CAR is an inappropriate application of the EPA FOD model.

CAR utilizes the annual GHG emission inventories reported to Ecology through the Washington State GHG reporting program promulgated under WAC 173-441. This rule adopts industry specific emission calculation methodologies promulgated under the MRR. Subpart HH (Landfill) methodology does not allow for enough flexibility in determining actual site-specific emissions through analysis of individual landfills that can potentially lead to a better estimate of a site's GHG emission, and the subsequent GHG emission reductions that may be required for a landfill. It is critical that any GHG regulatory program be based on the most accurate and facility-specific emission estimates as possible. Use of EPA's MRR protocols does not allow this since they were created for industry-wide studies and are not accurate down to the facility level.

There are a myriad of protocols for calculating GHG emissions from landfills. Although the EPA MRR methodology is widely accepted throughout the industry for estimating GHG emissions, it still has inherent limitations, which may not accurately reflect the emissions at a particular landfill. For instance, the MRR gas collection efficiency values only represent the mid-range values of the collection efficiency percentages for each cover type from the Solid Waste Industry for Climate Solutions (SWICS) guidance, from which EPA derived the collection efficiency methodology. Therefore, using this approach prevents facilities from taking into account the high level of collection efficiencies gained from comprehensive landfill gas collection systems that are already, or may be, installed and operating at larger landfills in Washington. By using the fixed mid-range value, landfills that collect more methane would have artificially higher calculated emissions, despite the fact that actual emissions are lower.

Landfills are area sources of GHG emissions with varying topography and "feedstocks," and the emission calculations are not simple input and output methodologies that are typically used to determine stack emissions for other industries. Due to the wide range of different calculation methodologies for landfills and the innate limitations of the MRR, we request Ecology exempt landfills from CAR.

Given these critical challenges in accurately measuring GHG emissions from MSW landfills, it is impossible to establish an accurate and meaningful regulatory cap on a source that has historically and significantly reduced GHG emissions and has complied with stringent performance standards (that is, Command and Control regulations like NSPS) to control GHG emissions even further. Further, modeled landfill emissions are highly uncertain, and EPA's FOD model incorporates conservative assumptions that overestimate emissions.

Finally, Ecology should recognize that MSW landfills have a severely limited ability to *further* reduce GHG emissions.

Early Action Credits

Although CAR identifies activities and programs recognized as generating ERU, the rule is not clear on how early actions completed will be accounted for or whether they would qualify as an emission reduction. The solid waste industry should be allowed to get credit for early actions that are considered going above and beyond what is required by existing regulations.

Specifically, waste-to-energy and landfill gas to energy (LFGTE) are prime examples of going above and beyond existing requirements to reduce emissions, and offset emissions from the energy sector at the same time, and should be accounted for within CAR.

Emissions must be Measurable and Quantifiable

Key elements of GHG emission and offset quantification are that emissions must be quantifiable, verifiable, and enforceable. Those requirements to provide certainty to the carbon market that the emissions being traded are real and demonstrable. Landfill emissions are not quantifiable, verifiable, or enforceable and are not appropriate for inclusion in a cap and trade program.

Most GHG emissions from landfills occur as fugitive emissions of methane through the landfill surface. By definition, these fugitive emissions cannot be captured and cannot be practically measured. This unmeasurable nature also means that regulators or third parties cannot confirm that reported emissions are accurate. Finally, it is not possible for regulatory agencies to enforce emissions caps against landfills because reductions or exceedances cannot be measured.

Closing

Modern, managed landfills are highly-engineered facilities that are located, designed, operated, and monitored in compliance with federal, state, and local regulations. The proper and safe disposal of waste is an essential public service vital to protecting human health and the environment. These wastes are not generated by the solid waste industry itself. Rather, the industry is responsible for safely and proactively managing wastes generated by other industrial, residential, and commercial sources in Washington.

Landfills generally do not lend themselves to regulation under cap and trade programs based on the public service landfills provide and the difficulty in accurately measuring the direct landfill emissions. As such, the national and international trend has been to exclude landfills from programs like the Clean Air Rule because, simply put, landfills are different and necessary. The solid waste industry has already made great strides in achieving emissions reduction, including methane capture, sequestration, and renewable energy projects employed across the industry. We request Ecology consider these comments and adjust the Clean Air Rule accordingly, to exempt solid waste landfills.

The NWRA, SWANA and the RNG Coalition appreciate your consideration of our request. Should you have any questions about these comments, please call Anne Germain, Director of Waste & Recycling Technology for NWRA, at 202-364-3724 or e-mail her at agermain@wasterecycling.org, Jesse Maxwell, Advocacy & eLearning Program Manager for SWANA, at 240-494-2237 or e-mail him at jmaxwell@swana.org, or Johannes Escudero, Executive Director for the RNG Coalition at 916-588-3033 or e-mail him at Johannes@rngcoalition.com.

Very truly yours,



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July 22, 2016

VIA ELECTRONIC DELIVERY

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
AQComments@ecy.wa.gov

Attention: Sam Wilson

RE: Comments of PacifiCorp on Department of Ecology's Proposed Clean Air Rule (Chapter 173-442 WAC) and Amendments to Existing Rule (Chapter 173-441 WAC)

Mr. Wilson:

PacifiCorp appreciates this opportunity to comment on the Washington Department of Ecology's (Ecology) proposed Clean Air Rule that would establish emission standards for greenhouse gas emissions from certain stationary sources located in Washington State, petroleum product producers or importers, and natural gas distributors in Washington State. PacifiCorp understands that Ecology's proposal is part of Washington's goal to reduce state greenhouse gas emissions to 1990 levels by 2020, 25 percent below 1990 levels by 2035.

I. Introduction

PacifiCorp is an investor-owned utility providing retail electric service to approximately 1.8 million customers across 143,000 square miles in California, Idaho, Oregon, Utah, Washington, and Wyoming. In Washington the company provides retail electricity service to just under 129,000 customers, doing business as Pacific Power. PacifiCorp's generation fleet consists of approximately 10,000 megawatts of net-owned generating capacity with 72 generating units across the West. These resources include thermal (coal and natural gas), hydroelectric, wind, and geothermal resources. By the end of 2016, PacifiCorp will own or contract output from 3,055 megawatts of wind and solar capacity, in addition to 1,496 megawatts of non-emitting hydro resources. In Washington, PacifiCorp operates the Chehalis Generating Facility (Chehalis), which is an efficient 520 megawatt natural gas combined cycle (NGCC) plant located in the western part of the state. Chehalis is PacifiCorp's sole thermal generating resource located in Washington and therefore its only facility that would be subject to the Clean Air Rule.

PacifiCorp's owned-generation portfolio is a mix of assets located across nine western states (Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming). Consistent with a long-standing regulatory practice agreed to among the various state commissions regulating PacifiCorp, energy produced by PacifiCorp-owned resources, as well as

purchased energy delivered pursuant to power purchase agreements, is referred to as “system” power. System power is electricity that is not assigned by PacifiCorp for use within a particular state and is managed on a system-wide, least-cost basis. As a result of this shared resources approach, customers within PacifiCorp’s states benefit from cost savings associated with system diversification. Consistent with its operations, PacifiCorp plans on a system-wide basis, ensuring that planning activities capture the system diversification benefits for all of PacifiCorp’s customers.

PacifiCorp’s comments are primarily focused on considerations associated with the Clean Air Rule as it applies to the electric sector and specifically to an efficient NGCC such as Chehalis. For reasons fully described below, the Clean Air Rule is unlikely to effectively address greenhouse gas emissions from the electric sector and as currently proposed could increase overall greenhouse gas emissions from the electric sector in the West. PacifiCorp recommends that Ecology separately approach the regulation of electric generating units in concert with the development of pending federal greenhouse gas regulations. Though PacifiCorp ultimately recommends that emissions from electric generating units be regulated separately from the Clean Air Rule, PacifiCorp also provides comments on the rule design that would increase its effectiveness and lower the cost of compliance.

II. Ecology Should Not Regulate Electric Generating Units Under the Clean Air Rule As Currently Proposed

Due to the integrated nature of the energy grid, greenhouse gas regulations applied on a state-by-state basis are not the most effective method of reducing greenhouse gases associated with the electric sector. Applying a greenhouse gas limit to electric generating units on a single state basis as proposed in the Clean Air Rule has the potential to result in unintended consequences, as detailed below.

A. The electric sector is fundamentally interconnected and regional in nature and not limited by state boundaries

A fundamental principle of electric system operations is that supply and demand must be matched on a twenty-four seven basis. A utility providing retail electric service has little control over electricity demand, which has many drivers, including weather and economic conditions. This means that if the energy is not produced from one facility, it must come from somewhere else in order to maintain system reliability and meet customer demand. If one state imposes an emissions limit on the production of a particular energy resource such as Chehalis, the energy that would have come from Chehalis will be produced elsewhere. Regulated electric utilities are generally required to serve their customers on a least-cost basis. Therefore, the resource(s) that will replace the least-cost energy being produced at Chehalis will be next in the least-cost dispatch stack and will inherently be more expensive. The magnitude of impact will depend on a variety of factors including market prices, the season, and time of day. Nonetheless, costs for Washington utility customers will increase.

Effective regulation of generating resources must consider fundamental principles of wholesale energy markets, resource dispatch and operations, reliability requirements, and integrated

resource planning. Though Ecology acknowledges it does not have the authority to regulate out-of-state resources, simply regulating in-state resources that are within Ecology's jurisdiction does not change the physical reality of an interconnected electric system that is not limited by state boundaries.

B. Natural gas plants such as Chehalis facilitate overall emissions reductions from the electric sector

PacifiCorp is committed to reducing emissions in the region and plans for material future emissions reductions. PacifiCorp's plans, as evidenced by its multi-state Integrated Resource Plan include the retirement or conversion to natural gas of approximately 2,800 megawatts of coal generation over the next 20 years. The percentage of PacifiCorp's generation capacity that comes from coal is expected to drop from about 60 percent today to 41 percent by 2025, 28 percent by 2030 and 24 percent by 2035. PacifiCorp is also currently subject to emissions performance standards (EPS) and renewable portfolio standards (RPS) in Washington, Oregon, and California—policies whose designs reduce greenhouse gas emissions from the electric sector. As the electric sector shifts away from coal, natural gas resources will be a critical element that will in part enable the shift from higher-emitting resources such as coal to natural gas and renewables. As coal is retired, natural gas plants such as Chehalis will become more critical for maintaining the reliability of the electric system and facilitating the reliable integration of renewable energy.

This is already happening in practice. As a result of the competitiveness of gas prices and PacifiCorp's recent participation in the western energy imbalance market, PacifiCorp's carbon emissions for its thermal fleet from the first four months of 2016 are approximately 18 percent lower than the average of the previous five years. This was achieved in part by an increased utilization of PacifiCorp's natural gas fleet: over this same time period, carbon emissions from coal decreased by 21 percent while emissions from natural gas *increased* by 23 percent.

Chehalis is an efficient NGCC. For 2009 through 2015, the average carbon emissions rate at Chehalis was 916 lbs of CO₂ per megawatt-hour. This rate is below Washington's current EPS for *new* resources, which is set at 970 lbs/megawatt-hour. A coal plant typically operates at about twice the emissions rate of an NGCC. In recognition of this, the U.S. Environmental Protection Agency's (EPA) final Clean Power Plan contemplates the *increase* in production from NGCC to displace higher emission coal resources to reduce overall emissions from the electric sector. Taking a holistic approach, the increase in production from an efficient plant like Chehalis is actually an opportunity to reduce overall greenhouse gas emissions from the electric sector.

C. Ecology failed to consider potential adverse environmental consequences associated with a single-state regulation of the electric sector

PacifiCorp agrees with Puget Sound Energy and the Association for Washington Business comments that a serious flaw associated with Ecology's proposed rule is its failure to consider the potential environmental consequences of the proposal. Washington's State Environmental

Policy Act (SEPA) requires the evaluation of major government actions including significant new rulemakings.¹ Though Ecology conducted a SEPA review, it did not consider the potential for the Clean Air Rule to cause an increase in greenhouse gas emissions outside of Washington. At a minimum, Ecology must conduct this analysis and explain its actions in this context.

D. Given the nature of the interconnected electric grid, Washington should address the electric sector separately from the Clean Air Rule

The Clean Air Rule, as currently proposed, will not be effective in reducing greenhouse gas emissions from the electric sector. It could actually increase emissions from the electric sector while increasing costs for Washington utility customers, which most would agree is a bad policy outcome for this proposed rule. Washington should take a different approach to the electric sector, through the Clean Power Plan when ultimately implemented or through the encouragement of public policies that improve the availability and cost of renewable resources that would become a greater share of the energy resource mix.

III. If Ecology Does Regulate Electric Generating Units Under the Clean Air Rule, Changes Must Be Made to the Proposed Rule to Reduce Electric Customer Impact and Avoid Increased Out-of-State Emissions

A. The final rule must be clear that greenhouse gases from electric generating units will only be regulated under one policy framework

PacifiCorp appreciates Ecology's recognition in the proposed Clean Air Rule that stationary sources included in the Clean Power Plan will be considered to comply with the requirements of the Clean Air Rule.² This is a critical aspect of the rule as state regulation of greenhouse gases should be consistent with and complementary to any federal regulation of greenhouse gas emissions. It is imperative, to reduce unnecessary and burdensome impacts to electric utility customers, that duplicative and redundant regulation is avoided. Washington should reject regulating greenhouse gas emissions from the same facilities under two separate regulatory frameworks as inefficient and costly.

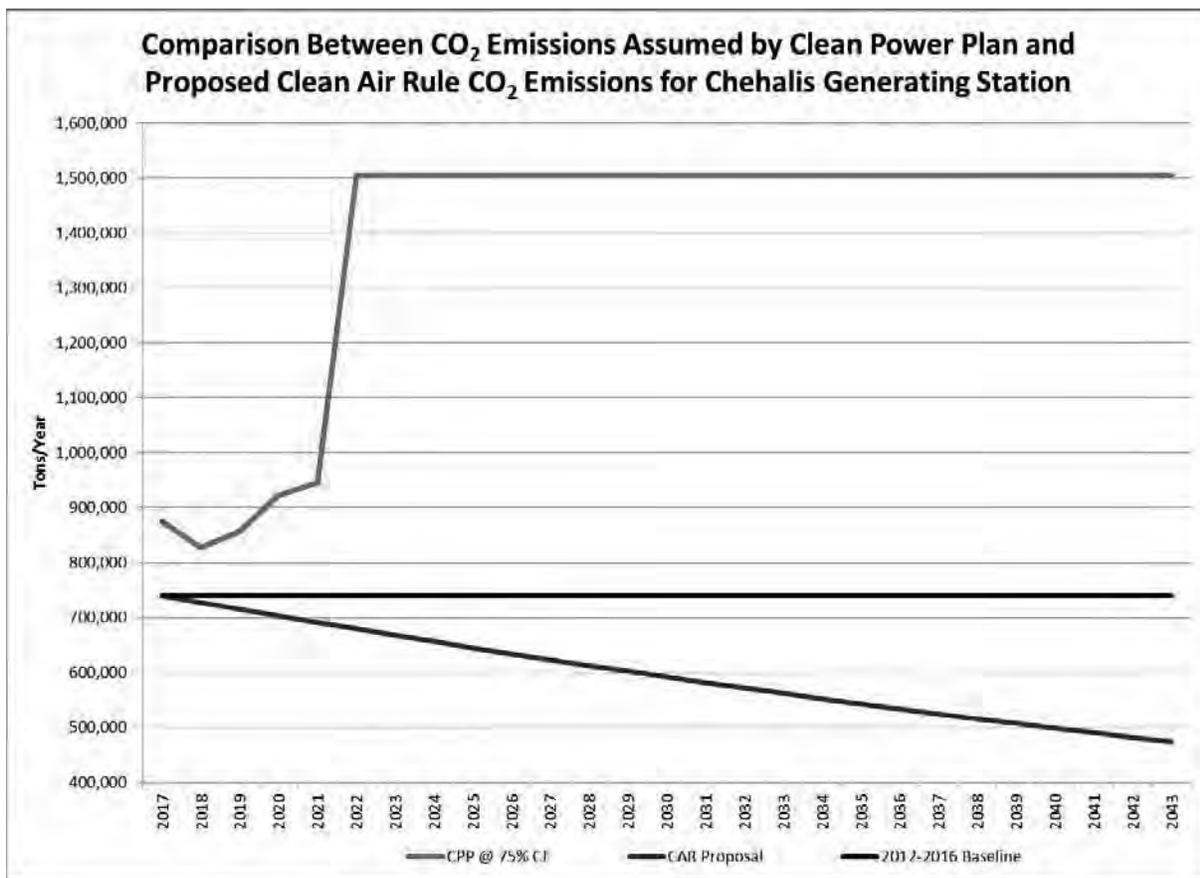
However, the Clean Air Rule presupposes the outcome of the Clean Power Plan implementation process by directing that, in order for stationary sources to be considered compliant with the Clean Air Rule, the Clean Power Plan implementation plan must require emissions reductions greater than those required under the Clean Power Plan.³ This restriction is inadvisable in light of the uncertainty around the Clean Power Plan and the process that will ultimately lead to the adoption of any implementation plan. The Clean Power Plan is currently stayed by the U.S. Supreme Court and it is uncertain whether the current Clean Power Plan or some other federal regulation of carbon emissions will be adopted. It is also unclear the process under which Washington will adopt an implementation plan. It is not a foregone conclusion that the emissions reduction requirements currently included in the final Clean Power Plan will not change.

¹ RCW 43.21C

² Proposed WAC 173-442-040(4)

³ Proposed WAC 173-442-040(4)(b)

Furthermore, as discussed above, the current Clean Power Plan contemplates the *increase* of generation from natural gas resources to reduce overall emissions through reduced reliance on coal resources. The table below shows the divergence between what is contemplated by the Clean Power Plan and what is proposed in the Clean Air Rule. As shown, the Clean Power Plan contemplates a significant increase in natural gas emissions, well above the current baseline estimated for Chehalis. While less “stringent” from Washington’s perspective, the Clean Power Plan will actually achieve greater overall emissions reductions from the electric sector because it is more appropriately designed to address emissions from the electric sector, unlike the Clean Air Rule. It is unclear at this time how Washington will ultimately address Clean Power Plan compliance. Effectively incorporating Clean Power Plan requirements into the Clean Air Rule sets up the potential for regulating greenhouse gas emissions from the same facilities under two separate regulatory frameworks. Furthermore, it is also inappropriate for Ecology to pre-determine the outcome of the Clean Power Plan state plan requirements now without requisite process and stakeholder input specifically addressing the Clean Power Plan implementation plan.



Rather than pre-determining this issue now, Ecology should strive to harmonize the state’s greenhouse gas goals as part of the development of the Clean Power Plan implementation plan. The final rule should simply state that electric generating units will be regulated under the Clean Power Plan implementation plan, when adopted. This ensures that duplicate regulation is avoided

and does not preclude the adoption of a Clean Power Plan implementation plan that is ultimately more stringent than required.

B. The Clean Air Rule should not restrict resources eligible to generate ERUs to resources physically located in Washington

In the proposed rule, renewable resources eligible for generating ERUs include eligible renewable resources as defined by Washington's RPS, except that only those eligible renewable resources physically located in Washington may generate ERUs.⁴ If the Clean Air Rule is to work as intended, this provision must be changed. On its face, this provision discriminates against out of state generation and may therefore contain constitutional infirmities. Even setting aside potential legal issues, limiting the available sources of ERUs to a single state is likely to severely limit the development of any ERU exchange or market.

RECs generated from PacifiCorp's resources, located across the West, are allocated to its six states. Accordingly, Washington receives only a limited amount of RECs from resources physically located in Washington. Washington's allocation of RECs from PacifiCorp resources are designated for Washington RPS compliance. If the Clean Air Rule prohibits the use of RECs used for RPS compliance (discussed further below) *and* restricts eligibility to resources located within Washington state, PacifiCorp's only remaining option for obtaining ERUs from renewable resources would be to purchase unbundled RECs from other renewable generators in Washington. It is unclear whether there are sufficient RECs in the market for this to be a viable option. PacifiCorp recently issued a request for proposals for unbundled RECs in the western region and did not receive any proposals for unbundled RECs from resources physically located in Washington. Building additional renewable resources in Washington specifically to produce ERUs is unrealistic and likely to be cost-prohibitive. As noted, the RECs from PacifiCorp's resources are allocated to Washington RPS compliance—if PacifiCorp constructed a new resource specifically to generate ERUs (regardless of whether an energy need exists), it is unclear whether PacifiCorp could recover that investment from Washington customers without applying the RECs to RPS compliance.

If ERUs are essentially unavailable from renewable generation, there will be no way to mitigate the increases in emissions outside of Washington described above. However, if RECs can be purchased from out of state, increased out of state emissions can be avoided (because natural gas resources can continue to be used to displace coal) while simultaneously achieving avoided emissions (through RECs) that are attributable to Washington and reduce its overall emissions.

Ecology's apparent intent with the geographic limitation is to promote economic development in Washington. This is not appropriate. The impact of this geographic limitation is to limit compliance options and therefore potentially increase costs associated with compliance. It is not appropriate to place a burden on a subset of utility customers to promote a statewide economic development objective. For all of these reasons, if Ecology continues to regulate the electric

⁴ Proposed WAC 173-442-160(5)(b)(i)

sector under the Clean Air Rule, it must lift the geographic restriction on renewable resources eligible to generate ERUs.

C. The definition of “curtailment” should not exclude electric generating units for purposes of calculating the baseline

In proposed WAC 173-442-020(1)(k), Ecology introduces the term “curtailment” to mean the cessation of production at a stationary source greater than four consecutive months in a calendar year excluding maintenance and capital improvements. Electric generating units are ineligible for this provision.⁵ In part, the term curtailment is used as part of the process to calculate a Category 1 baseline greenhouse gas emissions value in that Ecology may omit a specific calendar year from the baseline if the calendar year contains a period of curtailment.⁶ With respect to how the term curtailment is used as part of setting the baseline, the exclusion of electric generating units is arbitrary. It unclear on what basis Ecology would prevent an electric generating unit from claiming similar treatment to other covered entities when setting the baseline.

In late 2015, Chehalis experienced a catastrophic failure of the unit 2 combustion turbine which resulted in the loss of half of the plant generation output (approximately 209 megawatts). The work required to fix the turbine was extensive and the unit was off-line for approximately four months. This resulted in a significant reduction in output from the facility that arguably would be considered a curtailment under the proposed rule. 2015 is not a representative year for Chehalis and will artificially drive down the baseline as currently calculated. It would be punitive to include this outage in setting the baseline as this does not represent typical operations. The ability to exclude this type of atypical outage from the baseline should be extended to all covered entities.

PacifiCorp also supports Puget Sound Energy’s proposal to allow a mechanism to exclude high hydro years from the baseline period for the electric sector.

D. The Clean Air Rule exceptions to “additionality” requirements should include all Washington programs designed to achieve greenhouse gas emissions reductions

While generally requiring that activities and programs generating ERUs must be “additional” to existing law or rule, the Clean Air Rule recognizes that there are some existing policies that result in emissions reductions where these reductions can nonetheless be used to comply with the Clean Air Rule.⁷ These include the Clean Power Plan, Washington’s EPS, and other Washington programs with a greenhouse gas emissions reduction objective. The proposed rule also states that energy measures may qualify as ERUs only to the extent that the acquisition and subsequent retirement of renewable energy credits that are not retired for purposes of complying with the Energy Independence Act or other regulatory or voluntary programs.⁸ These restrictions ignore the significant emissions reductions that have been and will be achieve through the state’s RPS.

⁵ Proposed WAC 173-442-020(1)(k)(ii)

⁶ Proposed WAC 173-442-050(3)(b)(ii)

⁷ Proposed WAC 173-442-150(1)(e)(ii)

⁸ Proposed WAC 173-442-160(5)(b)

The list of programs whose associated emissions reductions can be used to comply with the Clean Air Rule should include Washington's RPS and Ecology should include the use of RECs allocated to Washington RPS compliance to comply with the Clean Air Rule. The Clean Air Rule should be complementary to RPS requirements and should not layer burden on a subset of the state's utility customers to achieve the same goals. In Washington, compliance with the RPS is demonstrated through the retirement of RECs, which include all of the nonpower attributes associated with one megawatt-hour of generation.⁹ Nonpower attributes included avoided emissions of carbon dioxide and other greenhouse gases.¹⁰ RECs therefore arguably contain avoided emissions value.

As part of discussions around Clean Power Plan implementation, Washington recognized this issue when commenting on the EPA's proposed rule, issued in 2014.¹¹ Washington recommended the use of RECs as the basis for compliance with any renewable energy component of a state plan in part as a means for RPS standards established by the states to be used an enforceable mechanisms as part of compliance plans.¹² Though the final Clean Power Plan takes a very different approach than originally proposed, the same concept applies to the Clean Air Rule. Any emission reduction program or policy should recognize and build on existing policies. Indeed, reporting energy as zero-emitting in California as part of its cap-and-trade program does not prevent the use of the associated REC for compliance with the California RPS. Both the RPS and the Clean Air Rule are Washington policies that do and will result in emissions reductions attributable to Washington. These policies should be complementary—the Clean Air Rule should not double down on the emissions reductions that will be achieved through the RPS. Accordingly, emissions reductions resulting from the RPS should be able to be used to comply with the Clean Air Rule.

E. The Clean Air Rule should exempt emissions already regulated under California's cap-and-trade program

PacifiCorp has a small retail service area in California and imports specified resources into California via the energy imbalance market; PacifiCorp is therefore subject to California's cap-and-trade program, which regulates greenhouse gas emissions associated with electricity imports. Approximately two percent of PacifiCorp's retail load is in California. Because Chehalis is a system resource, approximately two percent of Chehalis emissions are attributable to California and regulated under California's cap-and-trade program. Under the energy imbalance market, Chehalis may also be deemed dispatched to California. Under both of these scenarios, the emissions covered under California's program would also be regulated under the Clean Air Rule. In order to avoid this double regulation, the Clean Air Rule should exempt emissions already regulated by a separate state's program.

⁹ RCW 19.285.030(20)

¹⁰ RCW 19.285.030(15)(a)

¹¹ *State of Washington' Comments on the Environmental Protection Agency's Proposed Clean Power Plan for Existing Power Plans under Section 111d of the Clean Air Act*. Docket EPA-HQ-OAR-2013-0602 (December 1, 2014).

¹² *Id.* at 16.

F. The Clean Air Rule should include a reliability safety valve for electric generating units

With respect to the regulation of electric generating units, it is critical that the rule include a reliability safety valve or some ability to accommodate a situation where a generating unit may be needed to run for reliability purposes. If reliability impacts are encountered during implementation of the rule, Ecology should allow a reliability safety valve or variance process that suspends compliance for those entities which make adequate demonstrations.

IV. Conclusion

PacifiCorp appreciates the opportunity to comment on the proposed Clean Air Rule. In order to avoid the unintended consequence of increasing greenhouse gas emissions from the electric sector, PacifiCorp recommends that electric generating units be regulated under a separate framework that recognizes the regional nature of the electric grid. If Ecology does move forward with the approach as proposed, it is critical that greater flexibility be included in the rule to avoid unnecessary, ineffective, costly, and duplicative regulation. PacifiCorp is happy to discuss these issues in more detail at your request. Please contact me with any questions at (503) 813-5058.

Sincerely,

Mary Wiencke
Dir. Environmental Policy & Strategy

July 22, 2016

Sam Wilson
Washington Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600
AQComments@ecy.wa.gov

**Re: Washington Department of Ecology Request for Comments on Proposed Clean Air Rule,
Chapter 173-442 WAC**

Dear Mr. Wilson:

Pacific Gas and Electric Company (PG&E) is interested in the development and success of the state of Washington's climate policies, including the potential linkage of Washington's program to the state of California's Cap-and-Trade Program. As such, PG&E welcomes this opportunity to engage with Washington as it considers the design of its climate policies. Please find below feedback on three key topic areas: 1) Policy and Market Design, 2) Market Linkage, and 3) Leakage. This feedback draws on PG&E's experience with California's cap-and-trade program.

Policy and Market Design

There are a number of fundamental design considerations in formulating successful policies and markets for reducing GHG emissions while achieving cost-containment. The California Air Resources Board (CARB) – the California state agency that regulates greenhouse gases (GHGs) – convened an Emissions Market Assessment Committee (EMAC) comprised of economists to get expert analysis and advice on cap-and-trade market design, operation, and monitoring. Many of the key market design considerations of California's program were addressed through the EMAC forum and referenced on the EMAC website, including holding limits, price containment, an allowance price ceiling, resource shuffling, linkage with other markets, and information sharing. Many of these issues are still being discussed today in other forums. While it was active, PG&E found this structure very helpful and would recommend a similar committee be implemented by Washington to provide external analysis and guidance in initial and ongoing policy and market design.

Market Linkage

A *full linkage* between the carbon markets of two jurisdictions refers to when compliance instruments originating from each jurisdiction are interchangeable with one another for meeting compliance obligations. A broad body of research indicates that fully linked markets can result in several key benefits including allowance price stability, leakage prevention, and least-cost pathways to emissions reductions across the linked jurisdictions. As such, PG&E supports full linkages of California's carbon market with other emissions trading markets. If Washington developed a regulation that enables full linkage with other jurisdictions, it could enhance program outcomes (cost-containment, least-cost emissions reductions, minimize leakage, etc.) both for the state of Washington and for other jurisdictions with carbon markets.

Leakage

Regulations for California's Cap-and-Trade program were designed to minimize leakage, including 'resource shuffling', a specific form of leakage of electricity imports. Background information is summarized in the Environmental Defense Fund (EDF) publication, [California: An Emissions Trading Case Study](#), and additional information on the current status of leakage in California's program is discussed throughout CARB's [First Update to the Climate Change Scoping Plan](#). CARB continues to monitor and assess leakage and to evaluate amendments to regulations. However, the ideal solution to the issue of leakage is full linkage to carbon markets that incorporate all trading partners. As such, a carbon market implemented in Washington that is fully linked with California and Province of Québec, Canada, would solve leakage concerns between the three jurisdictions. Additionally, broad linkage with multiple states, such as under the USEPA Clean Power Plan, would provide further leakage protection across a broader geographic region in the future. PG&E supports fully linking with other carbon markets to address leakage. Absent the ability to fully link Washington's carbon market with other jurisdictions, a variety of compensating measures to prevent leakage must be carefully evaluated.

PG&E thanks the State of Washington for providing the opportunity to submit comments on its proposed Clean Air Rule. We look forward to continued cross-border engagement on the critically important issue of climate change.

Sincerely,

/s/

Nathan Bengtsson

Cc: Richard Corey, Executive Director, CARB (Richard.corey@arb.ca.gov)
Craig Segall, Senior Staff Counsel, CARB (craig.segall@arb.ca.gov)
Mark Krausse, Senior Director, PG&E (MCKd@pge.com)

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July 21, 2016

Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia, WA 98504-7600

Clean Air Rule Comments

Thank you for the opportunity to comment on the proposed Clean Air Rule. The Port of Moses Lake (POML) a port district formed under the laws of the State of Washington for the primary purpose of promoting economic development has for the past few decades focused primarily on the recruitment of clean tech industries. Our electric power produced in Grant County is from over 77% renewable sources and is among the most affordable in the nation regardless of source. This has led to Grant County becoming the preferred location for companies like BMW, who produces carbon fiber for electric cars, and REC Silicon, which produces polysilicon as the fundamental foundation of photovoltaic solar power. In addition to these particular businesses we are the preferred location for numerous other clean tech companies. We also play a significant role in the testing of alternative aviation fuels and innovations designed to increase fuel efficiency in large scale aerospace operations. These sectors continue to be the corner stone of our recruitment efforts to improve the economy of Grant County and all of Washington State. To that end we have evaluated the proposed rule primarily from the perspective of the potential effect on the recruitment of new clean tech industries to the State of Washington and the impact of the rule on our existing clean tech cluster.

Based on our review of the proposed Clean Air Rule, and with the focus of the rule on only Scope 1 emissions from regulated facilities, POML believes that it does not fully consider the potential value chain benefits that new high-tech or clean-tech businesses may bring. We request Ecology's consideration of adding a life cycle analysis (LCA) test to the EITE provisions of the rule.

Specifically, we believe that an existing EITE facility could be evaluated on an LCA basis. We also assume the EITE efficiency standards will ultimately be used by Ecology to determine the greenhouse gases (GHG) emissions performance that will be required of new businesses drawing ERUs from the Reserve.

We thus request that an LCA test be added to the EITE section of the rule. Businesses that conduct an LCA test in accordance with ISO 14064, GHG Protocol Value Chain (Scope 3) Standard, GHG Protocol Product Life Cycle Standard, or similar publicly available standard, and which can thus demonstrate that existing emissions within the State of Washington would be reduced based on production from the new facility, would be eligible for reduced ERU compliance obligation. Such

from the new facility, would be eligible for reduced ERU compliance obligation. Such analyses would require 3rd party validation or verification by qualified experts in accordance with ISO 14064-2.

From a more general perspective it is the Port of Moses Lake's position that the rule has not yet been sufficiently vetted for externalities and unintended consequences. Based on our limited review, we don't see a likely path to adoption without considerably more public input, based on the very important details that are yet to be determined. While we recognize that fundamentally the rule is intended to be new-business friendly, and includes provisions that should minimize the complications for businesses moving in to Washington, we question the extent the economic development community played in the formation of the rule -- specifically as it pertains to the recruitment of new clean tech companies.

As the rule is currently designed, the primary obligation for new businesses locating in Washington would be to meet best in class energy efficiency and GHG emissions performance. While it would be convenient for clean tech industries to receive a categorical exemption due to the self-evident reduction of GHG enabled by the sector -- we find our clients prefer to prove they are making a difference. However, all cost is relevant, especially to clean tech companies that have enormous barriers to market entry, and the system designed to substantiate the value of the facility in the overall reduction greenhouse gases should not be a burden to the company nor a deterrent to successfully recruiting the industry to Washington State. We recommend critical examination on the final Reserve provisions (regarding details intended to ensure new businesses can practically locate in the state) and EITE provisions (in particular, making sure the numbers work to where the most efficient businesses are not forced to forever remain in front of the curve, versus having the least efficient businesses catch up).

Finally, as in all things, support and incentives are always more productive from a business recruitment perspective. Innovation, cooperation and results are not mutually exclusive -- if we want to be the vanguard we should do it by having more clean tech than anyone else in the world. That will only happen if the clean tech business model works better in Washington State than anywhere else.

Regards,



Jeffrey Bishop

Executive Director

Port of Moses Lake, Washington

From PT AirWatchers, PO Box 1653, Port Townsend WA 98368

Date 2016 July 22

Re Ecology's Proposed CO2 Reduction Plan

To WA Department of Ecology and whom it may concern:

Following are my and PT AirWatchers' comments on Ecology's proposed Carbon Dioxide Emissions Reduction Plan, comment period for which closes at midnight, 2016 July 22.

I thank you for taking the time to develop a program to reduce carbon dioxide emissions, and for the opportunity for the public to guide the process.

First, an already recorded comment, about the process:

Ecology held two recent in-person public hearings and two online webinars, all much appreciated. The choice of online platform had enough technical issues to exclude much of the public: it needed fairly recent operating systems, newer than many of us have, and even once on, we could discern that others attending the webinar were also experiencing difficulties that precluded asking questions or giving testimony.

Challenges such as that unjustly serve to exclude the public and should be remedied to ensure that the widest amount of the public can actively participate.

Now, onto content-related comments.

CO2e emission reductions are sorely needed, and needed quickly. If not for all of the exemptions, this plan would be a start toward those reductions. In any case, I would recommend steps such as:

- Increase the percentage reduction. Without the exemptions and rolled into the program at the start might reduce one facility's emissions by 10% over the span of the program. However, the benefit is rendered almost to nil not only by legislative exemptions and considerations like those for so-called "biogenic" fuels and the EITE considerations, but also by rolling facilities in later in the program or for smaller facilities, not at all.

To make up for that, the percentage should be raised; ways to compensate for reductions lost due to the biogenic exclusions should be found; ways to impel CO2e reductions by smaller facilities should be implemented whether in this program or another.

(The falsehood of arguments for excluding so-called "biogenic" CO2e emissions is well established in science and won't be argued here. If needed, I and others will provide supporting documentation.)

- Unfortunately between exemptions, cap-and-trade and other alternatives to reduce the reduction commitments, it is hard to fathom that much actual reduction in CO2 emissions will occur. I will welcome being proven wrong on this point, but that's how it appears. Please realign the program to make much larger real-world reductions happen locally to the facility.

A CASE EXAMPLE SHOWING WHERE THE PROGRAM BREAKS DOWN

I did rough calculations on the effect of the proposed plan on emissions from one of WA State's largest CO2e emitters, the Port Townsend Paper Corporation.

They are given exemption after exemption until these reduction targets are meaningless. I recommend that a similar analysis be done on all other facilities in WA, using the actual ("biogenic" plus "non-biogenic") CO2e emissions.

I am not necessarily blaming Ecology for exemptions that are currently out of their control. I would ask Ecology to work to overturn those exemptions (biogenic emissions and EITE specifically), and meanwhile to find ways to make their good efforts to protect our environment pay off with significant real-world environmental benefits.

I recognize that Ecology is somewhat limited in how they can address so-called "biogenic" CO2e emissions since exemptions for these have been worked throughout the statutory system by powerful industry interests.

However, if the plan is not evaluated for how it plays out with ALL real, actual, measurable CO2e emissions counted, then the plan bears little relationship with reality. If "biogenic" emissions are not included in the overall analysis, then any positive reductions in CO2e will be minimal compared to actual measurable CO2e emissions to the point of possibly rendering the program relatively meaningless.

I, along with PT AirWatchers members and supporters, want to encourage a reduction plan, but one that is strong and will make significant reductions in the actual amounts of CO2e emitted, that gains made just on paper will be more destructive to protecting the atmosphere than doing nothing in that it will only serve to hide the lack of action and sources of the problem.

That said, here is my rough analysis of how the plan plays out with respect to Port Townsend Paper Corp.

PTPC emits approximately **600,000** MT CO2e/year - actually, really, measurably.

This is around SIX times the top tier threshold.

- They are "allowed" by statute to exempt 90% of that or 500,000 MT/yr due to fake accounting provided through biogenic CO2e exemptions for a **paper result of 60,000 MT/yr.**

This paper magic puts them in the bottom tier of the 24 major polluters and thus exempts them from enrolling in the program until year 2032.

- Further, considerations given to them due to the EITE designation will allow them to continue emitting unabated at least through year 2032.

The tables below show the resulting reductions for PTPC only taking into account reductions due to the discredited biogenic exclusions.

- The result: By the end of the program, PTPC will only be responsible for a miniscule amount of reduction in CO2 (which could likely be met through trivial measures).

- Even in the best case scenario, by the end of the program, they would still be emitting more than FOUR times the top tier threshold, in actual measurable CO2e emissions.

(continued next page)

Table 1.

Original Annual Emissions	Pct annual reduction
600,000 MTCO2e/yr	1.70%

running total

enrolled in>	Year	reduction for that year	allowable emissions	avoided co2	
	2017	0	600,000	0	
	2018	10,200	589,800	10,200	
	2019	10,027	579,773	30,427	
	2020	9,856	569,917	60,509	
	2021	9,689	560,229	100,281	
	2022	9,524	550,705	149,576	
	2023	9,362	541,343	208,233	
	2024	9,203	532,140	276,093	
	2025	9,046	523,094	353,000	
	2026	8,893	514,201	438,799	
	2027	8,741	505,460	533,339	
	2028	8,593	496,867	636,472	
	2029	8,447	488,420	748,052	
	2030	8,303	480,117	867,935	
	2031	8,162	471,955	995,980	
	2032	8,023	463,932	1,132,049	
	2033	7,887	456,045	1,276,004	
	2034	7,753	448,292	1,427,712	
	2035	7,621	440,671	1,435,333	<=Grand total avoided CO2e emissions
			9,812,959	<=Grand total CO2e emitted during program years	

Table 2. Conclusion. Comparing Tables 1 and 3.

Above= if ALL actual CO2e is counted and PTPC enrolls at beginning

Conclusion:		Emitted:	Avoided:
MT CO2e from PTPC over span of program:		11.4	
as proposed in plan		Million	4 thousand
including <u>all</u> CO2 and starting in 2017 as they should		9.8	1.4 Million
		Million	

Below=as in plan, counting only "non-biogenic" CO2e and PTPC enrolls in 2032

Table 3.

Below=as in plan, counting only "non-biogenic" CO2e and PTPC enrolls in 2032

Annual Emissions-
actual>

600,000

Exempting "biogenic" MTCO2e/y	Pct annual reduction	Year	reduction for that year	allowable "non-biogenic"	total actual emissions	running total avoided co2
60,000	1.70%	2017	0	60,000	600,000	0
		2018	0	60,000	600,000	0
		2019	0	60,000	600,000	0
		2020	0	60,000	600,000	0

enrolled
in>

2021	0	60,000	600,000	0	
2022	0	60,000	600,000	0	
2023	0	60,000	600,000	0	
2024	0	60,000	600,000	0	
2025	0	60,000	600,000	0	
2026	0	60,000	600,000	0	
2027	0	60,000	600,000	0	
2028	0	60,000	600,000	0	
2029	0	60,000	600,000	0	
2030	0	60,000	600,000	0	
2031	0	60,000	600,000	0	
2032	0	60,000	600,000	0	
2033	1,020	58,980	598,980	1,020	
2034	1,003	57,977	598,997	3,043	
2035	986	56,992	599,014	4,028	<=Grand total avoided CO2e emissions
		1,133,949	<=total "non-biogenic" CO2e emissions		
			11,396,992	<=Grand total CO2e emitted during program years	

• PTPC will not have to actually make even those paltry reductions because they will be allowed to offset them via a range of reductions:

- "good works" (which is how they've played for decades), buying and selling ERUs which means any possible reductions will be elsewhere.

- In their biomass power generation plan a few years ago, the parent of their parent company was setting up a structure whereby one arm would create ERUs and PTPC would feed benefits back to the parent of the parent. I can see similar happening and it should be guarded against.

Imminent projects by PTPC

• Imminent reductions at PTPC due to a proposed replacement of one of their aging boilers with a modern efficient CNG while efficient, will only decrease the overall CO2 emissions by about 1%. That should not count toward their already paltry program requirements. (Not arguing other considerations of the change, pitting merits of much needed newer efficient equipment versus support of the fracking industry. CO2 only in this discussion.)

THEREFORE

Ecology should go back, take into account the extremely low measures that are being asked of facilities such as PTPC and re-engineer this program to require REAL, SIGNIFICANT REDUCTIONS in their ACTUAL CO2E EMISSIONS.

Cap-and-Trade, ERUs

See comment above about how PTPC earlier was aiming to game the trade in energy credits. This is a hazard of these schemes and seriously weakens any reduction program.

• If ERUs and similar trading/credits are allowed,

-they should be limited to a very small percentage of the facility's reduction quota

-they should be required to afford measurable reductions in the real world within a certain geographical distance of the facility.

- the rule has conflicting language about when operations slow-downs do or don't create "banking" possibilities. As formulated it would seem to grant PTPC (for instance) opportunities to bank credits for seasonal or strategic operations slow-downs or simply times of slow business. That should be guarded against in the plan.

-there should be sanctions for playing the system.

In other areas -

CO2 emissions by military operations

In recent years, the military has dramatically increased its activities throughout WA State, including numerous training exercises and flights of newer much larger aircraft. These emit significant amounts of CO2e into the atmosphere (along with other environmental impacts that should be mitigated).

Ecology should develop a plan to limit and require reductions in CO2 emissions.

My understanding so far is that:

- Fed law covers the military. Largely, although it seems that Ecology should have some avenues of jurisdiction to protect our WA State environment.

- It's tough to include "end users" like cars and trucks because Ecy only has jurisdiction over emissions if the individual end user would trigger the treshold and/or the user operates wholly within WA State.

- Which is why they are focusing on producers of CO2e emitting substances, like jet fuel, to make reductions there. (This is another situation where misguided application of "biogenic" exclusions will render reduction targets toothless, so should not be allowed.)

- there might be room to require reductions at the user level if the user operates wholly within WA State. The military conducts these exercises and all of its operations as an entity and these operations take place almost wholly within the state.

Therefore, while individual end-user levels might be below the threshold for inclusion in this plan, aggregated emissions by sources such as these collective military operations, should merit strong CO2e reduction goals.

Ecology should do the calculations on the aggregated CO2e impact of the military's upsurging exercises, and require reductions of them. Significant reductions, too, without the exemptions and trading that is proposed.

Again, I appreciate Ecology's goals of reducing CO2e emissions. I thank those I've spoken with now and over the years for fruitful conversations and their willingness to assist the public in meaningful engagement with the agency and the process.

My hope is that real and critically needed strides in reducing CO2e emissions are made and that Ecology arrives quickly with a program soundly based in real-world science that makes those reductions a reality.

Thank you for your attention,
Gretchen Brewer
Director, PT AirWatchers
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Clean healthy air for everyone, everywhere, all the time.

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July 22, 2016

AQComments@ecy.wa.gov

Mr. Stuart Clark
Air Quality Program Manager
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Re: Comment on Clean Air Rule

Dear Mr. Clark:

Our state faces a stark choice on climate change. We could listen to those suggesting we pat ourselves on the back for the good things already in place and say we've done enough. But coming generations will not judge us by how we did in comparison to our neighbors or our fellow states. Those who follow us will ask "Did you defend our future? Did you do what you could with the tools you had, even if they were imperfect?"

The Clean Air Rule is one way where we can say "We did" and we fully support Ecology's objective to reduce greenhouse gas (GHG) emissions with this rule.

In our Agency's strategic plan, our Board of Directors adopted the state's GHG emission "limits" to reduce greenhouse gas emissions in 2020 to 1990 levels, and further drop those levels 25% by 2035. Our strategic plan challenges us to focus on emissions from transportation sources, the greatest contributors to our region's GHG emissions. The proposed rule is a vital, necessary step to ensure the entire state makes progress towards achieving its GHG goals.

As part of working toward that goal, we urge Ecology to take steps to ensure the rule fairly addresses the needs of communities most affected by climate change. In particular, as part of implementation and ongoing work, we encourage the agency to review how the rule is addressing issues of equity and environmental justice and make adjustments as needed.

Our comments focus on details which we believe will be important to support the successful implementation of the rule. As you know, our Agency delivers numerous regulatory programs which overlap with programs and regulations developed by Ecology.

[WAC 173-442-030 \(4\)](#)

The proposed rule identifies an obligation on covered parties to "reevaluate" whether this chapter applies. Specifically, it states "Whenever there is any change that affects covered GHG emissions, a covered party must reevaluate whether this chapter applies. Changes include, but are not limited to... (b) Process modifications... (f) Addition of equipment; (g) Source expansion."

Much of this language is similar to terms used to identify modifications which trigger PSD/NOC review for stationary sources. As a contrast, agencies reviewing these new/modified source preconstruction applications are required to determine that the proposed project satisfies several criteria, to include "...emission standards adopted under chapter 70.94 RCW" [see WAC 173-400-113 (1)].

We recommend clarifying, either through rule language or in the response to comments, the connection and implementation between the proposed "reevaluate" provisions and any existing preconstruction permitting review requirement.

WAC 173-442-150

We suggest clarification, perhaps in a new 173-442-150 (3), that Ecology will update 173-442-160 as new project types (meeting the criteria for activities and programs generating ERUs) become available in Washington.

WAC 173-442-160

We support the rule's proposed ability to generate ERUs from reductions in the transportation sector. Reductions in emissions from transportation activities, particularly from diesel vehicles, will provide air quality co-benefits for hundreds of thousands of people in the near-term, especially those populations living near highways and truck routes.

We also support the rule's proposed framework that encourages emission reductions across multiple sectors, and ensures that the benefits are shared. The sectors described in 173-442-160 also emit criteria and hazardous air pollutants. These criteria and hazardous air pollutants impact public health across the central Puget Sound region and the state, contributing to respiratory and cardiac diseases, cancer, and even premature death. Reductions in these pollutants will improve public health in the near-term.

WAC 173-442-210

The proposed rule in section (6)(b) allows for Ecology to "deny a compliance report..." It is unclear what this means and what the implications are. Please clarify in the rule if denial of a compliance report is subject to enforcement action and what options exist, if any, for a covered party to provide the additional information, the third-party verification, or any other information that would allow Ecology to later accept an updated compliance report.

WAC 173-442-210 and -320

We suggest that the rule include a mechanism to track and review the effects (if any) of the program, including of ERUs, on criteria air pollutant emissions and the locations of those emissions. Ideally, this information would be available to be considered by both Ecology and the Environmental Justice Advisory Committee as it distributes ERUs from the reserve. One option might be to add to 173-442-210 (3) (a) (i) as follows:

(D) The nature of the activity or program under 173-442-160 (3) through (8) that generated the ERU, for the purpose of enabling ecology to review effects of the program and ERUs, on criteria air pollutant emissions and locations under 173-442-320 (3).

(E) The location in Washington (e.g. street address) where the activity or program took place.

And a new 173-442-320 (3) as follows:

(3) Following ecology's receipt of compliance reports for each compliance period, ecology will review the effects (if any) of the program, including of ERUs, on criteria air pollutant emissions and the locations in Washington of those emissions.

Section -320 would also be retitled "Program reviews" (plural).

An additional possibility might be to add a requirement to WAC 173-441 to report information similar to 173-442-210 (3) (a) (i) (D) and (E) suggested above, for non-ERU GHG reductions made to meet a compliance obligation under this rule.

WAC 173-442-330

We recommend deleting WAC 173-442-330 because in our view it is unnecessary to successfully implement the proposed rule and revises an existing, workable relationship which could help Ecology after regulatory orders have been issued.

- a. The regulatory orders issued by Ecology would not be the only applicable requirements that would need to be identified in air operating permits (AOP). There are other elements of the proposed rule that would also be applicable (e.g. Compliance Report in 173-442-210). Our Agency has been including WAC 173-441 (Reporting of Emissions of Greenhouse Gases) as a "state only" requirement in the reporting section of renewed AOP documents. This recognizes that the reports must be submitted to Ecology. WAC 173-441 is a foundational element of the proposed program.
- b. This section also implies that the "covered party" applicability for stationary sources would only apply to AOP sources. This may be inaccurate, as the list of "potentially eligible parties" identified by Ecology included Joint Base Lewis McChord (JBLM). JBLM is currently a synthetic minor source regulated under our Agency's registration program.
- c. We support the program structure proposed which would have Ecology establishing the required emission reduction for each covered party and approving the specific elements which may be used to comply with that order. We believe that would provide the necessary consistency within the program to help it be successful. This would be similar to the role Ecology has in being the sole reviewer and approval authority for PSD permits.
- d. We do not agree with the language proposed in WAC 173-442-330 (4) which would reserve implementation and enforcement of the regulatory order solely to Ecology. We have taken enforcement actions on PSD permit condition violations, even though Ecology is the only authority which may issue those permits. When clarification or consultation is necessary to make a compliance/enforcement decision, our two agencies have a history of cooperative engagement. Reserving this authority for Ecology is unnecessary to successfully implement this program. This proposal may also contradict the Title V rules and the delegated approval of our program by EPA (see language in WAC 173-401-400 - Delegation) and might require amendment of the terms of the approved Title V program agreement.

WAC 173-442-340 (1)-(3)

This section is very specific about enforcement and violations. The language in subsection (1) says "a violation of any requirement of this chapter subjects the covered party to enforcement." Subsections (2) and (3) identify very specific terms regarding enforcement actions. These are not the only possible violations

which could occur, and this section could inadvertently imply that the absence of a specified violation statement here means that other violations are not subject to enforcement.

We recommend inserting an introductory sentence as Subsection (2) which states "Enforcement actions under this chapter includes, but is not limited to the following:" and making the proposed subsections (2) and (3) of this section subparagraphs (a) and (b) under this qualifying statement.

WAC 173-442-340 (4)

The reservation for the enforcement of this rule to Ecology may contradict the Title V rules and the delegated approval of our program by EPA (see comments above regarding 173-442-330). It would eliminate the opportunity for Ecology to have partnership support to ensure covered parties which are also stationary sources comply with the regulatory orders issued.

We recommend deleting WAC 173-442-340 (4). It is unnecessary to successfully implement the proposed rule and revises an existing, workable relationship which could help Ecology after the order had been issued.

WAC 173-442-360

The proposed rule lists two options for submitting reports, U.S. mail and email. Also in WAC 173-442-210(8)(b), the proposed rule would require that ecology "deem a report submitted electronically to be validly signed when accompanied by a digital signature that meets the requirements designated by ecology."

We recommend allowing other options for submissions, including delivery services and hand delivery to the Ecology office. We also recommend clarifying whether the requirement for a valid digital signature applies to compliance reports only, or to other email submissions as well.

Program Funding

We appreciate the level of effort expended to date to develop and propose these regulations. Once they are final, there will be a significant amount of work anticipated to implement the program. We support efforts to find funding that will cover the actual costs to successfully implement this program. Ecology will also need resources to provide guidance and documents for affected parties to navigate compliance with these rules.

We recommend that following completion of the rulemaking, Ecology identify the appropriate mechanisms and pathways to fund the work. We recommend that source of funding be annual and recurring in nature, similar to workload based funding for registration and operating permit fees.

Again, we appreciate the opportunity to comment on these proposals and recognize the tremendous amount of work you and your staff have put into this effort. Please do not hesitate to contact me if you have any questions about these comments, and thank you for your efforts to take action on this vital issue.

Sincerely,



Craig Kenworthy
Executive Director

jwc

Proposed Clean Air Rule (Chapter 173-442 WAC)

Washington Department of Ecology

Comments by Puget Sound Energy

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Section 1: Introduction

I. SUMMARY OF RULE

On May 31, 2016, the Washington Department of Ecology (“Ecology”) proposed a revised draft Clean Air Rule (“CAR”) to reduce greenhouse gas (“GHG”) emissions within the State of Washington.¹ Ecology issued CAR pursuant to a directive from Washington Governor Jay Inslee directing Ecology to promulgate regulations to achieve the state’s statutory GHG emission reduction goals.² Specifically, Washington has committed to reducing state GHG emissions to 1990 levels by 2020; 25 percent below 1990 levels by 2035; and 50 percent below 1990 levels by 2050.³

The proposed CAR applies to certain sources that meet prescribed GHG emissions thresholds, including (1) stationary sources (e.g., electric power generators, landfill and waste operators, chemical and material manufacturers, etc.) located in Washington; (2) petroleum product producers located in or importing to Washington; and (3) natural gas distributors located in Washington.⁴ Additionally, sources that fall below the applicable GHG emissions threshold may choose to participate voluntarily in the program.⁵ The threshold for the first compliance period, from 2017 to 2019, is 100,000 million metric tons of carbon dioxide equivalent per year (“MtCO_{2e}/year”).⁶ Starting in 2020, the threshold is reduced every three years until reaching 70,000 MtCO_{2e}/year in 2035.⁷ Once a source exceeds the emissions threshold, the source is subject to CAR and must comply thereafter. However, a source may be eligible to exit the program if its GHG emissions fall below 50,000 MtCO_{2e} for three consecutive years.⁸

Due to economic concerns about CAR’s impact on entities that participate in global markets, Ecology has designated some sources as “energy-intensive, trade-exposed industries” (“EITEs”). EITEs include pulp and paper mills, aluminum, chemical, steel, and cement facilities, and other manufacturers.⁹ EITEs, as well as petroleum product importers, are given an additional three years (i.e., until the second compliance period beginning in

¹ See Proposed Wash. Admin. Code (“WAC”) 173-442 (May 31, 2016).

² See Washington Governor Jay Inslee, Inslee Directing Ecology to Develop Regulatory Cap on Carbon Emissions (July 28, 2015), <http://www.governor.wa.gov/news-media/inslee-directing-ecology-develop-regulatory-cap-carbon-emissions> (last visited July 17, 2016) (“July 2015 Directive”).

³ Rev. Code. of Wash. (“RCW”) 70.235.020(1)(a)(i)-(iii).

⁴ Proposed WAC 173-442-010. Notably, CAR exempts Washington’s only coal-fired power plant, the Centralia Power Plant (“Centralia”). See Proposed WAC 173-442-040(1)(d).

⁵ Proposed WAC 173-442-030(6).

⁶ Proposed WAC 173-442-030(3).

⁷ *Id.*

⁸ Proposed WAC 173-442-030(5).

⁹ Proposed WAC 173-442-020(1)(l).

2020) before CAR would apply to them.¹⁰ EITE covered parties also are offered an alternative, and potentially less stringent, compliance pathway that entails efficiency-based, rather than massed-based, GHG emission reduction targets.¹¹ Non-EITE covered parties, on the other hand, must reduce their emissions by 1.7 percent from their baseline GHG emissions each year until 2035.¹²

If a covered party has attributed emissions above its emission reduction pathway level, the party must acquire emission reduction units (“ERUs”) from other sources equal to the emissions in excess of its pathway level.¹³ An ERU represents one MtCO₂e/year.¹⁴ The ERUs can be generated by (i) other affected sources that reduce emissions below their emission reduction pathway level;¹⁵ (ii) acquiring allowances from other states or provinces that have established, multi-sector GHG programs (such as the California Air Resources Board (“CARB”) cap-and-trade program);¹⁶ or (iii) a limited list of activities that reduce or abate GHG emissions in Washington.¹⁷ At the end of each three-year compliance period, covered parties must submit a compliance report to Ecology.¹⁸ The compliance report must contain: (1) a record of ERUs generated; (2) a record of ERUs banked; (3) a record of ERU transactions; and (4) documentation that a third-party verified the compliance report.¹⁹ Ecology plans to develop a registry to track ERUs.²⁰ Ecology also proposes to create an ERU reserve to encourage economic growth and support environmental justice.²¹

Ecology estimates that the proposed CAR will cost between \$1.4 billion to \$2.8 billion over 20 years.²² Ecology assumes that covered parties will be able to directly reduce their emissions at a marginal cost of \$23 to \$57 per ERU.²³ Ecology projects that covered parties also will have the option of reducing emissions through projects at a marginal cost

¹⁰ Proposed WAC 173-442-030(2).

¹¹ Proposed WAC 173-442-070.

¹² Proposed WAC 173-442-060(1)(b).

¹³ See Proposed WAC 173-442-100.

¹⁴ Proposed WAC 173-442-020(1)(m).

¹⁵ Proposed WAC 173-442-110(1).

¹⁶ Proposed WAC 173-442-110(3); Proposed WAC 173-114-170.

¹⁷ Proposed WAC 173-442-110(2); Proposed WAC 173-442-160; Proposed WAC 173-442-150.

¹⁸ Proposed WAC 173-442-210.

¹⁹ *Id.*

²⁰ Proposed WAC 173-442-230.

²¹ See Proposed WAC 173-442-240.

²² Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis, Chapter 173-442 WAC Clean Air Rule, at vi (June 2016) (“Cost-Benefit Analysis”).

²³ *Id.* at 14.

of \$5 to \$29 per ERU and/or obtaining allowances or renewable energy credits (“RECs”) at a marginal cost of \$3 to \$14 per ERU.²⁴

II. COMPANY BACKGROUND

Puget Sound Energy (“PSE”) is Washington’s oldest and largest local energy company providing both electric and natural gas service to its customers. PSE serves approximately 1.1 million electric customers and 790,000 natural gas customers. PSE is located primarily in the central Puget Sound, but stretches from the Canadian border south to Lewis County, and from Kitsap and Thurston Counties east to Kittitas County. PSE strives to provide safe, dependable, and efficient energy service.

PSE has a varied electric resource mix. In 2013, 54.6 percent of PSE’s electric supply was PSE-owned, and the remainder was from market purchases. Of PSE-owned resources, there are nine natural gas electric generating facilities spread across Washington. PSE also holds partial ownership of the Colstrip coal electric generating facility (“Colstrip”) in Montana; two hydroelectric generating facilities that can produce 254 Megawatts (“MW”) of electricity; and three wind farms with a total capacity of 773 MW. The American Wind Energy Association recognizes PSE as the second-largest utility owner of wind energy in the United States.

As a leader in the Northwest, PSE works hard with its customers to promote and implement energy efficiency programs. In 2013 alone, PSE’s energy-efficiency programs saved enough electricity to power more than 25,000 homes and enough natural gas to heat more than 6,000 homes. Since 1979, no other Northwest utility has helped its customers save more energy than PSE. PSE’s energy-efficiency programs have helped PSE customers conserve nearly 5 billion kilowatt-hours (“kWhs”) of electricity and almost 50 million therms of natural gas.

PSE has stepped up to support its customers in pursuing low- or no-carbon energy options, such as solar, wind, and anaerobic digesters. PSE participates in Washington’s renewable energy system cost recovery program. Through this program, PSE assists more than 4,500 customers in installing renewable energy systems. PSE also runs a Green Power Program, with more than 45,000 current customers. In 2013, the program purchased more than 380 kWhs of renewable power. The program’s resources include wind, landfill gas, low-impact hydro, livestock methane, and solar.

PSE has an obligation to serve all of its customers and must remember that price matters to its customers. PSE must recognize that the economic resources of its customers differ across PSE’s service area. Based on 2014 statistics, approximately 20 percent of PSE’s customers would fall below 150 percent of the poverty level for a family of three. For these lower-income customers, electricity and natural gas price increases have disproportionate impacts. PSE must account for this fact in long-term planning.

²⁴ *Id.* at 14–15.

III. OVERVIEW OF PSE COMMENTS

PSE agrees with Ecology that climate change is an important environmental problem that needs to be addressed. However, PSE believes that CAR, as structured, is beyond the scope of Ecology's legal authority. Further, Ecology's cost assumptions—especially those concerning future ERU prices—are poorly grounded and inaccurate. If implemented as proposed, CAR would harm Washington citizens and businesses without achieving real climate benefits.

PSE urges Ecology to continue working on this rule. CAR is not ready to be implemented and requires more technical analysis and legal and policy consideration. In particular, the rule suffers from several critical core flaws with respect to the electric and gas utility sectors:

CAR Will Increase Net Regional Emissions from the Electric Power Sector. As proposed, CAR will cause increased GHG emissions in the electric power sector on a regional basis. Washington's electric power sector is not an island: it is connected to the electric power sectors of other western U.S. states and Canadian provinces (which comprise a power grid known as the Western Interconnection). Electric power prices are very competitive throughout this region. Reduced electric generation in Washington as a result of CAR will be more than offset by increased generation in other parts of the Western Interconnection. While Washington's GHG emissions may decline, emissions in other parts of the region will rise. The net result will be a regional increase in GHG emissions from the electric power sector.²⁵ This is a serious unintended consequence from CAR that Ecology must address before finalizing the rule.

CAR Will Lead to Unacceptable Rate Increases for Washington's Gas Utility Customers. As proposed, CAR creates a significant risk for unacceptable rate increases for gas utility customers. Natural gas local distribution companies ("LDCs") have limited options for reducing GHG emissions and will need to rely on purchasing ERUs to comply with CAR. Washington's current REC market cannot meet future demand for ERUs.²⁶ It is uncertain where the additional ERUs will come from (or at what cost): Ecology has developed no information, nor provided any analysis, to show that ERUs will be available from other sources in sufficient quantities or at reasonable prices. Ecology's assumptions about the availability of external market allowances (e.g., from the CARB market) and in-state offset credits are purely speculative. While ERU markets may develop over time, currently no such market exists. CAR requirements begin as early as 2017—before an ERU market can develop and any supply or price projections can be made. This means

²⁵ See Figure 2 (Reproduced as Appendix E); see also Appendix F ("CO₂ Offset Price Scenarios").

²⁶ For instance, PSE's limited surplus RECs under the Washington Energy Independence Act ("EIA") will be depleted by the end of 2018. Generating ERUs from future surplus RECs will cost upwards of \$107/ERU, making RECs an extremely costly, and thus poor, compliance option.

that LDCs face uncertain, and potentially significant, compliance costs. Customers ultimately would bear these costs in the form of higher natural gas rates.

As the largest dual electric power and gas utility in Washington, PSE faces especially profound effects from CAR. The uncertainty of the ERU market, in particular, could cause significant issues for PSE's customers. Accordingly, PSE respectfully submits the following comments on legal, implementation, and policy concerns with the proposed CAR. Should Ecology proceed with finalizing CAR, PSE offers several recommended changes to the rule.

Section 2: Legal Comments

I. CAR VIOLATES WASHINGTON STATE LAW

i. Ecology lacks the statutory authority to promulgate CAR

As a Washington state agency, Ecology has only the authority granted to it by the state legislature.²⁷ Under the Washington Administrative Procedure Act (“APA”), an agency rule is invalid if it “exceeds the statutory authority of the agency.”²⁸ The state legislature has prohibited Ecology from adopting rules “that are based solely on a section of law stating a statute’s intent or purpose, on the enabling provisions of the statute establishing the agency, or any combination of such provisions, for statutory authority to adopt the rule.”²⁹ Ecology requires *express legislative authority* to adopt a rule like CAR. There is no such authority in any Washington statute.

Ecology has cited two statutory sources of its authority to promulgate CAR: (1) RCW 70.235 (state GHG emission reduction targets); and (2) RCW 70.94 (state Clean Air Act (“WA CAA” or the “Act”)).³⁰ Neither statute authorizes Ecology to establish a new GHG emission regulatory program.

RCW 70.235 grants Ecology authority only to “*submit a greenhouse gas reduction plan for review and approval to the legislature*[.]”³¹ An earlier proposed version of this provision would have expressly given Ecology authority to “*develop and implement a program*” to limit statewide GHG emissions.³² That language was not adopted in the final version of RCW 70.235.020. The legislature consciously deprived Ecology of the authority to adopt a rule like CAR that would establish a GHG emission reduction program; instead,

²⁷ See RCW 43.17.010 (“There shall be departments of the state government . . . which shall be charged with the execution, enforcement, and administration of such laws, and invested with such powers and required to perform such duties, *as the legislature may provide.*”) (emphasis added); *Fahn v. Cowlitz Cty.*, 93 Wash. 2d 368, 374, 610 P.2d 857 (1980) (An “administrative agency is limited to the powers and authority *granted to it by the legislature.*”) (emphasis added) (citing *Water Power Co. v. State Human Rights Comm’n*, 91 Wash. 2d 62, 65, 586 P.2d 1149 (1978); *Cole v. State Util. & Transp. Comm’n*, 79 Wash. 2d 302, 485 P.2d 71 (1971)).

²⁸ RCW 34.05.570(2)(c).

²⁹ RCW 43.21A.080.

³⁰ See Proposed rule CR-102, Wash. State Register (“WSR”) 16-12-098 (May 31, 2016).

³¹ RCW 70.235.020(1)(b) (emphasis added). This plan must “describ[e] those actions necessary to achieve the [statutory state emission reduction targets][.]” The statute further requires Ecology to (i) develop and implement a system for monitoring and reporting GHG emissions; and (ii) track and report on progress toward meeting the emission reduction goals from both current and future policies. RCW 70.235.020(1)(d). None of these statutory mandates authorizes Ecology to establish a program to reduce GHG emissions.

³² H.B. 2815, 60th Legislature § 3(1)(a) (2008) (“The department shall *develop and implement a program* to limit greenhouse gases emissions to achieve the following emissions reductions for Washington state[.]”) (emphasis added).

all the legislature granted to Ecology was the authority to submit GHG reduction plans to the legislature for review and approval.³³

RCW 70.94 does not give Ecology authority to develop and implement a GHG emission reduction trading program based on ERUs. As discussed below in Section 5, Part V(i), Ecology has no authority under the WA CAA to create the ERU, which would represent a new class of emissions credit under the Act. Even if Ecology may have general legal authority to adopt CAR, Ecology has no authority to regulate *non-emitting sources* like LDCs under CAR. As discussed in the following section, RCW 70.94 authorizes Ecology to adopt “emission standards” only for *emitting sources*.

ii. CAR violates the Washington Administrative Procedure Act and Clean Air Act by imposing emission standards on *non-emitting sources*

CAR’s emission standards as applied to LDCs violate the APA and WA CAA because they exceed the scope of Ecology’s authority under the WA CAA. Ecology lacks statutory authority to impose limitations or constraints on non-emitting sources. Yet, the proposed CAR does precisely this by setting emission standards for LDCs based on *indirect* emissions associated with the end-use of products LDCs sell to third parties.³⁴ While the rule (rightly) provides that LDCs are not accountable for emissions from natural gas sold to other covered parties, like large electric power generators and large industrial facilities, the rule holds LDCs accountable for emissions from natural gas sold to non-covered parties, such as homes, businesses, and small electric power generators and small industrial facilities.³⁵ Ecology seeks to make emissions from *non-covered* parties part of the rule’s *covered* emissions. This would make *non-emitting* parties bear the compliance burden for emissions *they did not emit*. Ecology has no authority to do this.

³³ Ecology did submit such a plan in December 2008, recommending that Washington participate in a regional cap-and-trade program as part of the Western Climate Initiative. The 2009 legislature did not enact the proposal. See Ecology and CTED, *Growing Washington’s Economy in a Carbon-Constrained World: A Comprehensive Plan to Address the Challenges and Opportunities of Climate Change* (Dec. 2008), available at <http://www.ecy.wa.gov/climatechange/2008CompPlan.htm> (“December 2008 Plan”). In late 2014, Governor Inslee proposed the “Carbon Pollution Accountability Act.” See Washington Governor Jay Inslee, 2015 Carbon Pollution Reduction Legislative Proposals, available at <http://www.governor.wa.gov/issues/issues/energy-and-climate/2015-carbon-pollution-reduction-legislative-proposals>. Among other things, the act would have charged emitters for carbon pollution and created a centralized market for trading emissions credits. The 2015 legislature did not enact the proposal. See Washington State Legislature, S.B. 5283/H.B. 1314, available at <http://app.leg.wa.gov/billinfo/summary.aspx?bill=5283&year=2015>. In response to legislative inaction, Governor Inslee issued a directive in July 2015 for Ecology to unilaterally develop a regulatory cap for carbon emissions and develop “substantive emission reductions using existing authority.” See July 2015 Directive.

³⁴ See Proposed WAC 173-442-020(1)(i)(iii) (“Covered [LDC] GHG emissions’ means CO₂ emissions that result from the complete combustion or oxidation” of covered products, including natural gas and natural gas liquids).

³⁵ See Proposed WAC 173-442-050(2)(a).

Under the WA CAA, Ecology is restricted to setting emission standards for sources that are based on emissions *from those sources*.³⁶ State court and agency bodies have clarified that emission standards under the Act are based on emissions *from individual sources*.³⁷ The Act and Ecology's own regulations further establish that the agency can regulate only *emitting* sources: first, the statute defines "source" in terms of "*all of the emissions units including quantifiable fugitive emissions[.]*"³⁸ Ecology's regulations, in turn, define "emissions unit" as "any part of a stationary source [i.e., "any building, structure, facility, or installation that *emits or may emit* any air contaminant"³⁹] or source *which emits or would have the potential to emit* any [regulated] pollutant[.]"⁴⁰ Other provisions of the WA CAA show that the legislature intended to target *emitting* sources.⁴¹ Likewise, Ecology's own regulations show that the agency views its authority as limited to regulating *emitting* sources.⁴² Because LDCs themselves do not "emit or have the potential to emit" the CO₂

³⁶ Section 94.331 of the WA CAA orders Ecology to adopt "emission standards" to control or prohibit certain emissions. Ecology can base these emission standards "upon a system of classification by types of emissions or types of sources of emissions, or combinations thereof[.]" RCW 70.94.331(2)(c). This language implies that "sources" and "emissions" are linked (i.e., that Ecology can regulate in terms of either *emissions (from sources)* or *sources (of emissions)*). It does not give Ecology authority to regulate beyond a "source" (i.e., to regulate emissions on their own, without regard for the source of those emissions). The statute further defines "emission standard" as "a requirement established under [the federal or WA CAA] that limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance *of a source* to assure continuous emissions reduction, and any design, equipment, work practice, or operational standard adopted under the [the federal or WA CAA]." RCW 70.94.030(12) (emphasis added).

³⁷ See *In the Matter of Kaiser Aluminum & Chem. Corp., Tacoma v. Puget Sound Air Pollution Control Agency*, PCHB No. 85-172, 1986 WL 26557, at *3 (Wash. Pol. Control. Bd. Jan. 23, 1986) (characterizing emission standards as "those limitations achievable by existing technology which can be imposed on releases of contaminants *from individual sources*." (emphasis added); see also *ASARCO, Inc. v. Puget Sound Air Pollution Control Agency*, 112 Wash. 2d 314, 320, 771 P.2d 335, 339 (1989) ("[Ecology] . . . must adopt emission standards to control the release of contaminants *from any individual source*." (emphasis added).

³⁸ RCW 70.94.030(22) (emphasis added). The emissions units constituting a "source" also must be "located on one or more contiguous or adjacent properties, and [] under the control of the same person, or persons under common control, whose activities are ancillary to the production of a single product or functionally related group of products." *Id.*

³⁹ RCW 70.94.030(23) (emphasis added).

⁴⁰ WAC 173-400-030(29) (emphasis added).

⁴¹ See, e.g., RCW 70.94.011 ("It is the policy of the state that the costs of protecting the air resource and operating state and local air pollution control programs shall be shared as equitably as possible among all *sources whose emissions cause air pollution*." (emphasis added); RCW 70.94.395 ("If [Ecology] finds . . . that the emissions *from a particular type or class of air contaminant source* should be regulated on a statewide basis in the public interest and for the protection of the welfare of the citizens of the state, it may adopt and enforce rules to control and/or prevent the emission of air contaminants *from such source[.]*" (emphasis added); see also *Longview Fibre Co. v. State, Dep't of Ecology*, 89 Wash. App. 627, 633, 949 P.2d 851, 854 (1998) ("RCW 70.94.395 grants [Ecology] authority to adopt and enforce rules to control and/or prevent the emission of air contaminants *from specific sources of air contaminants*." (emphasis added).

⁴² See, e.g., WAC 173-400-010(1) ("It is the policy of [Ecology] . . . to provide for the systematic control of air pollution *from air contaminant sources[.]*" (emphasis added); WAC 173-400-040(1) ("All *sources and emissions units* are required to meet the emission standards of this chapter." (emphasis added); (WAC 173-400-010(2) ("It is the purpose of this chapter to establish *technically feasible and reasonably attainable*

released from burning natural gas, Ecology cannot set emission standards for LDCs based on these emissions. By doing so, Ecology attempts to expand its regulatory reach *beyond* emitting sources, in order to regulate emissions from uncovered parties. This is outside the scope of Ecology’s statutory authority.

Indeed, the WA CAA appears to give Ecology authority to regulate LDC emissions in only two ways. First, Ecology likely can regulate LDCs for their *direct* emissions (e.g., fugitive emissions from pipeline leaks).⁴³ Direct LDC emissions are limited and represent a very minor percentage of the state’s overall GHG emissions. Second, Ecology can require LDCs to *report on* their indirect GHG emissions.⁴⁴ However, the statute gives Ecology no authority to *impose an emission standard or emission limitation* on LDCs for these indirect emissions.

Furthermore, to the extent CAR regulates end-use emissions from natural gas sales, CAR regulates the *sale of commodity* (i.e., natural gas) and not emissions. LDCs emit nothing by selling natural gas to customers. Thus, CAR, as applied to LDCs, is not an “emission standard” under the WA CAA. While the WA CAA authorizes several programs to regulate sales of commodities, as opposed to emissions,⁴⁵ the Act does not provide any specific statutory grant for natural gas sales. Thus, Ecology has no statutory authority to regulate commodity sales of natural gas.

If Ecology includes LDCs in the final CAR, PSE urges Ecology to set emission baselines and emission reduction requirements for LDCs that are based only on LDCs’ direct emissions. Ecology has no statutory authority to regulate LDCs for indirect end-use emissions, or to regulate commodity sales of natural gas. The agency cannot hold LDCs accountable for what they do not emit.

iii. Ecology violated the Washington State Environmental Policy Act by failing to adequately consider whether CAR has *any* probable significant adverse environmental impacts

Washington’s State Environmental Policy Act (“SEPA”)⁴⁶ requires state agencies to identify and evaluate possible environmental impacts resulting from major government

standards and to establish rules generally applicable to the control and/or prevention of the emission of air contaminants.”) (emphasis added). (If LDCs can only comply with CAR by purchasing ERUs from other entities, the standards arguably are not “technically feasible” or “reasonably attainable.” Indeed, it is difficult to imagine how an emission standard imposed on a non-emitting source ever could be “technically feasible” or “reasonably attainable” for that source.)

⁴³ See RCW 70.94.030(22).

⁴⁴ See RCW 70.94.151(5)(a).

⁴⁵ See, e.g., RCW 70.94.460 (ban on sale of dirty woodstoves); RCW 70.94.980 (ban on sale of certain ozone depleting substances); and RCW 70.94.531 (commute trip reduction plans).

⁴⁶ RCW 43.21C; see WAC 197-11-020, -904, -918.

actions, including significant new rulemakings like CAR.⁴⁷ The purpose of SEPA review is to ensure that agencies fully disclose and carefully consider a proposal's environmental impacts *before* adopting it and "at the earliest possible stage."⁴⁸ Under SEPA review, an agency must make a "threshold determination" of whether the proposal will have a "probable significant adverse environmental impact:"⁴⁹

- If the agency determines that a proposed action has a "probable significant, adverse environmental impact," the agency will issue a determination of significance ("DS"). If the agency issues an DS, it must prepare an environmental impact statement ("EIS").⁵⁰
- If the agency determines that a proposed action will have "no probable significant adverse environmental impacts," the agency will issue a determination of non-significance ("DNS").⁵¹

The agency must base the threshold determination on all "information [that is] reasonably sufficient to evaluate the environmental impact of a proposal."⁵² In general, the threshold for issuing a DS and triggering the EIS requirement is low.⁵³ Importantly, the test is not "whether the beneficial aspects of a proposal outweigh its adverse impacts, but rather . . . whether a proposal has *any probable significant adverse environmental impacts*."⁵⁴ Nonetheless, Ecology determined that adopting CAR did not require an EIS and issued a DNS.⁵⁵ Ecology's DNS is legally and factually deficient because the agency failed to adequately consider several significant possible adverse environmental impacts from CAR:

⁴⁷ WAC 197-11-704(2)(b)(i) (covered SEPA actions include "adoption or amendment of . . . rules, or regulations that contain standards controlling use or modification of the environment"). Ecology concedes that CAR requires SEPA review.

⁴⁸ See *King Cnty. v. Wash. State Boundary Review Bd. for King Cnty.*, 122 Wash. 2d 648, 663-64, 666, 860 P.2d 1024 (1993).

⁴⁹ WAC 197-11-310. An agency must conduct a preliminary environmental analysis, in the form of an environmental checklist, before making a threshold determination. WAC 197-11-315. The agency must tailor the checklist's "scope and level of detail of environmental review" to the proposal. WAC 197-11-228(2)(a).

⁵⁰ RCW 43.21C.031(1); RCW 43.21C.030(2)(c).

⁵¹ WAC 197-11-340(1).

⁵² WAC 197-11-335.

⁵³ See *King County*, 122 Wash. 2d at 663-64 ("[A]n EIS should be prepared when significant adverse impacts on the environment are 'probable', not when they are 'inevitable'") (internal quotations omitted).

⁵⁴ WAC 197-11-330(5) (emphasis added); see *Seeds, Inc. v. State of Washington*, 98 Wash. App. 1022, 1999 WL 1116820, at *5 ("[P]roposals designed to improve the environment, such as . . . pollution control requirements, may also have significant adverse environmental impacts.") (quoting WAC 197-11-330(5)).

⁵⁵ Ecology based this decision on "review of a completed environmental checklist and other information on file with [Ecology.]" Ecology, SEPA Determination of Nonsignificance (May 31, 2016), *available at* <http://www.ecy.wa.gov/programs/air/rules/docs/173442SEPAdns-2.pdf>.

- **CAR will increase regional net emissions from the electric power sector.** Because CAR will impose significant new costs on fossil generating sources in Washington, these sources will move down in the regional dispatch order compared to fossil generating sources located in states with no carbon constraints. This will result in higher regional emissions.⁵⁶ Further, CAR likely will prolong the life and increase utilization of coal-fired units in other states like Montana and Wyoming, as such units will displace more efficient, lower-emitting natural gas combined cycle (“NGCC”) turbines in Washington. If CAR increases coal-fired generation in other states, GHG emissions, as well as emissions of other conventional pollutants, will increase in those states (with potential environmental justice impacts). Ecology cannot ignore these out-of-state impacts. Indeed, GHG emission increases *anywhere* will have impacts inside of Washington’s borders.⁵⁷
- **CAR will drive fuel substitution and increase in-state emissions.** LDCs will need to raise their rates, potentially by a significant amount, to cover the cost of purchasing ERUs to comply with CAR. Those increased costs will drive fuel substitution by LDC gas customers, including increases in the use of wood and electricity for residential heating. As discussed below in Section 4, Part II(i), this fuel-switching will cause emissions to increase. Wood combustion releases higher levels of fine particulate matter and air toxics than burning natural gas for heating. *Indirect* use of natural gas to produce electricity for heating has a higher carbon footprint and higher emissions of other pollutants than *direct* use of natural gas for heating.
- **CAR will discourage emission reductions in the transportation sector.** Many transportation sector emission reductions are possible because of fuel-shifting from petroleum-based fuels to electricity and natural gas-based fuels. As discussed below in Section 4, Part I(ii) and Part II(i), electric vehicles and compressed natural gas (“CNG”) trucks emit fewer GHGs and other conventional pollutants than gasoline or diesel-fueled vehicles. CAR will cause electricity and natural gas rates to go up. As a result, customers will be less likely to invest in certain emission reductions activities in the transportation sector—by far the largest source of in-state GHG emissions.⁵⁸

⁵⁶ See Figure 2 (Reproduced as Appendix E); see also Appendix F (“CO₂ Offset Price Scenarios”).

⁵⁷ The causes of climate change are not confined to state boundaries. See *Native Vill. of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 868 (9th Cir. 2012) (explaining that “global warming has been occurring for hundreds of years and is the result of a vast multitude of emitters worldwide whose emissions mix quickly, stay in the atmosphere for centuries, and, as a result, are undifferentiated in the global atmosphere”). States have a protectable interest in GHG emitted beyond their state boundaries, because such emissions cause injuries within the state. See *Massachusetts v. EPA*, 549 U.S. 497, 519-21 (2007) (recognizing Massachusetts’s injuries caused from global GHG emissions and upholding its standing to sue the EPA for a failure to regulate CO₂ emissions from cars in all states); *Am. Elec. Power Co., Inc. v. Connecticut*, 564 U.S. 410 (2011) (upholding eight states’ standing to sue based on injuries caused by GHG emissions in 20 states).

⁵⁸ See Figure 7 (Reproduced as Appendix T).

- **CAR will artificially drive very expensive energy development projects in Washington at a pace and scale that may not be achievable given costs and siting challenges.** As discussed below in Section 3, Part II, there likely will not be enough ERUs on the market for covered parties to comply with CAR.⁵⁹ This will artificially increase the cost of new renewable energy projects in Washington that will be needed to generate surplus RECs that can be converted into ERUs for CAR compliance, even at the exorbitant cost of \$107/ERU.⁶⁰ SEPA requires Ecology to address the probable impacts of *any future project* that would result from a non-project action like CAR.⁶¹

By failing to consider these possible adverse environmental impacts, Ecology lacked a sound basis for concluding that adopting CAR does not require an EIS. Ecology thus violated its duty to engage in a robust threshold determination process under SEPA.⁶² PSE urges Ecology to undertake a revised SEPA review and make a new threshold determination—and, if necessary, perform an EIS—*before* finalizing this sweeping, far-reaching rule.⁶³

II. CAR VIOLATES THE DORMANT COMMERCE CLAUSE OF THE U.S. CONSTITUTION

The dormant commerce clause is inferred from Article 1 of the U.S. Constitution.⁶⁴ Under the doctrine, state regulations generally are unconstitutional if they (1) discriminate against interstate commerce; (2) regulate extraterritorially; or (3) unduly burden interstate commerce. If a regulation discriminates or regulates extraterritorially, a court will apply the strict scrutiny test and is “virtually”⁶⁵ certain to strike down the law. If a regulation does not discriminate or regulate extraterritorially, but “regulates even-

⁵⁹ Future ERU shortfalls are exacerbated by the fact that the proposed CAR (i) allows only in-state projects and activities to generate offset ERUs (e.g., covered parties cannot invest in established out-of-state projects); (ii) limits the types of in-state projects and activities that can generate offset ERUs (e.g., no in-state forestry projects would qualify); and (iii) limits external allowance purchases over time.

⁶⁰ See Appendix F (“CO₂ Offset Price Scenarios”).

⁶¹ See *Spokane Cnty. v. E. Wash. Growth Mgmt. Hearings Bd.*, 176 Wash. App. 555 (2013); WAC 197-11-060(5)(c)(i), (d). An agency cannot postpone environmental analysis to a later, implementation or project-level proposal stage if the proposal would affect the environment without subsequent implementing action. Richard L. Settle, *The Washington State Environmental Policy Act* §13.01[1], at 13-15 to -16 (1987 & Supp. 2010); see WAC 197-11-060(5)(d)(i)-(ii).

⁶² See WAC 197-11-330.

⁶³ See *King County*, 122 Wash. 2d at 663-64. Preparing an EIS is unlikely to impose a significant burden on Ecology. An EIS could be readily synthesized with CAR’s Cost-Benefit Analysis. Both involve evaluating a proposal’s probable impacts and possible alternatives. Ecology could issue an integrated document combining an EIS with the Cost-Benefit analysis.

⁶⁴ See U.S. Const. art. I, § 8, cl. 3; *Healy v. Beer Inst., Inc.*, 491 U.S. 324, 326 n.1 (1989).

⁶⁵ See *City of Philadelphia v. New Jersey*, 437 U.S. 617, 624 (1978).

handedly” with only “incidental” effects on interstate commerce, a court will apply the less stringent *Pike* balancing test.⁶⁶

A regulation *discriminates* against interstate commerce if it is motivated by economic protectionism, generally defined as “differential treatment of in-state and out-of-state economic interests that benefits the former and burdens the latter.”⁶⁷ A discriminatory regulation will be struck down “unless the discrimination is demonstrably justified by a valid factor unrelated to economic protectionism.”⁶⁸ A state regulation can discriminate facially, in purpose, or in effect. Facial discrimination “invokes the strictest scrutiny” and “by itself may be a fatal defect, regardless of the State's purpose.”⁶⁹ The degree of discrimination does not need to be significant.⁷⁰ A regulation *regulates extraterritorially* if it “directly controls commerce occurring wholly outside the boundaries of a State.”⁷¹ The “critical inquiry is whether the practical effect of the regulation is to control conduct beyond the boundary of the state.”⁷² An extraterritorial regulation is “invalid regardless of whether [its] extraterritorial reach was intended[.]”⁷³ A regulation *unduly burdens* interstate commerce if its incidental burdens on interstate commerce are “clearly excessive” in relation to its putative local benefits under the *Pike* test.⁷⁴

As proposed, CAR both discriminates against interstate commerce and regulates extraterritorially. At minimum, CAR’s impacts unduly burden interstate commerce. Because Ecology cannot show that there is no non-discriminatory alternative to CAR or that CAR’s burdens on interstate commerce do not outweigh its putative local benefits, the rule would not survive either strict scrutiny or the *Pike* test. To avoid dormant commerce clause issues, PSE urges Ecology to amend the proposed CAR so that the rule (i) does not limit offsets to in-state projects and programs and (ii) does not limit external market allowance purchases over time.

i. CAR discriminates on its face by limiting offsets to in-state projects and programs

The proposed CAR explicitly restricts the activities eligible for generating offset ERUs to *in-state* emission reduction projects and programs. Covered parties can meet their

⁶⁶ See *Pike v. Bruce Church, Inc.*, 397 U.S. 137, 142 (1970).

⁶⁷ *Or. Waste Sys. v. Dep’t of Env’tl. Quality of the State of Or.*, 511 U.S. 93, 99 (1994).

⁶⁸ *Wyoming v. Oklahoma*, 502 U.S. 437, 454 (1992) (internal citation omitted).

⁶⁹ *Hughes v. Oklahoma*, 441 U.S. 322, 337 (1979) (internal citations omitted).

⁷⁰ See *New Energy Co. of Indiana v. Limbach*, 486 U.S. 269, 276 (1988) (“where discrimination is patent . . . neither a widespread advantage to in-state interests nor a widespread disadvantage to out-of-state competitors need be shown”).

⁷¹ *Healy*, 491 U.S. at 336.

⁷² *Id.* (emphasis added).

⁷³ *Id.*

⁷⁴ *Pike*, 397 U.S. at 142.

GHG emission reduction pathway through a combination of: on-site reductions; external market and registry allowance purchases; and “[o]ffset emissions using an *in-state emission reduction project or program*, including RECs, as allowed by the proposed rule.”⁷⁵ Ecology does not offer a clear justification for this in-state restriction on eligible offset activities, much less one unrelated to economic protectionism. In fact, Ecology observes that developing in-state emission reduction projects “will benefit the local economy and local populations[.]”⁷⁶ Thus, CAR facially discriminates against out-of-state offset sources, such as renewable energy generators, in favor of in-state offset sources.

Ecology “cannot, without violating the commerce clause of Article I of the Constitution, discriminate against out-of-state renewable energy” or other types offset activities.⁷⁷ Geographic preference provisions benefit local industries at the expense of out-of-state industries by creating in-state demand for a service and allowing *only in-state entities* to meet that demand, even though out-of-state entities could potentially meet it just as well. Various state agencies and legislatures have withdrawn such restrictions from their renewable energy standards.⁷⁸ While CAR is not a renewable energy standard,⁷⁹ there is no reason the constitutional objections to geographic preference provisions should apply only to renewable energy projects. CAR violates the dormant commerce clause to the extent it expresses a preference for *any type* of in-state offset activity over the same or similar type of out-of-state activity (whether involving energy, transportation, livestock, or other

⁷⁵ Cost-Benefit Analysis at 13 (emphasis added). See also Proposed WAC 173-442-100(2) (“ERUs must originate from GHG emissions reductions occurring *within Washington* unless derived [from external market allowance purchases].”) (emphasis added); Proposed WAC 173-442-160(5) (“Energy efficiency measures and demand side management of electricity and natural gas consumption *in Washington*, and alternative energy generation technologies *located in Washington* may generate ERUs.”) (emphasis added).

⁷⁶ Cost-Benefit Analysis at 51.

⁷⁷ See *Illinois Commerce Comm’n v. FERC*, 721 F.3d 764, 776 (7th Cir. 2013) (stating in dicta that “Michigan’s first argument—that its law forbids it to credit wind power from out of state against the state’s required use of renewable energy by its utilities—trips over an insurmountable constitutional objection [under the dormant commerce clause].”).

⁷⁸ See, e.g., *State, ex rel. Missouri Energy Dev. Ass’n v. Pub. Serv. Comm’n*, 386 S.W.3d 165 (Mo. Ct. App. 2012) (dismissing as moot dormant commerce clause challenge to “geographic sourcing” provisions of Missouri Public Service Commission rule because the Commission had withdrawn the provisions after the Joint Committee on Administrative Rules disapproved the provisions); see also *TransCanada Power Marketing Ltd. v. Bowles*, No. 4:10-CV-40070, 2010 WL 4599490 (D. Mass.). In *TransCanada*, an energy company filed a lawsuit alleging that the Massachusetts Green Communities Act of 2008 violated the dormant commerce clause. Initially, the Act required electric distribution companies to enter long-term contracts only with *in-state* renewable energy generators. In 2010, a state agency suspended the geographic limitation and adopted “emergency” regulations allowing for long-term contract proposals from both *in-state and out-of-state* renewable energy generators. In 2012, after the parties agreed to stay the case and enter settlement talks, the state legislature amended the act to remove the in-state requirement. The case was dismissed in 2013. See Michael B. Gerrard, *Federalism Obstacles to Advancing Renewable Energy*, 251 N.Y.L.J. 1, 3 (May 8, 2014).

⁷⁹ Notably, Washington’s renewable portfolio standard (“RPS”) under the EIA does not prohibit out-of-state renewable energy sources from being eligible to generate RECs. (However, Washington’s RPS does generally restrict eligible REC-generating sources to those in the Pacific Northwest). See RCW 19.285.030(12).

measures), without adequately justifying such “differential treatment of in-state and out-of-state economic interests that benefits the former and burdens the latter.”⁸⁰

ii. CAR discriminates on its face by limiting imports of allowances over time (for no reason other than to stop wealth transfers out-of-state)

The proposed CAR limits how covered parties can use allowances from external carbon markets and registries over time.⁸¹ Specifically, the rule sets a declining “cap” on the percentage of a covered party’s compliance burden that the party can meet using external allowances.⁸² Ecology expressly acknowledges that the purpose of these limits is to “encourag[e] covered parties to obtain ERUs *from Washington State*”—a motive clearly related to economic protectionism.⁸³ Thus, CAR facially discriminates against out-of-state allowance suppliers in favor of in-state ERU suppliers.

Importantly, Ecology does not propose to limit external allowance use because of concerns about compatibility/equivalency between in-state and out-of-state compliance instruments.⁸⁴ Rather, Ecology’s aim is to block out-of-state wealth transfers: in other words, to keep money from flowing outside of Washington as covered parties comply with CAR.⁸⁵ Ecology cannot restrict out-of-state purchases in order to keep wealth in-state.⁸⁶

⁸⁰ See *Or. Waste Sys.*, 511 U.S. at 99.

⁸¹ See Proposed WAC 173-442-170(2)(a).

⁸² While covered parties can meet 100 percent of their compliance burden with external allowances during the first two compliance periods, the percentage limit drops to: 50 percent for 2023-2025; 25 percent for 2026-2028; 15 percent for 2029-2031; 10 percent for 2032-2034; and 5 percent for 2035 and beyond. *Id.*

⁸³ See Ecology, SEPA Environmental Checklist — Clean Air Rule at 16 (“SEPA Checklist”) (emphasis added).

⁸⁴ If that were the case, Ecology could not justify allowing covered parties to use out-of-state allowances to meet 100 percent of their compliance obligation during CAR’s first two compliance periods.

⁸⁵ See Cost-Benefit Analysis at 29 (noting that “[m]arket-based purchases of emissions allowances from external carbon markets would be *transfers out of the state*. These compliance costs would not likely be mitigated by positive economic activity in other sectors of the state economy.”) (emphasis added). As Ecology recognizes, the cheapest compliance option for covered parties often will be out-of-state allowance purchases, and not in-state investments in generation facilities or new offset projects. *See id.* at 22-23.

⁸⁶ See *Wyoming*, 502 U.S. at 437 (holding that Oklahoma law requiring in-state coal plants to purchase at least 10 percent of their coal from in-state suppliers violated the dormant commerce clause). CAR’s declining percentage “caps” on external allowances work in a similar way to the unconstitutional provisions in *Wyoming*. For example, by restricting external allowances to 5 percent of a covered party’s compliance burden after 2035, CAR essentially mandates that certain covered parties—in particular, those such as LDCs which have virtually no viable way to comply other than purchasing ERUs from either in-state or out-of-state sources—obtain 95 percent of their ERUs from in-state suppliers. *See also Middle S. Energy, Inc. v. Arkansas Pub. Serv. Comm’n*, 772 F.2d 404 (8th Cir. 1985) (holding that action by Arkansas Public Service Commission that would prohibit an Arkansas utility from purchasing out-of-state energy violated the dormant commerce clause).

iii. CAR discriminates and regulates extraterritorially by restricting ERUs to an in-state market and allowing for only “one-way linkage” to external carbon markets

CAR explicitly prohibits “third parties” from acquiring ERUs.⁸⁷ The category of “third parties” inherently includes all out-of-state entities (because CAR covers only Washington entities). Effectively, then, CAR restricts ERUs to an in-state market: ERUs cannot flow outside of Washington. At the same time, CAR would allow in-state covered parties to purchase allowances from certain external carbon markets and registries.⁸⁸ Such a scenario would create, in Ecology’s own words, a “one-way linkage” between CAR’s market and approved external markets.⁸⁹

Restricting ERUs to an in-state market facially discriminates against interstate commerce. At minimum, it discriminates in effect. In general, a state regulation cannot ban in-state entities from exporting goods and other products generated in the state to other states.⁹⁰ “[O]ur economic unit is the Nation,” and once something “becomes an article of commerce . . . its use cannot be limited to the citizens of one State to the exclusion of citizens of another State.”⁹¹

The structure of CAR’s trading market also amounts to extraterritorial regulation, to the extent its “one-way linkage” could increase allowance prices in external markets and hurt the market position of out-of-state entities relative to Washington entities.⁹² Indeed, CAR is likely to have the practical effect of raising allowance prices in external markets like CARB. If “one-way linkage” between the CAR and CARB programs occurs, CAR will add new

⁸⁷ See Proposed WAC 173-442-140(3)(a) (“[T]hird parties may only facilitate, broker, or assist covered parties to transfer ERUs recorded in accounts in the registry.”); Proposed WAC 173-442-140(3)(b) (“Third parties may not own ERUs.”).

⁸⁸ See Proposed WAC 173-442-110(3); Proposed WAC 173-442-170.

⁸⁹ See Cost-Benefit Analysis at 50 (CAR “provides the possibility for *one-way linkage* to existing systems . . . [and] is not able to establish an allowance system, which would be required for full linkage between this program and cap-and-trade programs.”) (emphasis added).

⁹⁰ See, e.g., *New England Power Co. v. New Hampshire*, 455 U.S. 331 (1982) (holding that New Hampshire law prohibiting a utility from exporting hydropower generated within the state to another state violated the dormant commerce clause); *Hughes*, 441 U.S. at 322 (holding that Oklahoma statute forbidding transportation of minnows out-of-state for sale, without limiting how minnows could be disposed of within the state, violated the dormant commerce clause); *West v. Kansas Natural Gas Co.*, 221 U.S. 229 (1911) (holding that Oklahoma law prohibiting corporations from transporting natural gas produced within the state to other states violated the commerce clause).

⁹¹ *Hughes*, 441 U.S. at 339 (internal citations and quotations omitted).

⁹² While the Ninth Circuit appears to view the extraterritoriality doctrine as limited to “price affirmation” statutes, see *Ass’n des Eleveurs de Canards et d’Oies du Quebec v. Harris*, 729 F.3d 937, 951 (9th Cir. 2013) (internal quotations omitted), such a “categorical approach to the Commerce Clause would be contrary to well-established Supreme Court jurisprudence.” See *North Dakota v. Heydinger*, No. 14-2156, 2016 WL 3343639, at *6 (8th Cir. June 15, 2016) (citing *W. Lynn Creamery, Inc. v. Healy*, 512 U.S. 186, 201 (1994) (“Our Commerce Clause jurisprudence is not so rigid as to be controlled by the form by which a State erects barriers to commerce.”)).

participants to the CARB market and increase demand for CARB's limited pool of allowances, without increasing the supply of allowances in that market. The net effect of increasing demand without increasing supply will be to raise the price of CARB allowances. This would control some conduct occurring entirely outside of Washington's borders (e.g., allowance sales between two CARB-covered parties in California) and potentially harm the market position of California entities relative to Washington entities when those entities compete in the same markets. For instance, CARB covers certain industries in California that CAR would not cover (or would exempt, such as EITE industries for at least the initial compliance period) in Washington. If CAR raised CARB allowance prices, this would increase the compliance burden for *all* California CARB-covered parties without increasing the compliance burden of *all* equivalent Washington CAR-covered parties competing in the same markets. Such an outcome would give Washington industries an advantage over their competitors in California. Under the dormant commerce clause, "[s]tates may not deprive businesses and consumers in other States of whatever competitive advantages they may possess based on the conditions of the local market."⁹³ It does not matter that Ecology may not intend this result.⁹⁴

iv. Other states could not adopt rules like CAR without extraterritorial impacts

In determining if a regulation regulates extraterritorially, "the practical effect of the [regulation] must be evaluated not only by considering the consequences of the [regulation] itself, *but also by considering* how the challenged [regulation] may interact with the legitimate regulatory regimes of other States and *what effect would arise if not one, but many or every, State adopted [a] similar [regulation].*"⁹⁵ As described above, the proposed CAR regulates on a statewide basis and would enable a statewide trading market (with "one-way linkage" to external markets). Yet, the rule covers sectors, including the electric power and LDC sectors,⁹⁶ that are *inherently interstate*. As a result, CAR attempts to regulate systems at a state level that should only be regulated at a national level.⁹⁷ Because other states could not adopt similar rules without extraterritorial impacts, CAR amounts to extraterritorial regulation.

Indeed, if other states adopted rules like CAR, regulations in one state or group of states could impact local conditions and policies in another state. For example, many utilities, like PSE, own electric generating sources in multiple states. Assume a Utility owns

⁹³ *Healy*, 491 U.S. at 339 (internal citations and quotations omitted).

⁹⁴ *Id.* at 336.

⁹⁵ *Id.* (emphasis added).

⁹⁶ Even *intrastate* natural gas distribution pipelines often connect to *interstate* transmission pipelines and carry and deliver natural gas that was produced in, and transported from, other states.

⁹⁷ As the U.S. Supreme Court has noted, "the production and transmission of energy is an activity particularly likely to affect more than one State, and its effect on interstate commerce is often significant enough that uncontrolled regulation by the States can patently interfere with broader national interests." *Arkansas Elec. Coop. Corp. v. Arkansas Pub. Serv. Comm'n*, 461 U.S. 375, 377 (1983) (internal citations omitted).

fossil sources in States X, Y, and Z. If States X and Y adopt a CAR-like rule, but State Z does not, the Utility would be incentivized to shut down or reduce operations of its fossil sources in States X and Y and run its fossil sources in State Z *as much and as long as possible*.⁹⁸ If other utilities in the region follow suit, then fossil fuel-fired generation would become concentrated in State Z. This likely would make it harder for State Z to comply with certain federal environmental regulations, such as the National Ambient Air Quality Standards (“NAAQS”) or the Clean Power Plan (“CPP”). As a result, State Z might ultimately decide to adopt its own GHG emissions regulation—something it would not have been prompted to do *but for* the impact within its borders of regulations in other states. No state has the “power to project its legislation into [another state].”⁹⁹ It does not matter whether States X and Y sought this result in State Z.¹⁰⁰

In addition, compliance instruments (e.g., allowances or credits) would not necessarily be interchangeable between the State X, Y, and Z trading markets. Indeed, that is necessarily the case if each state adopted a rule like CAR, which would allow only *in-state* entities to acquire its compliance instruments and only *in-state* projects to generate offset credits. The Utility would have to figure out *how* or even *if* it could buy, sell, or trade compliance instruments across state borders—even among covered sources all owned by the Utility—and record those transactions. These regulatory burdens would discourage or even prevent the interstate flow of compliance instruments, “creat[ing] just the kind of competing and interlocking local economic regulation that the Commerce Clause was meant to preclude.”¹⁰¹ Such “economic Balkanization”¹⁰² among state carbon trading markets—each operating in isolation or semi-isolation—would violate the dormant commerce clause and undermine the efficiency that a uniform national trading market could provide.

v. Ecology cannot show that there are no non-discriminatory alternatives to CAR, or that its incidental burdens on interstate commerce do not outweigh its putative local benefits

Because CAR discriminates against interstate commerce and regulates extraterritorially, it will trigger strict scrutiny. Under strict scrutiny, a regulation is *per se* invalid, unless the state can show both (i) a legitimate local purpose and (ii) that there is no non-discriminatory alternative “adequate to preserve the local interests at stake.”¹⁰³ PSE

⁹⁸ As discussed below in Section 3, Part I(i), CAR will incentivize Washington utilities to import power from higher-emitting units in other states, lowering emissions in Washington while increasing emissions in the region. CAR-like rules in other states would have a similar effect.

⁹⁹ *Baldwin v. G.A.F. Seelig, Inc.*, 294 U.S. 511, 521 (1935).

¹⁰⁰ *See Healy*, 491 U.S. at 336.

¹⁰¹ *Id.* at 337.

¹⁰² *See Hughes*, 441 U.S. at 325.

¹⁰³ *Hunt v. Washington State Apple Adver. Comm'n*, 432 U.S. 333, 353 (1977).

does not dispute that addressing climate change is a legitimate local purpose.¹⁰⁴ However, Ecology cannot show that there is no non-discriminatory alternative to CAR for achieving this purpose. Indeed, Ecology considered a wide range of alternatives in developing CAR. Many of these would be less burdensome than CAR while achieving the same, if not greater, local benefits, including (i) linking the Washington program directly to existing market programs; and (ii) excluding natural gas as a covered emissions category.¹⁰⁵ Further, Ecology also can continue to work to get the Washington state legislature to adopt a comprehensive cap-and-trade program¹⁰⁶ or another tool for regulating GHG emissions, like a carbon tax. Additionally, Ecology can rely on Washington's state plan under the CPP for regulating GHG emissions from the state's electric power sector. Because adequate non-discriminatory alternatives exist, CAR would not survive strict scrutiny.

Even if CAR is found not to discriminate against interstate commerce or regulate extraterritorially, the rule's "incidental burdens" on interstate commerce would subject it to the *Pike* balancing test.¹⁰⁷ CAR's burdens on interstate commerce are "clearly excessive" in relation to its putative local benefits. CAR would impose significant costs on Washington businesses and consumers, without achieving any real climate benefits. Indeed, Ecology acknowledges that "it is not possible to specify the local benefits to climate change resulting from control of local emissions."¹⁰⁸ Further, as discussed below in Section 3, Part I(i), CAR would *increase*, not decrease, net GHG emissions on a regional basis—undercutting any potential local benefits from lowered in-state GHG emissions. This means CAR's only tangible local benefits would come from reduced in-state emissions of conventional pollutants (such as nitrogen oxides or fine particulates), as a side-effect or "co-benefit" of lowered GHG emissions. Yet, Ecology acknowledges that "some projects to reduce GHGs may result in the *increase* of conventional pollutants."¹⁰⁹ These projects could cause other local harms as well, such as increases in wastewater discharges and new noises and odors.¹¹⁰ Given CAR's significant burdens and uncertain (at best) and illusory (at worst) local benefits, the rule would not survive scrutiny under the *Pike* test.

¹⁰⁴ PSE acknowledges that climate change is real and recognizes the need for carbon regulation. However, PSE believes climate change should be addressed on a national, and not state-wide, basis.

¹⁰⁵ See Cost-Benefit Analysis at 49-51.

¹⁰⁶ See, e.g., December 2008 Plan.

¹⁰⁷ See *Pike*, 397 U.S. at 142.

¹⁰⁸ Cost-Benefit Analysis at 36.

¹⁰⁹ SEPA Checklist at 9.

¹¹⁰ *Id.*

Section 3: Implementation Comments

I. CAR WILL HAVE UNINTENDED CONSEQUENCES BECAUSE IT IS A STATE-CONSTRAINED RULE REGULATING INHERENTLY INTERSTATE AND INTERNATIONAL ACTIVITIES

The proposed CAR is a state-constrained rule: Ecology has no authority to impose restrictions on, or otherwise regulate, activities occurring beyond Washington's borders. At the same time, the rule targets industries, like the electric power and LDC sectors, that are inherently *interstate and international* in character. For instance, Washington's electric grid is part of the Western Interconnection, a large regional interconnection that stretches from western Canada down to northern Mexico and extends eastward across many of the Great Plains states.¹¹¹ All electric utilities in the Western Interconnection are linked during normal system conditions and operate at a synchronized frequency (60 Hertz). The system comprises a wide range of electric generating sources, including hydroelectric sources, natural gas power plants (which vary in efficiency), coal power plants, and an increasing number of wind and solar facilities.

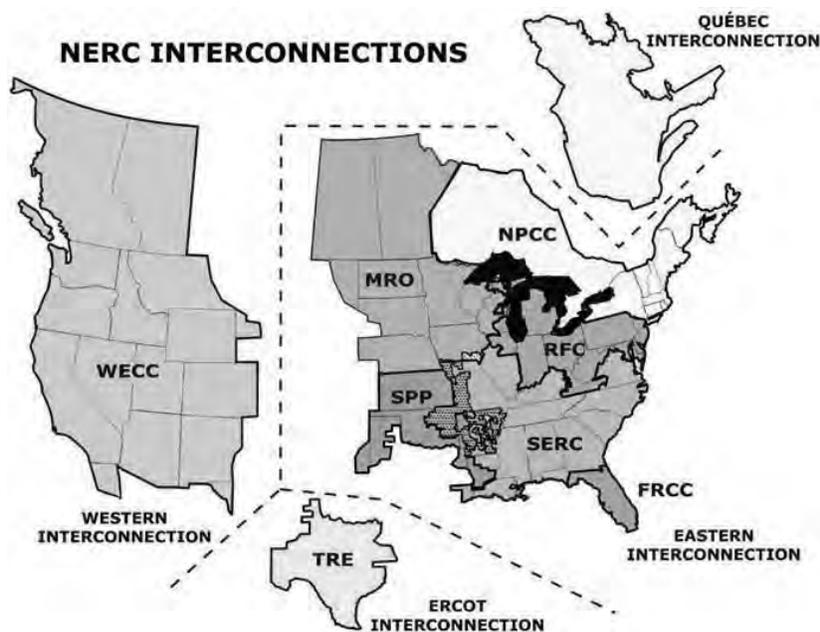


Figure 1.¹¹² Figure 1 demonstrates the interstate and international nature of North American electric grid systems, including the broad geographic range of the Western Interconnection.

¹¹¹ See Figure 1 (Reproduced as Appendix A); see also Appendix B ("Western Interconnection Map"). The Western Electricity Coordinating Council ("WECC") is the regional entity in charge of promoting system reliability, as well as compliance monitoring and enforcement, throughout the Western Interconnection.

¹¹² North American Electric Reliability Corporation ("NERC"), NERC Interconnections, available at [http://www.nerc.com/AboutNERC/keyplayers/Documents/NERC Interconnections Color_072512.jpg](http://www.nerc.com/AboutNERC/keyplayers/Documents/NERC%20Interconnections_Color_072512.jpg).

i. CAR will *increase* regional electric power sector GHG emissions

The electric generating sources within the vast Western Interconnection region are coordinated to enable local electric utilities to provide least-cost electricity to their customers. Critically, state laws *obligate* local electric utilities to provide this least-cost service.¹¹³ As a result, a utility will respond to higher generating costs (e.g., those caused by a carbon constraint like a GHG emission limit) at one or more electric generating sources in a predictable way: by drawing upon *other, unaffected* sources to displace the now-higher cost electricity from the affected source(s).

Thus, CAR would have profound reverberating effects throughout the Western Interconnection. If CAR imposes emission reduction requirements on natural gas generators in Washington, the cost of electricity generated from those sources will increase. Accordingly, Washington utilities will be obligated to run those in-state sources *less* and, in exchange, import *more* electricity from sources in neighboring states to make up the lost generation. These out-of-state generating sources predominantly will be natural gas- and coal-fired power plants.

Such generation-shifting is virtually certain to result in higher net regional emissions. Washington has one of the strictest emission performance standards (“EPSs”) in the country.¹¹⁴ Washington’s GHG emission rate for electricity is less than half that of nearby states such as Montana, Wyoming, and Utah¹¹⁵—states which currently lack any state-based plans to impose carbon constraints. Electricity generated outside of Washington thus is nearly certain to be higher-emitting than electricity generated in Washington. If CAR regulates the electric power sector, the rule would increase the costs of running Washington’s highly efficient natural gas generators. This would incentivize Washington utilities to displace lower-emitting in-state generation with higher-emitting out-of-state generation. While emissions may decrease *within Washington state*, emissions would increase *across the Western Interconnection*.¹¹⁶

¹¹³ In Washington, “[e]ach [regulated] electric utility . . . has the responsibility to meet its system demand with a *least cost mix* of energy supply resources and conservation.” WAC 480-100-238(1) (emphasis added).

¹¹⁴ See Appendix C (“Current State GHG Emission Performance Standards”). Washington’s current EPS is 970 lbs of GHGs per Megawatt-hour (“MWh”) for all baseload electric generation for which electric utilities enter into long-term financial commitments. See WAC 194-26-020; RCW 80.80.040-50. Notably, Washington’s EPS already is *less than* the CO₂ emission standard of 1,000 lbs CO₂ per MWh that EPA finalized under Section 111(b) of the federal Clean Air Act for newly constructed and reconstructed baseload natural gas units. See EPA, *Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units*, 80 Fed. Reg. 64,510, 64,512-13 (Oct. 23, 2015).

¹¹⁵ See Appendix D (“State Emission Rates”).

¹¹⁶ See Figure 2 (Reproduced as Appendix E); see also Appendix F (“CO₂ Offset Price Scenarios”).

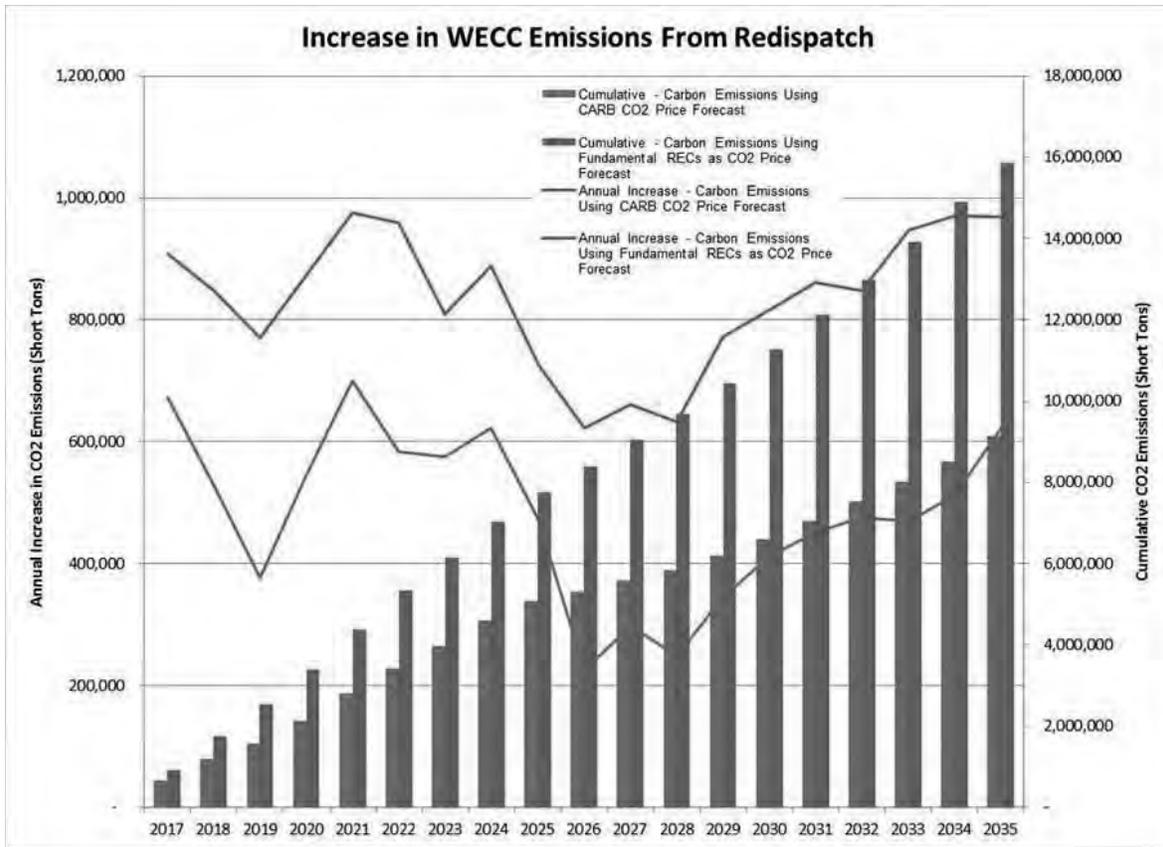


Figure 2.¹¹⁷ Figure 2 depicts how much CAR will cause regional GHG emissions to increase, depending on ERU costs. It demonstrates projected *annual* and *cumulative* emissions increases throughout the Western Interconnection. The left axis and red and blue lines reflect the *annual regional emissions increases* CAR would cause, depending on the cost of ERUs. The red line reflects the annual emissions increase if the cost of an ERU is based on the cost of a REC as a result of constructing new renewable energy resources (i.e., \$107/ERU). The blue line reflects the annual emissions increase if the cost of an ERU is approximately the cost of a CARB allowance (assuming no impact from Washington’s increased demand on CARB allowances) (i.e., \$14/ERU). (However, as described under Figure 4 below, PSE believes the \$14/ERU CARB allowance price is neither realistic nor sustainable.) Based on renewable energy build-out costs, annual regional emissions will increase between 600,000 and 900,000 tons per year. Based on CARB allowance costs, annual regional emissions will increase between 250,000 and 650,000 tons per year. The right axis and red and blue bars reflect the *cumulative emissions increases* CAR would cause, depending on the cost of ERUs.¹¹⁸ Again, the red bars reflect the emissions increase if ERU costs are based on REC costs from new renewable energy construction. The blue bars reflect the emissions increase if ERU costs are based on CARB allowance costs. CAR will cause cumulative regional emissions to increase between 9 and 16 million tons through 2035. Such increases clearly are counterproductive to CAR’s objectives.

¹¹⁷ Reproduced as Appendix E; *see also* Appendix F (“CO₂ Offset Price Scenarios”)

¹¹⁸ These projections are based on modeling using “Aurora,” a widely used forecasting tool in the electric industry. Aurora is used by electric utilities, state and federal regulators and independent system operators to develop generation and pricing forecasts for integrated planning, budgeting and regulatory oversight. *See* Epis, LLC, AURORA_{xmp}, http://epis.com/aurora_xmp/ (last accessed July 20, 2016).

To avoid these emission increases, CAR should exclude the electric power and LDC¹¹⁹ sectors. At minimum, the final CAR should include an “exemption” provision, along the lines of the one PSE proposes below in Section 5, Part I, to ensure that emission reductions in Washington will not result in greater emission increases elsewhere in the Western Interconnection.

ii. CAR will undermine the federal Clean Power Plan

As a national-level regulation, the federal CPP is superior to CAR for regulating the inherently interstate and international electric power sector. In fact, CAR’s flawed incentive structures will work at cross-purposes to CPP goals. Furthermore, CAR does not adequately provide for transitioning the electric power sector from regulation under CAR to regulation under the CPP. At minimum, CAR would complicate and delay Washington’s ability to develop an approvable CPP state plan.

First, CAR would discourage or preclude Washington’s natural gas generators from running.¹²⁰ The CPP, in contrast, encourages natural gas generators to run *more*. EPA recognizes that natural gas is both a cleaner alternative to coal and a key “bridge fuel” to renewable energy resources. Thus, generation-shifting from existing coal units to existing natural gas units is one of the three “building blocks” EPA used in setting state CPP emission rate targets.¹²¹ As the CPP recognizes, Washington’s under-utilized natural gas generation fleet, if more fully utilized, could help to wean neighboring states like Montana and Wyoming off of coal power.¹²² This would achieve significant regional emission reductions for only a modest in-state emissions increase.

Indeed, Washington’s NGCC units would have substantial “headroom” under the CPP to ramp up their generation to help displace or replace retired coal-fired generation (both in Washington and throughout the Western Interconnection). The CPP anticipates running NGCC plants *up to 75 percent* capacity factor.¹²³ Washington’s NGCC units currently run at only *about 15-30 percent* capacity factor (traditionally under-utilized due to an abundance

¹¹⁹ Excluding the electric power sector alone will not be enough. If CAR regulates LDCs, natural gas fuel prices will go up. This will increase the costs of operating natural gas generators. To avoid incentivizing generation-shifting from Washington gas sources to out-of-state fossil sources, CAR must exclude *both* the electric power and LDC sectors.

¹²⁰ Not only would CAR raise natural gas prices, but CAR would incentivize a utility like PSE—which operates as both an electric power and gas utility—to run its natural gas generators *less* in order to generate ERUs needed to help cover a likely ERU deficit on its LDC side.

¹²¹ See EPA, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, 80 Fed. Reg. 64,662, 64,667 (Oct. 23, 2015) (“CPP”).

¹²² See 80 Fed. Reg. 64,692 (noting interconnected and interstate nature of electric grid); see also *id.* at 64,779 (noting that shifts to low-emitting gas generation “will generally displace higher-emitting generation” and that “[d]isplacement of higher-emitting generation will lower overall CO₂ emissions from the source category of affected [electric generating units]”); *Id.* at 64,800 (noting that “[s]ources can achieve increases in utilization of existing NGCCs that displace generation from steam sources without impacting reliability”).

¹²³ See *id.* at 64,798-99.

of hydropower and cheap coal power in the region).¹²⁴ Critically, however, CAR does not recognize the low historic capacity factor values of Washington’s NGCC units. CAR also fails to recognize that the state’s NGCC units will need to ramp up to meet new load demands when the Centralia units retire (or else this generation will shift out-of-state, likely to higher-emitting units).¹²⁵ A similar scenario will arise if any out-of-state fossil units currently supplying power into Washington (e.g., Colstrip Units 1 and 2) retire. Thus, CAR’s emission caps would restrict Washington’s *already underutilized* gas units from running more to make up for generation shortfalls created by coal plant retirements. This would undercut one of the CPP’s key anticipated pathways for cost-effectively and efficiently reducing carbon emissions.

Second, CAR would frustrate the ability to integrate renewable resources into the existing power system. This would undermine the CPP’s powerful incentive to develop new renewable energy resources to achieve emissions goals. As Washington increases the amount of intermittent, renewable electricity generation, the amount of flexible, gas-fired generation must also increase to support the grid when renewable energy resources are not available and ensure reliability is maintained. Imposing a declining, mass-based limit on such natural gas generators through CAR will work at cross purposes to renewable energy objectives, potentially constraining renewable development.

Finally, CAR does not adequately provide for the transition to regulating the electric power sector under the CPP. The proposed rule contains only a single, vague provision addressing this transition.¹²⁶ This generic provision does not provide sufficient certainty to regulated electric utilities, who apparently must start planning now to (i) comply with CAR for one (or perhaps two or more, depending on if and when EPA approves Washington’s state plan) compliance period(s); and (ii) comply with a Washington state CPP plan at some point after 2020.

Given the proposed CAR’s structure, this transition is unlikely to be seamless. Indeed, CAR is not set up to be a “trading ready” program under the CPP.¹²⁷ For instance, CAR defines ERUs differently than the CPP defines allowances or emission reduction credits (“ERCs”),¹²⁸ and it is unlikely that CAR’s Ecology-administered registry would

¹²⁴ See Appendix G (“Historic Dispatch—Washington State Natural Gas Turbine Fleet”).

¹²⁵ See Figure 8 (Reproduced as Appendix U).

¹²⁶ See Proposed WAC 173-442-040(3) (“Stationary sources included in the [federal] Clean Power Plan . . . will be considered to comply with the requirements of [CAR] at the beginning of the first compliance period of the Clean Power Plan provided that: (a) EPA has approved Washington’s implementation plan; (b) The approved implementation plan requires greater GHG emissions reduction than required under 40 C.F.R. Part 60, Subpart UUUU; and (c) When a unit within a covered party’s facility is subject to the Clean Power Plan, then only the GHG emissions from that unit(s) are covered under this subsection.”).

¹²⁷ See generally 80 Fed. Reg. at 64,887-910.

¹²⁸ CAR defines an ERU as “one unit equivalent to one metric ton of CO₂e.” Proposed WAC 173-442-020(m). The CPP defines an allowance as one short ton of CO₂ emissions, see EPA, *Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before Jan. 8, 2014; Model Trading Rules; Amendments to Framework Regulations*, 80 Fed. Reg. 64,966, 65,012, and an ERC as one MWh of zero-carbon generation (or avoided emissions). See 80 Fed. Reg. at 64,959.

qualify as “a linked or common tracking system” under the CPP.¹²⁹ Further, CAR precludes covered entities from using allowances or ERCs from external CPP trading programs (which will not be “multi-sector” programs) to generate ERUs.¹³⁰ Thus, CAR is different enough from any future Washington state CPP plan that the time, effort, and other resources Ecology would expend to regulate the electric power sector under CAR during the interim period before a state plan takes effect would do little to aid CPP compliance (and might even make it harder for Washington to get a CPP state plan approved).

iii. To avoid these unintended consequences, CAR should not regulate the electric power or LDC sectors

Ecology should not regulate the electric power sector under CAR. Instead, Ecology should focus its resources on developing a “trading-ready” program under Washington’s CPP state plan. Ecology also should exclude the LDC sector from regulation under CAR because this sector inextricably is linked to the electric power sector. (LDCs provide fuel to natural gas generators; if natural gas prices go up because CAR regulates LDCs, this also could impact electric utility operations). This approach makes the most sense in terms of preserving limited agency resources, providing long-term regulatory certainty to utilities, and achieving *actual* net emission reductions.

At minimum, Ecology should provide covered electric power and LDC sources with (at least) a three-year delay in the start of compliance with CAR—the same benefit Ecology provides to covered EITE parties and petroleum product importers (who will *not* become subject to the CPP).¹³¹ Indeed, it is arbitrary and capricious for Ecology to delay the compliance start date for some covered parties but not others.¹³² Even though the U.S. Supreme Court has stayed implementation of the CPP,¹³³ Washington’s electric power sector must continue to plan for compliance. Ecology should delay applying CAR to electric power generators and LDCs until there is clarity around the CPP program and timeline, including the status of Washington’s state plan and other state plans within the Western Interconnection. Otherwise, Ecology risks duplicating efforts and working at cross-

¹²⁹ See *id.* at 64,839.

¹³⁰ See Proposed WAC 173-442-170(1)(a).

¹³¹ See Proposed WAC 173-442-030(2).

¹³² Agency action is arbitrary or capricious “if it is willful and unreasoning and taken without regard to the attending facts or circumstances.” *Washington Indep. Tel. Ass'n v. Washington Utilities & Transp. Comm'n*, 148 Wash. 2d 887, 905 (2003). Under the Washington APA, an “arbitrary and capricious” agency rule is invalid. RCW 34.05.570(2)(c). Ecology has offered no reasoned explanation for its differential treatment of covered EITE and non-EITE parties with regards to CAR compliance timing. In particular, Ecology has ignored the “attending facts or circumstances” presented by the CPP. If anything, there is *more* reason to delay the compliance start date for electric power generators and LDCs, given that these sectors need to work with Ecology and other stakeholders between 2017 and 2020 (or later) to develop (and prepare for compliance with) an approvable Washington CPP plan--a plan that would achieve the same objectives as CAR, but more effectively and efficiently.

¹³³ See *West Virginia v. EPA*, 577 U.S. ---, Order 15A773 (Feb. 9, 2016).

purposes with the intended goal of both CAR and the CPP of achieving real emission reductions.

Should the final CAR regulate the electric power sector until the sector can transition to regulation under the CPP, PSE requests Ecology to state in the final rule that compliance with a CPP *federal* implementation plan also constitutes compliance with CAR. Ecology also should clarify the effect of EPA *partially* approving Washington's state plan.

II. CAR FAILS TO ANALYZE OR PROVIDE NEEDED CERTAINTY OF FUTURE ERU AVAILABILITY AND PRICE

The proposed CAR fails to provide an acceptable level of certainty concerning future ERU markets. Critically, Ecology has provided no analysis of the future supply and demand of ERUs, or of what those ERUs will cost. Promulgating the rule without such an analysis is arbitrary and capricious.¹³⁴

Despite the fact that Ecology appears to assume that sufficient ERUs will be available, PSE's preliminary analyses indicate a very real possibility of an ERU shortfall. PSE has forecasted future electric power and natural gas demand and supply based on its 2015 Integrated Resource Plan.¹³⁵ Based on this forecast, PSE projects significant ERU shortfalls for the Company, with a deficit of around 800,000 ERUs beginning in 2017 and increasing throughout the life of the program.¹³⁶ An inadequate ERU market—i.e., one without enough ERUs to go around—would lead to (potentially significantly) higher compliance costs than Ecology has projected.

A number of factors contribute to future ERU market uncertainty, including:

(1) Ecology has failed to analyze future ERU market dynamics (including supply, demand, and cost);

(2) Each of the proposed ERU-generating projects and programs has uncertain and limited potential to achieve emission reductions:

- **Surplus RECs:** In general, Ecology's analysis of REC markets in the proposed CAR's Cost-Benefit Analysis is flawed.¹³⁷ Washington's REC

¹³⁴ See *Washington Indep. Tel. Ass'n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

¹³⁵ Ecology's CAR proposal, comments, and Cost Benefit Analysis include no information relevant to estimating the future supply or demand for ERUs. In the absence of such critical information, PSE's projected supply/demand balance of ERUs is the best information available to the Company.

¹³⁶ See Figure 3 (Reproduced as Appendix H).

¹³⁷ First, the analysis references irrelevant REC markets (i.e., those in other states). All that matters for CAR is the REC market in Washington. Second, the analysis does not adequately explain certain cost assumptions. For both REC and external market allowance prices, the analysis uses current market prices. See Cost-Benefit Analysis at 14-15. Therefore, it does not account for the fact that CAR *itself* will impact supply and demand for RECs and allowances, ultimately driving up prices. For example, CAR will increase demand for new RECs because there are not currently enough RECs available on the market to meet PSE's ERU needs.

market is limited. While PSE currently has some surplus RECs from the Company’s “over-compliance” with the Washington EIA, these surplus RECs will run out after 2018 and will be insufficient to meet PSE’s future ERU demand under CAR.¹³⁸ The costs of generating ERUs through building new wind generation would be extremely high, around \$107/ERU¹³⁹—making RECs one of the most expensive CAR compliance options.¹⁴⁰

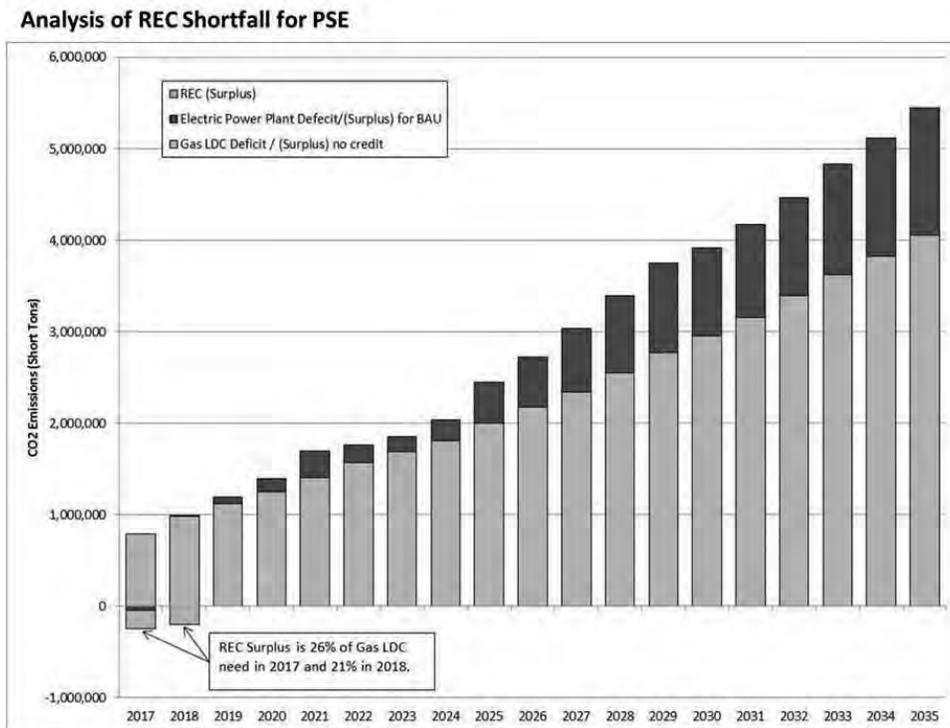


Figure 3.¹⁴¹ Figure 3 shows the disparity between PSE’s projected ERU need (on both the electric power and gas LDC sides) and projected surplus REC supply.

¹³⁸ See Figure 3 (Reproduced as Appendix H).

¹³⁹ Although PSE currently has some surplus RECs, PSE eventually will need to build new wind projects to generate RECs to comply with the Washington EIA. PSE’s analyses indicate that building additional wind projects (beyond those needed to comply with the EIA) to generate ERUs under CAR would cost around \$107/ERU (based on conversion of .41 ERUs per MWh). See Appendix F (“CO₂ Offset Price Scenarios”). PSE will need over 4,000 MW of wind generation at a 34 percent capacity to meet its gas LDC ERU need in 2017. This grows to over 8,800 MW by 2035.

¹⁴⁰ PSE’s estimated cost of \$107/ERU might even be conservative. Other recent studies estimate renewable energy costs ranging from \$162/metric ton CO₂ (to use wind power located in the Columbia River Gorge in 2030) to \$200/metric ton CO₂ (to increase RPS standards across the Western Interconnection) to \$250-\$1,050 per metric ton CO₂ (to increase California’s RPS from 33 percent to 40 or 50 percent). See Pacific Northwest Utilities Conference Committee, *Carbon Emissions: a Northwest Perspective* (July 2014) at 14, available at http://www.pnucc.org/sites/default/files/Carbon%20Emissions%20-%20a%20Northwest%20Perspective%20July%202014_0.pdf.

¹⁴¹ Reproduced as Appendix H.

- **Energy Efficiency:** As discussed below in Section 3, Part III(i)-(ii), utilities may not be able to generate ERUs through investments in conservation and energy efficiency as CAR envisions. Assuming PSE *could* generate ERUs from energy efficiency measures beyond what existing law requires, *even maximizing those investments* (i.e., investing in *all* non-cost-effective energy conservation measures possible) would leave PSE with a significant ERU deficit.¹⁴² Further, PSE’s analyses indicate exorbitant costs from generating ERUs from non-cost-effective conservation, ranging from about \$502/ERU to \$1571/ERU for the electric side and about \$4,433/ERU to \$12,123/ERU for the gas LDC side.¹⁴³ Such prices make non-cost-effective energy efficiency an extremely impractical compliance option for utilities.
- **In-State Offset Projects and Programs:** CAR’s descriptions of eligible ERU-generating projects and programs are vague and unclear as to which types of activities are eligible.¹⁴⁴ This makes it difficult to predict and analyze the emission reduction potential of in-state offsets. Many of listed eligible project types have limited potential for achieving reductions. For instance, the results from a recent study on the potential electric power production potential from dairy digesters in Washington indicate that a full build-out of new dairy digester power plants would generate only about 35,380 ERUs per year.¹⁴⁵ By way of contrast, PSE’s projected ERU shortfall begins at around 800,000 ERUs in 2017 and increases over time.¹⁴⁶

¹⁴² See Appendix I (“ERU Potential From All Non-Cost-Effective Conservation (LDC Side)”); Appendix J (“ERU Potential From All Non-Cost-Effective Conservation (Electric Power Side)”).

¹⁴³ See Appendix K (“Annual ERU Cost From Non-Cost Effective Conservation”).

¹⁴⁴ See Proposed WAC 173-442-160. In particular, Ecology should clarify whether the following are eligible ERU-generating projects: (i) hydroelectric power generation projects that are ineligible for generating RECs (e.g., incremental hydro); (ii) emission reductions from encouraging switches to liquefied natural gas (“LNG”) maritime fueling or to CNG fueling for trucks; and (iii) emission reductions for natural gas end-use (e.g., for home heating) that displaces electric load. Because natural gas use is a form of energy conservation in the home heating context, it would be arbitrary and capricious for Ecology to deny LDCs the opportunity to earn ERUs from these measures while allowing other conservation and energy efficiency measures to generate ERUs. See *Washington Indep. Tel. Ass’n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c). Ecology also should clarify the meaning of the phrase “enforceable by the state of Washington.” See Proposed WAC 173-442-150(1)(c).

¹⁴⁵ See Harris Group Inc., *Anaerobic Digesters Resource Assessment for PacifiCorp: Washington Service Territory*, Report 80306 (June 26, 2014), available at https://www.americanbiogascouncil.org/pdf/Anaerobic_Digesters_Resource_Assessment_PacifiCorp_06-24-2014.pdf. The study estimates that there are 11 potential dairy digester projects in Washington that would produce approximately 82 Gigawatt hours per year (“GWh/year”). *Id.* at 5. Assuming a 970 lbs CO₂/MWh offset, this would result in about 39,000 short tons (or about 35,380 metric tons) of avoided carbon emissions.

¹⁴⁶ See Figure 3 (Reproduced as Appendix H).

- **Allowances from External Markets and Registries:** First, CAR assumes ERUs can be generated from allowances purchased from external carbon markets and registries (as early as the first CAR compliance period). Yet, Ecology does not consider that CARB or another external carbon market authority might object to or even try to prohibit Washington CAR-covered parties from participating in that market. Second, increased demand for external allowances likely will drive up prices in those external markets. Yet, Ecology has not acknowledged or analyzed these price impacts. Finally, even if external allowances *are* a viable compliance option, Ecology is proposing to limit the number of external allowances that can be used for compliance in future CAR compliance periods, so these allowances will become woefully insufficient to meet ERU demand as the years go on.

(3) CAR’s initial compliance period start date of 2017 (for most non-EITE covered parties) is too soon for reliable ERU markets to develop or for additional ERU-generating projects to get underway; and

(4) CAR appears to allow voluntary participants to repeatedly enter and opt-out of the ERU market,¹⁴⁷ potentially exacerbating uncertainty regarding the supply and demand of ERUs.

In short, the pieces are not in place for a predictable, functioning ERU market to develop on a timeframe that would ensure covered utilities’ ability to comply with CAR. Moreover, it is by no means clear that there will be enough ERUs to meet PSE’s demand without building very expensive renewable energy projects or implementing very expensive energy efficiency measures—all of which would have a profound impact on customer costs.

i. ERU market uncertainty makes it virtually impossible for electric utilities to ensure “least-cost” service to customers

Electric utilities have a statutory obligation to provide *least-cost* electricity to meet their customers’ load demand.¹⁴⁸ The lack of ERU market certainty will make it difficult, if not impossible, for covered electric utilities to meet this obligation. It is arbitrary and capricious for Ecology to promulgate a rule that would put utilities in such an untenable position.¹⁴⁹

For instance, the lack of a predictable ERU market would make it virtually impossible for PSE to determine how to run its power plants on a “least-cost” basis. PSE is a “winter load peaking” utility—meaning in-state load demands are highest in the winter. During the summer, when in-state load demands are lower, PSE often exports power to

¹⁴⁷ See Proposed WAC 173-442-030(6).

¹⁴⁸ WAC 480-100-238(1).

¹⁴⁹ See *Washington Indep. Tel. Ass’n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

California. PSE applies proceeds from sales of this efficient exported power to keep Washington customer costs low throughout the year. Under CAR, running sources more during the summer to provide power to California will cause those sources to emit more GHGs and, potentially, exceed their compliance pathway. If sources hit their CAR emission reduction pathway level by early fall (e.g., October), PSE would need to purchase ERUs to continue running those sources from November to December—when in-state demand will be greatest. But it will be impossible to predict the cost of the ERUs because their value will depend on myriad factors, such as temperature, rainfall and hydroelectric output, fuel prices, and availability of out-of-state electricity. Thus, selling power to California during the summer could become prohibitively risky because PSE could face an ERU shortfall and/or extremely high ERU prices in the later months of the year. This would cause customer electric costs to increase, eliminating the benefit to customers that exporting summer power to California currently brings. (This scenario especially will come into play during years with a hot California summer and a cold Washington winter). Thus, utilities like PSE *require* a market capable of providing clear price signals. Ecology has not done enough to ensure future ERU markets can provide this needed certainty.

ii. ERU market uncertainty will lead to unpredictable and unacceptable rate increases for gas utility customers

Under the proposed CAR, gas utility customers face a risk of unpredictable and unacceptable rate increases. LDCs—more than almost any other covered sector—have limited options for complying with CAR. For instance, there are few opportunities to reduce on-site emissions beyond fixing pipeline leaks (a relatively minor source of GHGs emissions). As a result, LDCs will need to rely on purchasing ERUs from other covered parties (or external carbon markets and registries) to comply with CAR. Given the ERU market uncertainties discussed above, LDCs face uncertain, and potentially significant, compliance costs. Customers ultimately would bear these costs in the form of higher natural gas rates. Ecology’s failure to consider these cost impacts is arbitrary and capricious.¹⁵⁰

For instance, as discussed above in Section 3, Part II, the ERU market may be significantly under-supplied to meet PSE’s CAR compliance needs. The only viable market that exists today is the REC market. However, PSE’s current surplus RECs are not sufficient to cover gas utility needs through even 2019.¹⁵¹ If PSE has to pay the full cost of generating additional RECs to comply with CAR (i.e., \$107/ERU), PSE’s natural gas customers will experience *a 12 percent rate increase in 2017 and a cumulative rate increase of over 40 percent by 2035.*¹⁵²

¹⁵⁰ See *id.*

¹⁵¹ See Figure 3 (Reproduced as Appendix H).

¹⁵² See Figure 4 (Reproduced as Appendix L).

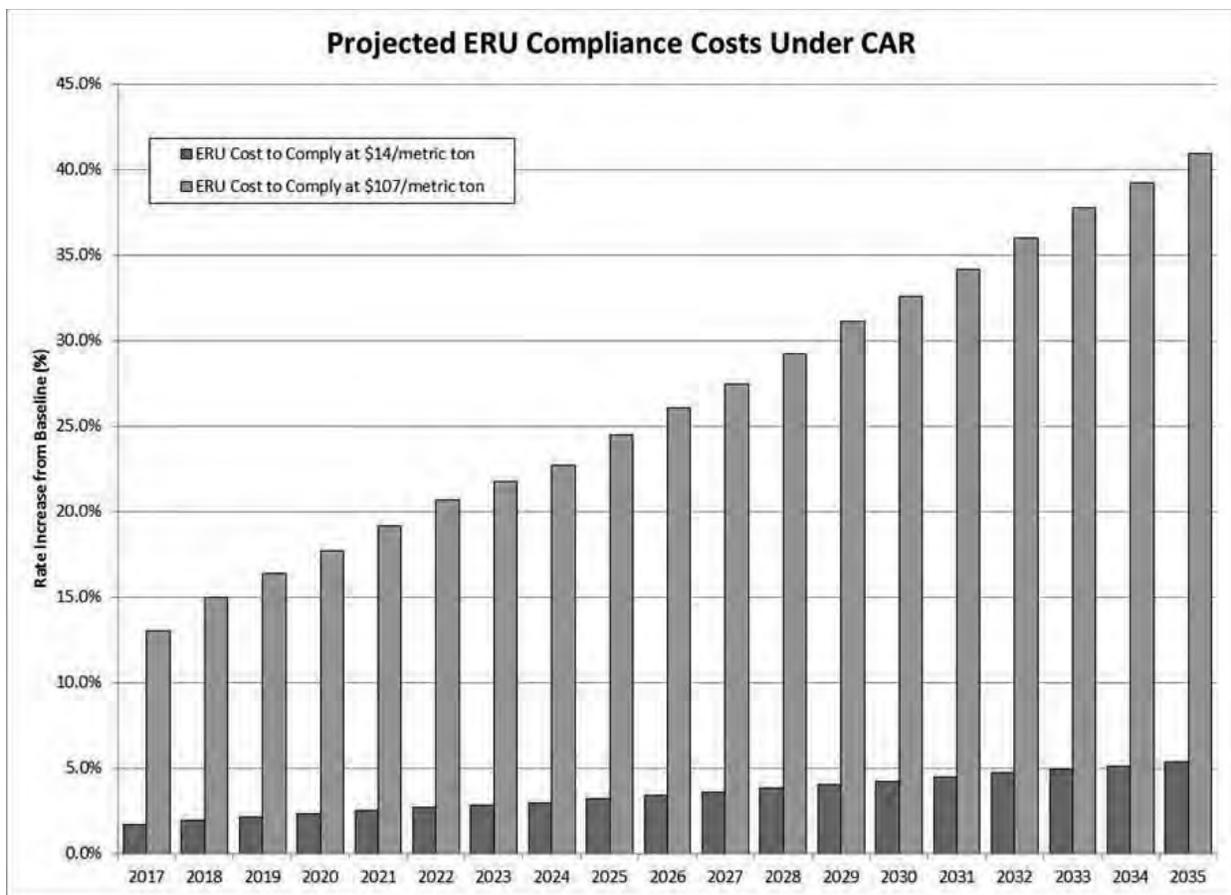


Figure 4.¹⁵³ Figure 4 shows the significant impact ERU prices could have on PSE gas utility customer rates. The chart reflects the potential rate impact resulting from ERU prices ranging from \$14/ERU (blue bars) to \$107/ERU (gray bars). PSE included a \$14/ERU price because covered parties would be able to use CARB allowances to comply with CAR during early compliance periods. However, PSE does not believe the \$14/ERU price is realistic. First, CARB expects its basic allowance price to increase over time as the CARB program becomes more restrictive. Second, increased demand from Washington sources will drive up CARB allowance prices. Third, CAR restricts the use of CARB allowances for compliance starting in 2023, which will require sources increasingly to rely on other, more expensive options—including the very expensive option of generating RECs. Thus, true rate impacts will be much higher than those shown in the blue bars above.

iii. ERU market uncertainty is compounded by variable weather patterns affecting emissions for the electric power and gas utility sectors

ERU market uncertainty will profoundly impact the electric power and gas utility sectors. Highly variable weather patterns drive the operations of these sectors. This variability can cause unpredictable and uncontrollable spikes in GHG emissions. As a result, electric utilities and LDCs face unique challenges in planning how to comply with CAR and

¹⁵³ Reproduced as Appendix L.

may be especially dependent on ERUs to satisfy compliance obligations.¹⁵⁴ Ecology’s failure to consider or analyze these impacts is arbitrary and capricious.¹⁵⁵ For instance:

(1) **On the electric power side**, most electricity generation in Washington comes from hydroelectric power. The availability of hydroelectric power depends on highly variable forces, such as rainfall patterns. GHG emissions are *higher* in years with *lower* levels of hydroelectric generation and *lower* in years with *higher* levels of hydroelectric generation.¹⁵⁶

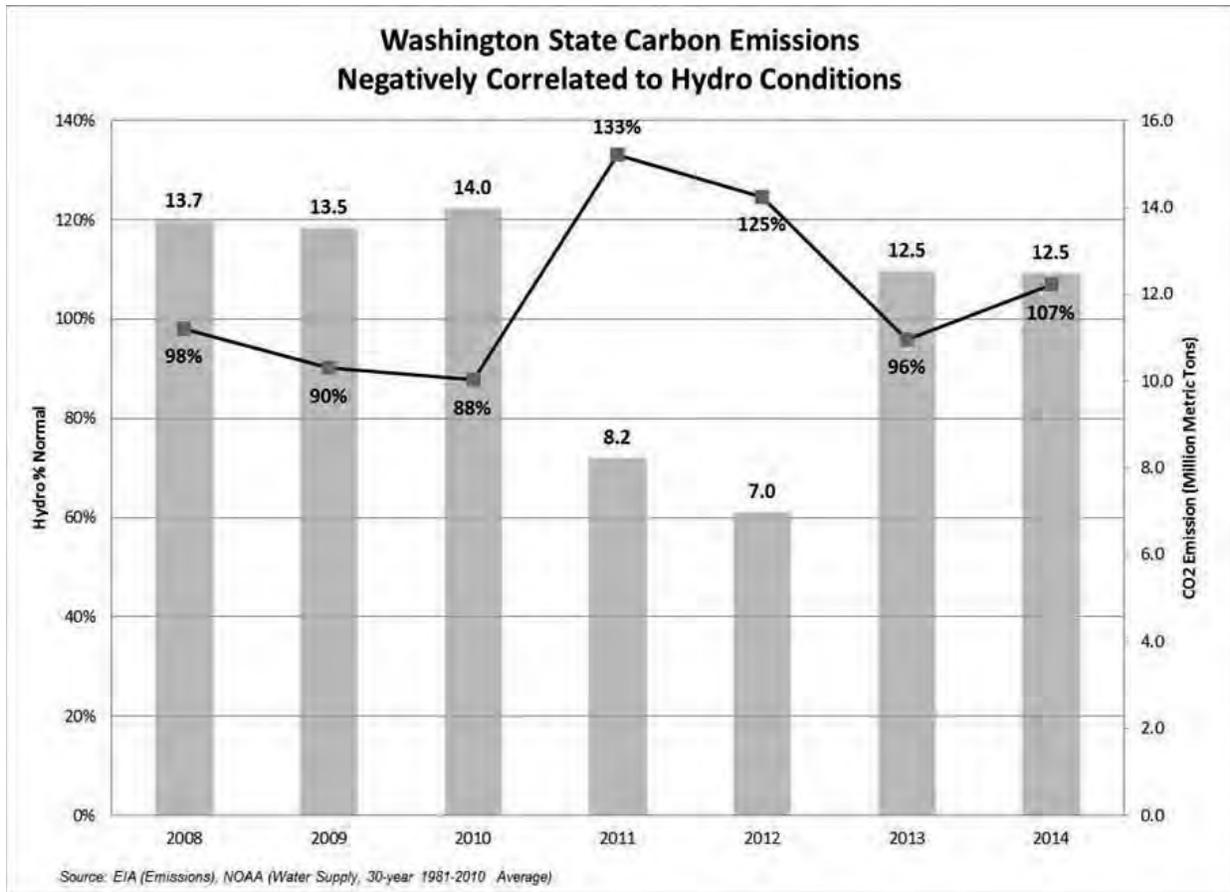


Figure 5.¹⁵⁷ Figure 5 demonstrates the inverse correlation between hydroelectric generation and CO₂ emissions in Washington. Figure 5 also demonstrates that 2011 and 2012 had unusually high levels of hydroelectric generation: 33 percent and 25 percent higher than the 30-year average, respectively. High levels of hydroelectric generation have a significant impact on levels of fossil generation and, thus, on emissions.

¹⁵⁴ This also means that CAR’s “straight line” declining emission reduction trajectory is unrealistic for these sectors. See Proposed WAC 173-442-060(1).

¹⁵⁵ See *Washington Indep. Tel. Ass’n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

¹⁵⁶ See Figure 5 (Reproduced as Appendix M); see also Appendix N (“Thermal-Hydro Correlation: Total Emissions and Total Hydro Generation in Washington 1990-2014”).

¹⁵⁷ Reproduced as Appendix M.

(2) **On the natural gas side**, demand for natural gas heating is driven by winter season temperatures. These temperatures can vary greatly from year to year.¹⁵⁸ GHG emissions are *higher* in years with *colder* winter season temperatures and *lower* in years with *warmer* winter season temperatures.

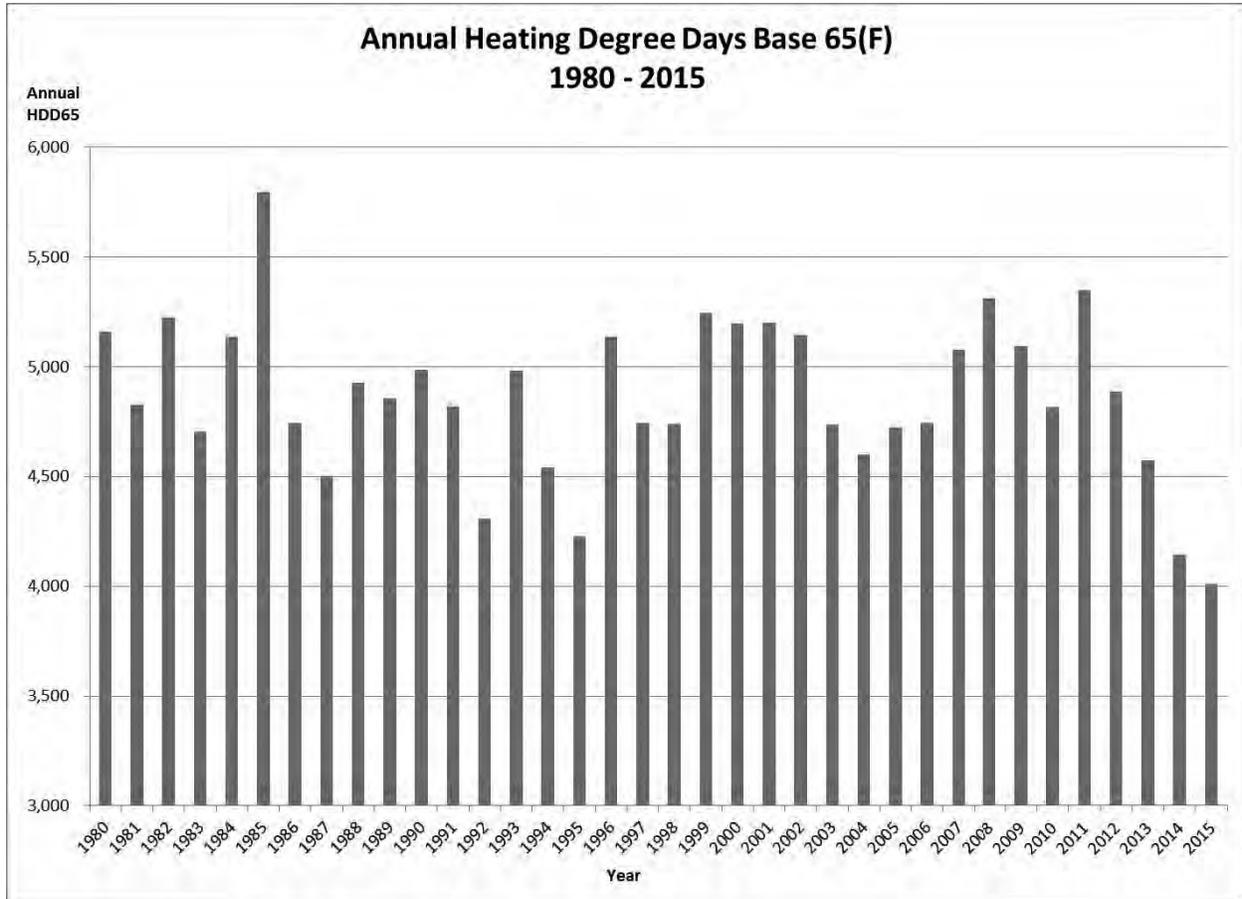


Figure 6.¹⁵⁹ Figure 6 shows historic annual heating degree day data in Washington and demonstrates that temperatures can fluctuate greatly on a year-to-year basis. Figure 6 also shows that 2014 and 2015 were unusually warm years.

The utility industry is compelled to operate and provide electric and gas service, irrespective of the variability in weather, costs, and demand. That makes CAR more impactful on utilities than on companies that do not have the same legal obligations.

¹⁵⁸ See Figure 6 (Reproduced as Appendix O).

¹⁵⁹ Reproduced as Appendix O.

III. CAR'S PROVISIONS ON ERU GENERATION ARE FUNDAMENTALLY FLAWED AS APPLIED TO ELECTRIC AND GAS UTILITIES

CAR's proposed provisions on ERU generation are fundamentally flawed, especially as applied to electric power and gas utilities. In general, CAR fails to understand, or harmonize its provisions with, other regulatory obligations and restrictions that Washington utilities face. These flaws will make it unduly burdensome, if not impossible, for covered electric power and LDC parties to comply with CAR.

i. CAR misunderstands how utility conservation programs work

CAR misunderstands how conservation programs for regulated electric and gas utilities work. Utilities are *required* to invest in cost-effective conservation. For instance, Washington's EIA requires electric utilities to "pursue *all available conservation that is cost-effective, reliable, and feasible.*"¹⁶⁰ Washington Utilities and Transportation Commission ("WUTC") rules and policies place similar requirements on natural gas utilities.¹⁶¹ Thus, Washington utilities already are making significant investments in energy efficiency.¹⁶² WUTC's regulatory process generally calls for a utility to (i) develop conservation targets pursuant to an Integrated Resource Plan; (ii) develop implementation plans; (iii) file tariffs; and (iv) await WUTC approval of the tariff (which often occurs by WUTC order). Regulated utilities typically do not offer conservation programs outside of the WUTC's regulatory approval process.¹⁶³

CAR provides that utilities could generate ERUs by investing in conservation and energy efficiency *beyond that* required by the EIA or WUTC rule or order.¹⁶⁴ However, this provision creates an untenable and illogical outcome. First, CAR *itself* will cause the level of investment that is "cost-effective" to increase (once the rule is in place and ERUs come to have a known value). That is, as the price of electricity increases under CAR (because of the financial burden the rule imposes on utilities), the value of energy efficiency investments correspondingly will increase. As a result, higher levels energy efficiency investments will

¹⁶⁰ See RCW 19.285.040(a) (emphasis added). "Conservation" is "any reduction in electric power consumption resulting from increases in the efficiency of energy use, production, or distribution." RCW 19.285.030(6).

¹⁶¹ See, e.g., WAC 480-90-238(1).

¹⁶² See WUTC, Company Conservation Programs, <http://www.utc.wa.gov/regulatedindustries/utilities/energy/pages/companyprogramplansandtargets.aspx> (last accessed July 21, 2016) (noting that "[u]tility efforts to conserve energy have contributed to Washington's top ten ranking in the American Council for an Energy Efficient Economy's State Energy Efficiency Scorecard since 2007"). Indeed, PSE has achieved a significant amount of energy efficiency over recent years. See Appendix P ("Avoided Emissions from Conservation 2010-2015 (Electric Power Side)"); Appendix Q ("Avoided Emissions from Conservation 2010-2015 (LDC Side)").

¹⁶³ CAR also fails to acknowledge that utilities cannot offer conservation services without an approved tariff revision. Generally, the WUTC has 30 days to act on a proposed tariff change. (If the WUTC does not act, the proposed change automatically goes into effect.)

¹⁶⁴ See Proposed WAC 173-442-160(5)(a).

become “cost-effective.” CAR anticipates that these increased investments will be eligible to generate ERUs. Yet, *because* these investments are now “cost-effective,” they also are now mandatory under the EIA and/or WUTC rules or orders. In other words, the investments are no longer “additional” to existing requirements. This creates an “endless loop” conundrum in which all CAR-driven investments essentially “convert” into EIA or WUTC-mandated investments. Thus, utilities may not be able to generate ERUs through investments in conservation and energy efficiency as CAR envisions.

PSE urges Ecology to recognize and explicitly address this scenario. Promulgating the rule without considering this potential conundrum would be arbitrary and capricious.¹⁶⁵ In particular, the final CAR should expressly provide that investments in energy conservation measures that would not be “cost effective” under the EIA or WUTC rules or orders *without* CAR will not be considered “cost effective” if CAR happens to make them cost-effective.

ii. CAR fails to understand the regulatory approval process for utilities

CAR also fails to understand the regulatory approval process for utilities. As a result, CAR would require utilities to make investments in energy efficiency that they legally cannot recover in order to be able to generate ERUs from those investments. As just discussed, Washington utilities generally are required to make all cost-effective investments in energy efficiency they can. Those *cost-effective* investments are eligible for recovery through the normal regulatory process. However, *non-cost-effective* investments—whether in energy efficiency, production, distribution, or elsewhere—are not eligible for recovery without a tariff or some other WUTC approval. Thus, utilities are constrained by law to make *only prudent, cost-effective* investments.

To the extent CAR avoids the conundrum outlined above and *does* allow utilities to generate ERUs from investments in energy efficiency beyond what the EIA and/or WUTC rules or orders require, CAR would force utilities into an untenable position. Utilities could generate ERUs under this provision *only by* making investments in energy efficiency that would not be cost-effective “but for” CAR. Because these investments would not be considered cost-effective, the investments likely would be ineligible for recovery. No rational utility will make an investment that is neither cost-effective nor recoverable. This is the “flip side” to the conundrum described above. Thus, once again, utilities may not be able to generate ERUs through investments in conservation and energy efficiency as CAR envisions.

¹⁶⁵ See *Washington Indep. Tel. Ass’n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

iii. CAR fails to recognize that electric utilities must be regulated on a *unit-by-unit* basis because of other statutory obligations

The proposed CAR is unclear as to whether covered electric utilities can (1) generate ERUs by reducing utilization at some generating units in their fleet and (2) use those generated ERUs for compliance by other generating units in the fleet. To comply with CAR, electric utilities *must* be able to generate ERUs by shifting generation among electric generating units in their fleet: that is, by reducing generation at some fossil units while increasing generation at others. Thus, CAR *must* regulate the electric power sector on a unit-by-unit—and not a plant-by-plant or facility-by-facility—basis.¹⁶⁶

Electric utilities are obligated by statute to provide enough electricity to meet load demand.¹⁶⁷ This means the utilities' hands are tied: they cannot reduce *net* electricity generation below load demand—not even to comply with emission reduction obligations. Therefore, if one generating unit operates less in order to reduce emissions to comply with CAR, another generating unit must operate more to make up for the reduced output.

Further, electric utilities are obligated to provide *least-cost* electricity.¹⁶⁸ This means electric utilities must be able to manage their generation portfolio to shift generation away from higher-cost generating units and toward lower-cost generating units. Such generation-shifting will cause emissions from the lower-cost generating units to increase. These emissions increases could exceed CAR emission reduction pathway levels. Even so, the utility would remain obligated to continue operating that lower-cost generating unit.

For an electric utility to fulfill its statutory obligation to provide least-cost electricity to meet load demand while complying with CAR, the utility must be able to both (1) generate ERUs by reducing utilization at one or more higher-cost generating units in their fleet; and (2) use those ERUs to cover increased emissions from lower-cost generating units in their fleet (that will need to operate more to make up for the lost generation). Otherwise—because the lost generation must be replaced from *somewhere*—the utility will shift the generation out-of-state. As discussed above in Section 3, Part I(i), this is virtually certain to increase net GHG emissions.

Ecology also has ignored, or is unaware, of the transmission constraints or local transmission congestion problems that will make compliance difficult and more costly. Power transmission systems are built to use high voltage transmission lines to move power from generators and connections with adjacent utilities to substations where it flows out to customers. Such systems are interconnected webs, with multiple different paths available for power to flow on. When one element or part of the path is taken out of service, the flow necessarily will increase on the remaining path(s). Utilities use sophisticated computer

¹⁶⁶ As discussed below in Section 5, Part V(ii), the proposed CAR also is unclear as to whether CAR compliance thresholds for stationary sources apply to units or to multi-unit aggregates. The final CAR should specify that covered “stationary sources” are *emitting units, not multi-unit aggregates* (e.g., facilities or plants).

¹⁶⁷ WAC 480-100-238(1).

¹⁶⁸ *Id.*

models to predict flows during planned and unplanned outages to avoid overloads and equipment damage by reconfiguring the system for planned outages, and in reacting to unplanned ones. For example, gas-fired units provide critical support to this system by quickly providing power and voltage stability (needed for efficiency and to protect equipment) to the system. Constraining or removing these tools will make operating and maintaining the system in compliance with national and regional reliability standards difficult, at times very difficult, and could ultimately, as a worst case, force operators to institute rolling blackouts. The system also must deal with local serve load pocket issues, i.e. areas that cannot be served by sources beyond the immediate area because of limited transmission capacity. Some generators have no choice but to operate such units to ensure reliable service irrespective of the GHG emissions from the units. This means that at least these generators could have limited compliance options, other than to acquire ERUs or external allowances.

iv. CAR risks requiring “double-compliance” from Washington natural gas generators importing power into California

The proposed CAR fails to recognize that Washington natural gas generators *already* have a compliance obligation under CARB for some of the power they generate. That is, a Washington electric generator must submit CARB allowances for certain power that is generated in Washington and imported into California.¹⁶⁹ Yet, it appears that the proposed CAR would *still require the generator to account for the emissions associated with that power under CAR*. This means that Washington natural gas generator operators, like PSE, might have to acquire “double” the number of compliance instruments to cover emissions from the same unit of generation: (1) a CAR ERU to generate the power in Washington; and (2) a CARB allowance to import the power into California. Finalizing CAR without considering this “double compliance” issue would be arbitrary and capricious.¹⁷⁰ This issue also implicates the dormant commerce clause for one or both of the programs.¹⁷¹

Notably, the CARB regulations exempt emissions from imported power *if* that power comes from a jurisdiction with a GHG emissions trading program that has been approved for linkage with the CARB program.¹⁷² However, this exemption would not appear to apply to power imported from Washington with a program like CAR in place. CAR has not been approved by CARB for linkage with the CARB program; further, CAR, at most, would

¹⁶⁹ See Cal. Code Regs. tit. 17, § 95811(b)(2); § 95802 (122). This is true for all imported power from “unspecified sources” and for imported power from “specified sources” emitting GHGs above a certain threshold. See § 95812(c)(2)(B).

¹⁷⁰ See *Washington Indep. Tel. Ass'n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

¹⁷¹ See Thomas Alcorn, *The Constitutionality of California’s Cap-and-Trade Program and Recommendations for Design of Future State Programs*, 3 Mich. J. Envtl. & Admin. L. 87, 173 (2013) (“[I]t is possible that interstate commerce would be double charged or face inconsistent obligations if the same regulatory regime [as the CARB cap-and-trade program] were adopted in other states . . . If other states adopt cap-and-trade programs, a refusal by California to waive compliance obligations for electricity from those states might violate the dormant commerce clause because generators would be subject to duplicate, inconsistent regulations.”).

¹⁷² See Cal. Code Regs. tit. 17, § 95852(b).

establish only “one-way” linkage. Thus, the CARB regulations do not protect against “double-compliance.”

If the final CAR covers the electric power sector, the rule must include a mechanism to ensure it would not require this “double-compliance.” For instance, CAR could exempt emissions associated with power that is exported to California and covered under CARB. Alternatively, CAR could allow the generator to use allowances surrendered to CARB to comply with both CARB and CAR requirements.

Section 4: Policy Comments

I. CAR SHOULD NOT REGULATE THE ELECTRIC POWER SECTOR

i. The electric power sector is (and will continue) achieving significant emission reductions without CAR

Washington's electric power sector is heavily regulated and has achieved significant GHG emission reductions. This trend will continue without CAR. For instance:

- Washington has one of the most aggressive EPSs¹⁷³ in the nation.
- Washington was one of the first states to pass an RPS.¹⁷⁴
- Washington's EIA already obligates electric utilities to make all cost-effective conservation measures they can.¹⁷⁵
- Washington has a highly efficient electric power generation mix from an emissions standpoint. The primary source is hydroelectric power, along with substantial amounts of natural gas and increasing amounts of non-hydro renewables like wind and solar.
- Washington's electric power sector already is expected to reduce its emissions to below the statutory target of 25 percent lower than 1990 levels by 2035,¹⁷⁶ without any further regulation.¹⁷⁷
- Washington's only coal plant, Centralia, is scheduled for full retirement over the next decade.¹⁷⁸ Centralia's shut-down alone will reduce the electric power sector's GHG emissions by about 60 percent.¹⁷⁹

Further reductions from Washington's electric power sector will be difficult or impossible—and certainly not cost-effective. Thus, CAR-mandated reductions will lead to diminishing returns and unnecessary rising costs for ratepayers.¹⁸⁰

¹⁷³ See RCW 80.80.040. See also Appendix C (“Current State GHG Emission Performance Standards”).

¹⁷⁴ See RCW 19.285.040.

¹⁷⁵ See RCW 19.285.040(1). WUTC rules and policies place a similar obligation on the state's natural gas utilities.

¹⁷⁶ See RCW 70.235.020(1)(a).

¹⁷⁷ See Appendix R (“Washington Electric CO₂ Emissions Comparison”).

¹⁷⁸ See RCW 80.80.040(3)(c).

¹⁷⁹ See Figure 8 (Reproduced as Appendix U). See also Appendix S (“Washington Electric Sector CO₂ Emissions (by Facility)”). However, some “rebound” effect on emissions will occur if the state's natural gas units ramp up to replace Centralia's lost generation.

Moreover, Washington's electric power sector is a relatively small portion of the state's overall GHG emissions picture. The electric generating sources that would be regulated under CAR (i.e., natural gas generators) represent just 3 percent of in-state emissions.¹⁸¹

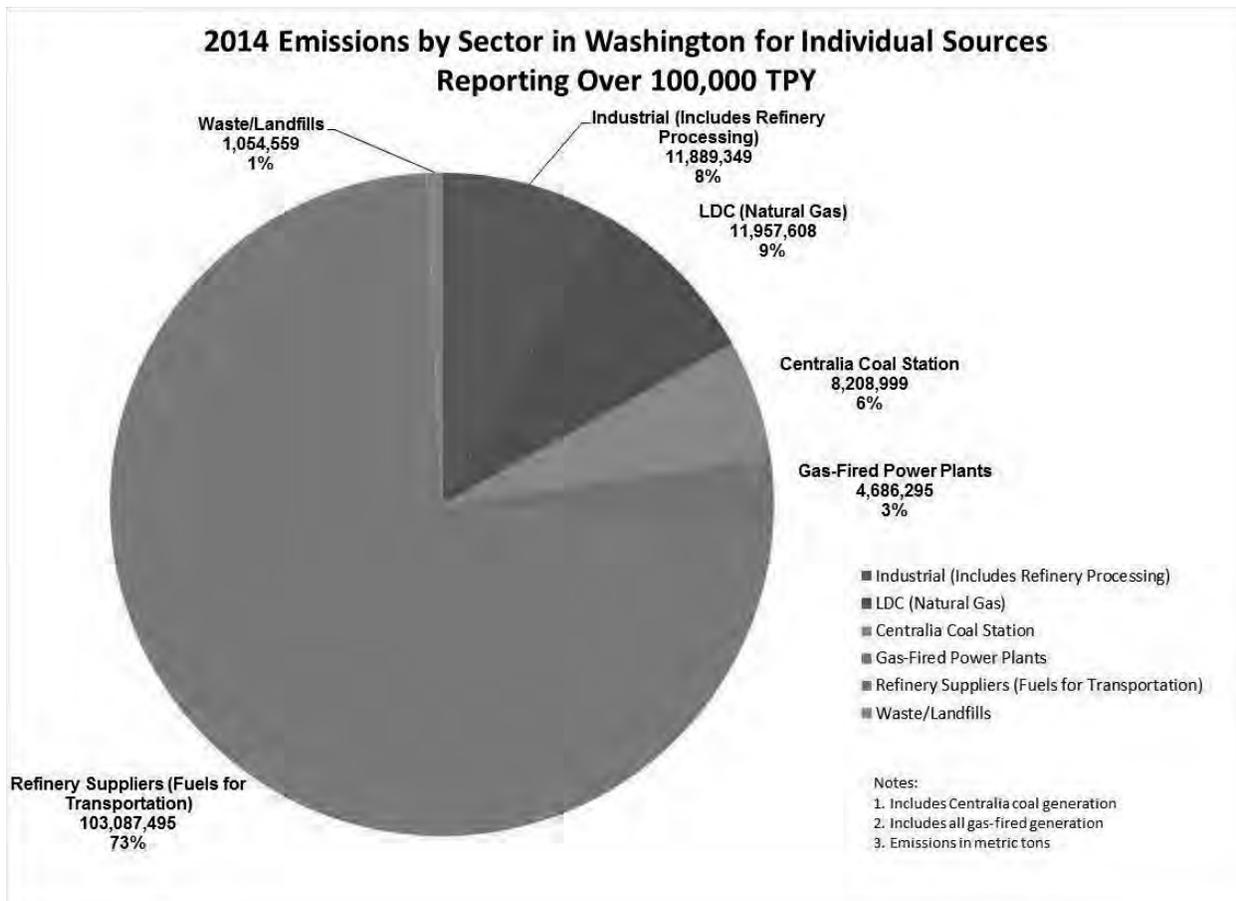


Figure 7.¹⁸² Figure 7 demonstrates that the electric power sector as a whole (i.e., Centralia and gas-fired power plants) contributes less than 10 percent of Washington's GHG emissions. Washington's gas-fired power plants alone (the only electric generating sources that would be regulated under CAR) contribute just 3 percent of in-state emissions. The largest contributor to in-state emissions, by far, is the petroleum-based transportation fuel sector, which generates over seventy percent of the state's emissions.

With CAR, Ecology should focus on achieving emission reductions from the largest contributor to in-state emissions—the petroleum-based transportation fuel sector. Imposing additional reduction obligations on the electric power sector is unnecessary and

¹⁸⁰ Further, as discussed above, CAR will have the unintended consequence of causing net GHG emissions from the electric power sector to *increase* on a regional basis.

¹⁸¹ See Figure 7 (Reproduced as Appendix T).

¹⁸² Reproduced as Appendix T.

unfair. The electric power sector already is doing its fair share to reduce emissions (including meeting its pro-rata share of the state’s statutory emission reduction targets).

Alternatively, Ecology should set emission reduction targets under CAR on a pro rata, sector-by-sector basis—reflecting each sector’s contribution to statewide emissions as a whole—instead of setting entity-specific emission reduction targets. Under this approach, the electric power sector would have no emission reduction requirement (as long as it continues to meet its pro-rata share of emission reductions). State policy supports this equitable approach.¹⁸³

ii. Regulating the electric power sector will discourage emission reductions in the transportation sector

Further, regulating the electric power sector under CAR will *discourage* certain emission reduction measures in the transportation sector. For instance, CAR recognizes “improved efficiency of vehicle fleets” and “truck stop electrification” as eligible ERU-generating activities.¹⁸⁴ Ecology also anticipates that CAR will encourage more consumers to invest in electric vehicles, noting a “likely need to address a rise in demand for electricity to charge vehicle-charging stations.”¹⁸⁵ (PSE currently has a pilot program to help customers defray the cost of installing in-home electric vehicle chargers.) As CAR causes electricity prices to go up, these transportation conservation measures will become more costly and thus less likely to occur. This will lead to continued reliance on gasoline-fueled vehicles—far and away the greatest source of GHGs in Washington.¹⁸⁶

II. CAR SHOULD NOT REGULATE THE LDC SECTOR

i. LDCs are part of the solution, not the problem

Washington’s LDCs provide natural gas to customers for a variety of end-uses across a range of sectors. Most notably, LDCs supply natural gas to power plants for electricity generation and to homes and businesses for heating. Natural gas provides a number of climate benefits, in part because:

- LDCs *already* must make all cost-effective conservation measures they can under WUTC rules and policies.¹⁸⁷
- Natural gas releases just a fraction of the GHGs of other fossil fuels, including about half the CO₂ as coal.¹⁸⁸

¹⁸³ See RCW 70.94.011 (“It is the policy of the state that the costs of protecting the air resource and operating state and local air pollution control programs shall be shared *as equitably as possible* among all sources whose emissions cause air pollution.”) (emphasis added).

¹⁸⁴ See Proposed WAC 173-442-160(3)(a).

¹⁸⁵ SEPA Checklist at 12.

¹⁸⁶ See Figure 7 (Reproduced as Appendix T).

¹⁸⁷ See, e.g., WAC 480-90-238(1).

Thus, LDCs have played a critical role in achieving GHG emission reductions across a number of sectors of Washington’s economy. In particular:

- **For electric generation**, LDCs support the transition away from coal to cleaner forms of power generation. Indeed, natural gas is a key “bridge fuel” in the transition to renewables. In the Pacific Northwest, natural gas is second only to hydropower as the most flexible resource available to operators. Natural gas generators are easily dispatched and capable of providing base load, intermediate, and peaking power. This makes natural gas generators well-suited for integrating intermittent renewable resources, like wind and solar power, into the electrical grid. Because hydroelectric generators are subject to varying hydrologic conditions from year to year, along with increasing operational and regulatory constraints (e.g., fish passage requirements), natural gas generators increasingly are needed to address load variability and supply firm backup to new intermittent renewable resources.
- **For heating**, LDCs have helped homes and businesses in Washington shift away from electricity or biomass (e.g., woodstoves) to natural gas. Direct use of natural gas for heating both conserves electricity and reduces emissions of GHGs and other conventional pollutants (such as fine particulates from wood combustion).¹⁸⁹ Indeed, *indirect* use of natural gas (i.e., burning gas in an electric generator and using that electricity for heating) emits 40-60 percent *more* CO₂ than if appliances remained gas-fueled.¹⁹⁰ Thus, direct natural gas use for heating is a form of energy conservation.
- **For the transportation sector**, replacing more traditional motor fuels with natural gas lowers emissions of a number of air contaminants, including CO₂, fine particulates, nitrogen oxides, and carbon monoxide. PSE is working to grow CNG use in vehicles and LNG use in marine vessels.

¹⁸⁸ See U.S. Energy Information Administration, *How much carbon dioxide is produced when different fuels are burned?*, <https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11> (last accessed July 21, 2016).

¹⁸⁹ See Pamela Lacey, American Gas Association (“AGA”), *AGA’s Comments on Clean Power Plan Proposed Federal Plan and Model State Trading Rules – Supporting Natural Gas Direct Use and Combined Heat and Power as Compliance Options* (Jan. 21, 2016), available at <https://www.aga.org/environmental-policy/environmental-comments/environmental-comments-2016-archive/aga-comments-epas>; see also Richard Meyer, AGA, *Achieving Greenhouse Gas Reductions with Natural Gas in Homes and Businesses* (Nov. 16, 2015), available at https://www.aga.org/sites/default/files/dispatching_direct_use_-_achieving_greenhouse_gas_reductions_the_use_of_natural_gas_in_homes_and_businesses.pdf. (“AGA Gas Study”).

¹⁹⁰ See *id.* at 10; see also Massachusetts Institute of Technology (“MIT”), *The Future of Natural Gas: An Interdisciplinary MIT Study* (June 2011) at 115, available at <http://energy.mit.edu/publication/future-natural-gas/> (“MIT Gas Study”).

Regulating LDCs under CAR threatens to reverse some of these climate gains and would be arbitrary and capricious.¹⁹¹ This is because CAR would cause natural gas rates to go up. In the heating sector, customers likely would respond to higher natural gas prices by switching back to electricity and/or biomass to heat their homes and businesses. This fuel-switching would increase GHG emissions.¹⁹² In the electricity sector, utilities likely would respond to higher in-state natural gas prices by importing more electricity from out-of-state. As discussed above in Section 3, Part I(i), this imported electricity generally will be higher-emitting than in-state gas generation. Finally, in the transportation sector, higher natural gas prices likely would discourage further investments in CNG use in vehicles. This would undercut a potential avenue for emission reductions in the transportation sector.

ii. Regulating LDCs will harm Washington’s economy and job market

Regulating LDCs under CAR will shift money and jobs out of Washington. The proposed CAR places significant compliance obligations on LDCs. At the same time, it leaves LDCs with very limited options for meeting these obligations. This is because CAR regulates LDCs for *indirect* emissions associated with the end-use of products they deliver—emissions they do not (and cannot) directly control. The inevitable impacts on Washington’s economy and job market are two-fold: (1) higher natural gas rates for customers, affecting everyone from low-income households to large city and county employers to schools; and (2) more money directly sent out-of-state by regulated LDCs so they can purchase external market allowances needed to comply with the rule. Failing to consider these impacts is arbitrary and capricious.¹⁹³

LDCs have very limited options for directly reducing emissions to comply with CAR. LDC operations basically consist of pipelines. Other than fixing leaks (or selling less gas¹⁹⁴), there is little LDC owners and operators can do to lower emissions.¹⁹⁵ As a result, LDCs will be forced to buy ERUs from other entities to meet virtually all of their compliance obligation. LDCs likely (especially during initial compliance periods) will obtain a significant number of these ERUs by purchasing allowances from external carbon markets (such as CARB). The revenues from these purchases will go to out-of-state entities. Because CAR does not contain direct mechanisms for generating revenue in-state (other than penalties for non-compliance), these exported dollars will not be “made up for” elsewhere under the program. LDCs ultimately will pass on these costs of purchasing credits from

¹⁹¹ See *Washington Indep. Tel. Ass’n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

¹⁹² See AGA Gas Study at 10; see also MIT Study at 115.

¹⁹³ See *Washington Indep. Tel. Ass’n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

¹⁹⁴ LDCs have a statutory obligation to meet customer loads. RCW 80.28.110. Thus, Ecology cannot require LDCs to sell less product.

¹⁹⁵ Further, as discussed above in Section 3, Part III, LDCs already are obligated to make all cost-effective energy efficiency investments they can. Even if PSE were able to generate ERUs from making all *non cost-effective* energy investments possible, PSE would be left with a significant ERU shortfall. See Appendix I (“ERU Potential From All Non-Cost-Effective Conservation (LDC Side)”). Further, PSE’s analyses indicate exorbitant costs from generating ERUs from non-cost-effective conservation, ranging from about \$4,433/ERU to \$12,123/ERU on the gas side. See Appendix K (“Annual ERU Cost from Non-Cost Effective Conservation”).

external carbon programs to Washington customers. The net result will be a wealth-shift out-of-state *and* higher gas utility rates for in-state customers. To avoid harming Washington's economy and job market, CAR should not regulate LDCs.

Section 5: PSE's Recommended Changes to CAR

Ecology should not finalize CAR. Instead, Ecology should withdraw and continue to work on the rule, addressing the legal, policy, and implementation concerns raised throughout these comments. If Ecology does finalize CAR, the final rule should not regulate the electric power or LDC sectors. These two sectors represent *less than 13 percent* of all GHG emissions in Washington (even including all indirect emissions from LDC customers).¹⁹⁶

If the final CAR *does* include the electric power and LDC sectors, PSE offers the following recommended changes to CAR. These proposals aim to enable the electric power and LDC sectors to comply with the rule, while maximizing real emission reductions and minimizing costs to Washington ratepayers.

I. PROPOSED EXEMPTION PROVISION FOR SOURCES THAT SHOULD NOT BE REGULATED BECAUSE NET GHG EMISSIONS WILL INCREASE

The final CAR should include an exemption provision for covered parties that demonstrate that reducing their in-state emissions would result in a net emissions increase from other sources. As discussed above in Section 3, Part I(i), CAR would have the unintended consequence of causing emissions from the electric power sector to increase, not decrease. These emissions increases would result from shifting emissions-generating activities to out-of-state sources.

PSE proposes the following exemption provision language:

Ecology shall waive the requirements of the rule for any affected entity upon a determination by the Washington Utilities and Transportation Commission (WUTC), that such affected entity, whether a stationary source owner or natural gas distributor, has demonstrated that reducing its GHG emissions in Washington to achieve compliance with the rule would result in a net increase in GHG emissions from other sources across the Western Interconnection (the region in which Washington utilities are electrically tied with other western electric generating sources).

In making such determination, the WUTC will evaluate whether (1) the entity has a legal duty to provide service to Washington residents; (2) service currently provided from in-state sources can be supplied by out-of-state stationary units, OR service can be replaced with a new functionally equivalent service from in-state or out-of-state GHG emissions sources; (3) the cost impact of the rule would affect the utilization of in-state sources; and (4) compliance with the rule is likely to result in a net increase in GHG emissions increase regionally (within the Western

¹⁹⁶ See Figure 7 (Reproduced as Appendix T). Washington's natural gas generators contribute about 3 percent of in-state emissions, while LDCs contribute about 9 percent of in-state emissions.

Interconnection) or would jeopardize the entity's ability to comply with its duty to provide service.

Such a provision is necessary to ensure CAR will achieve real and permanent GHG reductions—not just within Washington but regionally as well.

II. PROPOSED MECHANISM TO ACCOUNT FOR THE ELECTRIC POWER SECTOR'S NEED TO REPLACE CENTRALIA'S GENERATION

Ecology has not accounted for future emissions increases from the electric power sector when the Centralia units retire. This is arbitrary and capricious.¹⁹⁷ The final CAR must include a mechanism to allow Washington's natural gas generators to run more to replace Centralia's lost generation, *without* incurring additional compliance burdens for the increased emissions that would result. Otherwise, Washington utilities will shift this generation out-of-state (quite possibly to other coal units) to avoid CAR compliance obligations.

Centralia will partially retire by the end of 2020 and fully retire by the end of 2025.¹⁹⁸ Retiring Centralia will reduce carbon emissions from Washington's electric power sector by about 60 percent¹⁹⁹ and remove about 1,340 MW of baseload generation.²⁰⁰

[See Figure 8 on following page.]

¹⁹⁷ See *Washington Indep. Tel. Ass'n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

¹⁹⁸ See RCW 80.80.040(3)(c).

¹⁹⁹ See Figure 8 (Reproduced as Appendix U). See also Appendix S ("Washington Electric Sector CO₂ Emissions (by Facility)").

²⁰⁰ PSE's actual contractual off-take quantities are: (1) 180 MW starting December 1, 2014; (2) 280 MW starting December 1, 2015; (3) 380 MW starting December 1, 2016; and (4) 300 MW starting January 1, 2025. The contract expires on December 31, 2025.

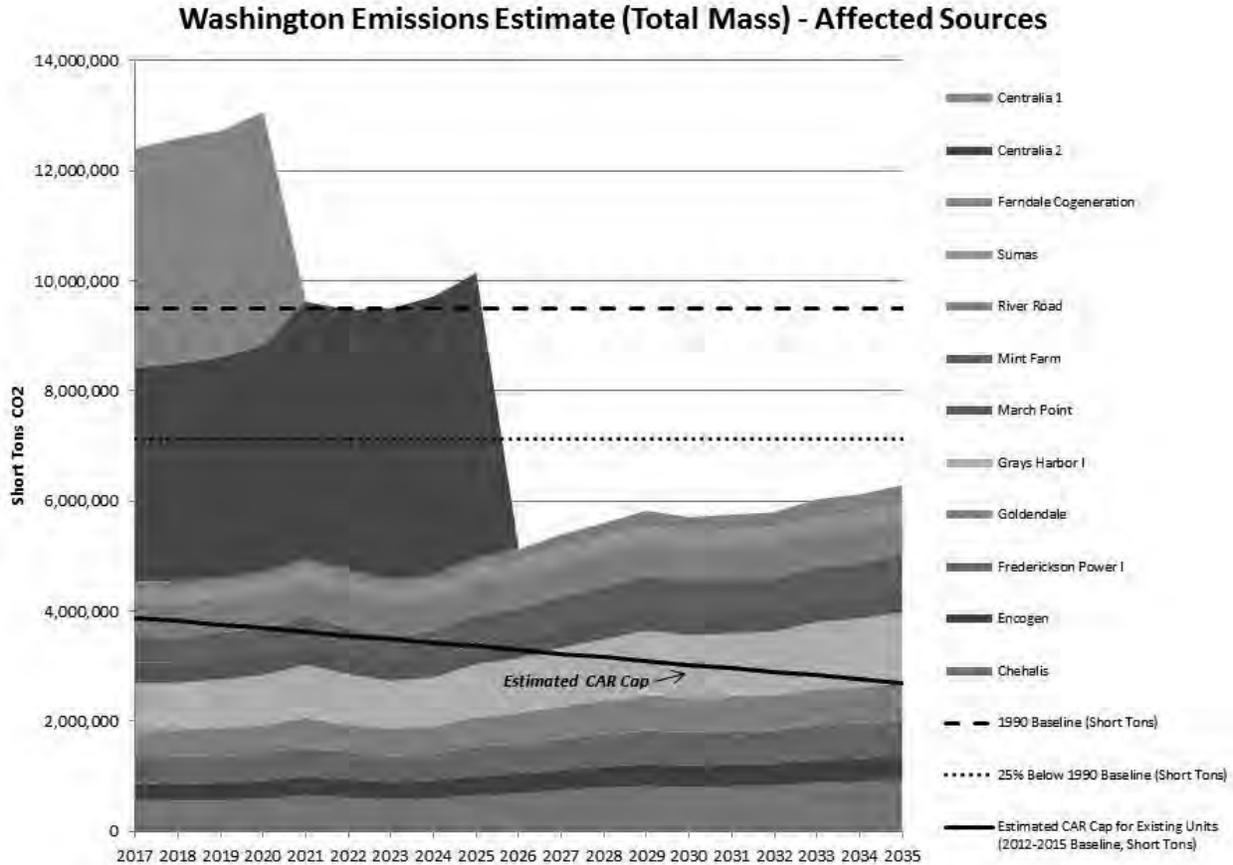


Figure 8.²⁰¹ After Centralia’s two units retire at the end of 2020 and 2025, respectively, emissions from Washington’s natural gas generating fleet will need to increase to make up for this lost generation. Yet, CAR’s emissions “cap” for these units would continue to decline along a “straight line” emission reduction pathway.

Centralia’s lost generation must be replaced. However, CAR does not provide enough “headroom” for the state’s natural gas generators to run more to make up this replacement power. Nor is there enough time for the state’s electric utilities to develop sufficient renewable capacity to make up the shortfall (at least not without extraordinary impacts on ratepayers). As a result, electric utilities likely will resort to importing out-of-state (and generally higher-emitting) generation. As discussed above in Section 3, Part I(i), this scenario is virtually certain to increase emissions on a regional level.

PSE proposes the following transition mechanism to allow electric utilities that have long term power purchase agreements for Centralia’s electric generation to replace Centralia’s lost generation with in-state generation sources, while maintaining compliance with CAR and RCW 80.80:

²⁰¹ Reproduced as Appendix U.

In each year following the date on which one of the units at the Centralia Power Plant ceases operations, for a total of five (5) years, Ecology shall issue to electric utilities that have power purchase agreements for Centralia’s electric generation ERUs equal to 50 percent of the emissions of the retired Centralia unit’s average annual emissions for the four (4) years prior to termination.

Ecology shall distribute the ERUs to companies who have long-term power purchase agreements for the output of Centralia, based on the pro-rata share of each company’s off take/purchase from each Centralia unit’s output between for the four (4) years prior to termination.

This mechanism would remove the incentive for Washington’s electric power sector to replace Centralia’s generation with (relatively higher-emitting) out-of-state natural gas and coal generation when it might otherwise replace this generation with (relatively lower-emitting) in-state natural gas generation.

III. PROPOSED MECHANISM TO AVOID INCENTIVIZING ELECTRIC UTILITIES TO OPERATE OUT-OF-STATE COAL UNITS *LONGER THAN PLANNED* AS A RESULT OF CAR

The final CAR should provide mitigation credit to Washington electric utilities for early retirements of out-of-state coal-fired electric generating units. As proposed, CAR would incentivize Washington electric utilities to run out-of-state coal units *as long as possible* to avoid having to run CAR-covered in-state fossil generators—possibly even longer than the utility originally planned to run the out-of-state unit. To avoid this unintended consequence, Ecology should include a mechanism in the final CAR to remove any incentive under CAR for a Washington electric utility to continue operating a coal-fired electric generating unit located outside of Washington longer than the utility would operate the unit in the absence of CAR.

PSE proposes the following basic mechanism:

Eligibility

Ecology shall grant mitigation emission reduction units (“m-ERUs”) to any Washington electric utility with a partial or full ownership interest in a coal-fired electric generating unit located outside of Washington and supplying some or all of its power to Washington consumers if (i) the unit ceases operations; (ii) the utility submits a notification to Ecology that the unit has ceased operations; and (iii) the utility certifies to the closure of all GHG emitting processes and operations at the unit.

Ecology shall not grant any m-ERUs if the unit ceases operations on or after a date on which the unit is required to cease operating as a result of any court order or

legally enforceable settlement agreement.
Allocation
<p>An electric utility eligible for m-ERUs will receive m-ERUs on a “lump sum” allocation:</p> <p>The amount of m-ERUs that Ecology shall grant to the Washington electric utility will be equal to the amount of emissions that the unit emitted on average during the four (4) years prior to the date on which the unit ceases operations divided by twelve (12) times the months between the date the unit ceases operation and the required shutdown date.</p>
Mitigation ERUs
Each m-ERU shall be equivalent to one metric ton of CO ₂ e.
An m-ERU is distinct from an ERU or a REC.
m-ERU Use and Use Restrictions
<p>The Washington electric utility receiving the m-ERUs can use the m-ERUs only for CAR compliance.</p> <p>The Washington electric utility receiving the m-ERUs cannot sell, trade, or otherwise exchange or transfer the m-ERUs to any other covered party or to any third party.</p> <p>The Washington electric utility receiving the m-ERUs can use the m-ERUs to meet the CAR compliance burden of any of the utility’s covered sources.</p> <p>When an m-ERU is used for CAR compliance, it will “convert” into an ERU and be immediately retired. An m-ERU cannot convert into an ERU for any other purpose (i.e., to be sold or traded on the ERU market.)</p>
The Washington electric utility receiving the m-ERUs can use the m-ERUs for compliance only during a year in which one or more of the utility’s covered sources has reported GHG emissions over its emission reduction pathway level established under CAR.
Banking
m-ERUs can be banked for up to sixteen (16) years.
If an m-ERU has not been used for CAR compliance within sixteen (16) years after the date on which the m-ERU is issued, the m-ERU will expire.

IV. PROPOSED MECHANISM TO EXCLUDE HIGH-HYDRO YEARS FROM THE BASELINE PERIOD FOR THE ELECTRIC POWER SECTOR

The final CAR should provide a mechanism for excluding years with unusually high levels of hydroelectric generation from the baseline GHG emissions level calculation for covered electric power sector sources. The proposed CAR's default "Category 1" baseline period for non-EITE covered sources²⁰² is flawed for the electric power sector because it includes 2012, a year with an unusually high level of hydroelectric generation. In Washington, hydropower production was about 25 percent higher in 2012 than the long-term 30-year average rate.²⁰³ The unusually high level of hydroelectric generation resulted in unusually low levels of fossil generation (because Washington's fossil generators dispatch only after all hydropower and wind resources have been fully allocated). Correspondingly, GHG emissions levels from the electric power sector in 2012 were unusually low.²⁰⁴ Including 2012 in the baseline period for covered electric power sources skews baseline emissions levels unrealistically high.²⁰⁵ This makes it difficult if not impossible to comply with CAR. Setting baselines for covered electric power sector sources that include such high-hydro years would be arbitrary and capricious.²⁰⁶

PSE urges Ecology to provide an explicit mechanism in the final CAR for excluding high-hydro years from the baseline period for covered electric power sources. Specifically, Ecology should include an additional provision under WAC 173-442-050(3) as follows:

173-442-050(3)(c) Ecology shall omit any calendar year from calculating the baseline GHG emissions value for covered electric generating sources that includes hydroelectric power generation that is more than 20% greater than the 30-year average level of hydroelectric power generation for Washington.

²⁰² CAR's default "Category 1" baseline emissions value for non-EITE covered parties is calculated based on an average of five years of covered GHG emissions data between 2012 through 2016. *See* Proposed WAC 173-442-050(3)(a)(1).

²⁰³ *See* Figure 5 (Reproduced as Appendix M); *see also* Appendix N ("Thermal-Hydro Correlation: Total Emissions and Total Hydro Generation in Washington 1990-2014").

²⁰⁴ *See* Figure 5 (Reproduced as Appendix M); *see also* Appendix N ("Thermal-Hydro Correlation: Total Emissions and Total Hydro Generation in Washington 1990-2014").

²⁰⁵ Notably, EPA made adjustments to state-level 2012 state for Washington (among other states) between the proposed and final CPP to "better reflect fossil generation levels when hydro generation performed at its average level as observed over a 1990–2012 timeframe." 80 Fed. Reg. at 64,815. In making these adjustments, EPA recognized that "variation in the hydrologic cycle does fundamentally change the generating potential of the state's power fleet in hydro-intensive states as they no longer have the same generating potential in an average year as they had in a 'high hydro' year." *Id.*

²⁰⁶ *See Washington Indep. Tel. Ass'n*, 148 Wash. 2d at 905; RCW 34.05.570(2)(c).

V. OTHER RECOMMENDATIONS AND REQUESTS FOR CLARIFICATION

i. CAR should allow unlimited ERU banking and borrowing

CAR should not restrict ERU banking and borrowing. The proposed CAR would restrict ERU banking to a 10-year period.²⁰⁷ The proposed rule does not address ERU borrowing. Ecology offers no justification (legal or policy) for why CAR should restrict ERU banking or borrowing. (In fact, Ecology cites no clear source of its authority to create ERUs in the first place.²⁰⁸) Such restrictions are unnecessary and will impede the efficiency of the ERU market.

To the extent Ecology has authority to create ERUs, there is nothing that would require Ecology to restrict ERU banking or borrowing. The WA CAA and Ecology's regulations address only ERCs, not ERUs. (In fact, Ecology appears to have created the concept of an ERU "whole-cloth" for CAR.) Thus, restrictions on ERCs—including the 10-year restriction on ERC duration²⁰⁹—apply only to ERCs, not ERUs. Ecology has discretion to allow unlimited ERU banking and borrowing.

PSE urges Ecology to remove the 10-year restriction on ERU banking in the final CAR. Further, Ecology should expressly provide in the final CAR that covered parties can "borrow" ERUs from future compliance periods (e.g., use an ERU from 2021 to meet requirements for 2017).

ii. CAR should specify that compliance thresholds for stationary sources apply to *units* and not *multi-unit aggregates*

As discussed above in Section 3, Part III(iii), CAR *must regulate the electric power sector on a unit-by-unit basis* to ensure the sector can comply with the rule. However, the proposed CAR is unclear as to whether compliance thresholds for stationary sources apply to *units* or *multi-unit aggregates*. Instead, the rule forces covered parties down a maze of confusing and potentially contradictory regulatory definitions. This ambiguity makes it difficult for electric utilities to determine something as basic and crucial as whether *unit* or *plant* emissions will trigger CAR compliance obligations.

First, CAR states that compliance thresholds apply to "[a] covered party with covered GHG emissions that are greater than or equal to the compliance threshold" listed in

²⁰⁷ Proposed WAC 173-442-130(1).

²⁰⁸ Ecology does not appear to base its authority to create and manage ERUs in RCW 70.94.850—nor could it. This provision gives Ecology authority to implement an "emission credits banking program," under which the agency could accept emission reduction credits ("ERCs") for compliance with the state's prevention of significant deterioration, new source review, and bubble programs. Because CAR does not resemble these programs, the CAR trading program cannot qualify as an "emission credits banking program" under the WA CAA, and ERUs cannot be considered ERCs. It is unclear where else Ecology might derive its authority to create ERUs and manage an ERU trading program.

²⁰⁹ WAC 173-400-136(5).

CAR.²¹⁰ CAR defines a “covered party,” in turn, as “the owner or operator of a . . . [s]tationary source located in Washington.”²¹¹ CAR also defines “[c]overed stationary source GHG emissions” as “GHG emissions from *source categories* listed in [the Washington GHG Reporting Rule].”²¹² CAR does not define “stationary source.” Accordingly, the definition from the Washington GHG Reporting Rule should apply;²¹³ if that rule provides no definition, the definition from Ecology’s general regulations for air pollution sources should apply.²¹⁴

The Washington GHG Reporting Rule does not define “stationary source.” However, the rule does define the “electricity generation source category” as “compris[ing] *electricity generating units*[.]”²¹⁵ This definition suggests that covered stationary sources under CAR are *individual emitting units* with emissions above the applicable threshold. Ecology’s air pollution source regulations, however, define “stationary source,” as “*any building, structure, facility, or installation* which emits or may emit any air contaminant.”²¹⁶ This definition suggests that covered stationary sources under CAR are *multi-unit emitting facilities* (e.g., power plants) with emissions above the applicable threshold.

PSE urges Ecology to clarify the definition of “stationary source” in the final CAR. In particular, Ecology should define a covered “stationary source” as an *emitting unit* with emissions above the applicable threshold. Ecology should further clarify that compliance thresholds are not applicable to aggregate emissions from multiple emitting units. Importantly, CAR, as written, provides a perverse incentive for utilities to site new generating units at greenfield sites instead of expanding generation at existing source sites—even though adding new units to existing facilities would often be the cheaper and less environmentally-impactful option.

iii. CAR must expressly allow electric utilities to (1) generate ERUs by reducing utilization at some generating units in their fleet and (2) use those generated ERUs for compliance by other generating units in the fleet

If the final CAR covers the electricity sector, PSE urges Ecology to include an express provision stating that covered electric utilities can (1) generate ERUs by reducing utilization at some generating units in their fleet and (2) use those generated ERUs for compliance by other generating units in the fleet. As discussed above in Section 3, Part III(iii), such a provision is necessary for electric utilities to be able to manage their

²¹⁰ Proposed WAC 173-442-030(3).

²¹¹ Proposed WAC 173-442-020(1)(j) (emphasis added).

²¹² Proposed WAC 173-442-020(1)(i)(i) (emphasis added).

²¹³ See Proposed WAC 173-442-020(2).

²¹⁴ See Proposed WAC 173-442-020(3).

²¹⁵ WAC 173-441-120, § 98.40(a) (emphasis added).

²¹⁶ WAC 173-400-030(86) (emphasis added).

generating portfolios to minimize compliance costs, fulfill their other statutory obligations, and maintain reliability. Further, without such a provision, the incentives under CAR for electric utilities to shift electric generation out-of-state are even stronger. Utilities will reduce utilization at in-state sources to generate ERUs. Instead of using those ERUs to enable *other in-state sources* in the utility fleet to ramp up operations, a utility will sell those ERUs to other covered parties and replace the lost generation with imported electricity from (generally higher-emitting) out-of-state units.²¹⁷ As discussed above in Section 3(I)(i), this scenario is virtually certain to increase emissions on a regional basis.²¹⁸

iv. CAR should not restrict eligible offset ERU generating activities to in-state projects and programs

As discussed above in Section 2, Part II(i), the proposed CAR's limits on offsets to *in-state* projects and programs would violate the dormant commerce clause. PSE urges Ecology to allow covered parties to purchase offset credits from both in-state and out-of-state sources in the final CAR. At minimum, the final CAR should allow covered parties to use CARB-issued "ARB offset credits"²¹⁹ from CARB programs, such as livestock, mine methane capture, and ozone depleting substance programs.²²⁰ Further, the final CAR should allow covered parties to use CARB-approved "registry offset credits" from offset projects registered on the American Carbon Registry or the Carbon Action Registry.²²¹ Like CAR, CARB requires that offset credits be "real, additional, quantifiable, permanent, verifiable, and enforceable."²²² Allowing CAR-covered parties to use CARB-issued and CARB-approved offset credits could help ensure low CAR compliance costs *while still* limiting eligible offset activities to approved, third-party verified carbon reductions.

v. CAR should not limit the use of external allowances for compliance over time

As discussed above in Section 2, Part II(ii), the proposed CAR's limits on how many external allowances covered parties could use to meet CAR compliance obligations over time would violate the dormant commerce clause. PSE urges Ecology to remove CAR's declining limits on the use of external allowances. Such limits were not a part of the January 2016 version of the proposed CAR and should not be a part of the final CAR. In addition to violating the dormant commerce clause, these limits are bad policy. They will constrain trading markets, making it more difficult and more expensive to comply with CAR over

²¹⁷ Ecology could not guard against such emissions "leakage"—for instance, by restricting ERU generation associated with increased imports of electricity—without violating the dormant commerce clause.

²¹⁸ See Figure 2 (Reproduced as Appendix E); see also Appendix F ("CO₂ Offset Price Scenarios").

²¹⁹ See Cal. Code Regs. tit. 17, § 95802(a)(14); §§ 95970-88.

²²⁰ Indeed, the January 2016 version of the proposed CAR expressly provided that these were eligible ERU-generating programs. See January 2016 Proposed CAR, WAC 173-442-120(4).

²²¹ See Cal. Code Regs. tit. 17, § 95802(a)(326), §§ 95970-88. CARB has multiple levels of approval for issuing registry offset credits. See § 95970(a), § 95980-80.1.

²²² § 95802(a)(14), § 95802(a)(326).

time. LDCs will be especially hard hit—something Ecology seems to recognize (but for which it fails to offer any solution).²²³

vi. CAR should not restrict eligible external carbon markets to “multi-sector” markets

The proposed CAR should not restrict external allowance purchases to those from “multi-sector” carbon markets.²²⁴ PSE urges Ecology to allow the use of compliance instruments from “single-sector” markets like RGGI and future CPP trading programs as well. (As discussed above in Section 5, Part V(iv), Ecology should also allow CAR-covered parties to use CARB-approved offset credits from carbon registries to generate ERUs.) A broader network of potential trading partners will increase market liquidity and make it easier and cheaper to comply with CAR. Further, to the extent CAR has extraterritorial price impacts that raise dormant commerce clause concerns (as discussed above in Section 2, Part II(iii)), a wider range of external markets from which covered parties could “shop” would minimize price effects on any one market, such as CARB.

At minimum, Ecology should recognize that its assumptions about external market prices in CAR’s Cost-Benefit analysis are inaccurate because CAR *itself* is likely to drive up external allowance prices. Thus, complying with CAR is likely to be much more costly than Ecology has estimated.

vii. Ecology should increase the opt-out emissions threshold and clarify the opt-out process

Under the proposed CAR, a covered party is eligible to opt-out of the program if its emissions drop below 50,000 MtCO_{2e} for three consecutive years.²²⁵ In the previously proposed version of CAR, the opt-out threshold was 70,000 MtCO_{2e}.²²⁶ CAR should not have a separate emissions threshold for opting out of the program. Covered parties should be eligible for opting-out if their emissions fall below the relevant compliance threshold (e.g., 100,000 MtCO_{2e}/year) for three consecutive years. If Ecology maintains a separate opt-out threshold in the final CAR, then the threshold should be *no lower than* 70,000 MtCO_{2e}: the lowest compliance threshold under CAR.

PSE also requests Ecology to clarify:

- *That there will be no involuntary “out-opts” of the program.* If a covered party’s emissions drop below the 50,000 MtCO_{2e} threshold for three or more years but the party *does not* fulfill the other requirements of WAC 73-442-

²²³ See Cost-Benefit Analysis at 24 (noting that LDCs “have little or no options for on-site compliance but may still combine project-based, market, and REC reductions. *However, the proposed rule limits the use of allowances (market purchases) for compliance.*”) (emphasis added).

²²⁴ See Proposed WAC 173-442-170(1)(a).

²²⁵ Proposed WAC 173-442-210(7)(a).

²²⁶ See January 2016 Proposed CAR, WAC 173-442-060.

210(7) (e.g., notify Ecology of intent to discontinue compliance reporting), the party should not be forced to opt-out of the program if it wishes to remain in the program and continue generating ERUs.

- *How LDCs are Affected When Their Customers Opt-Out and Opt-In of the Program.* The proposed CAR provides that LDCs have a compliance obligation for the indirect emissions of their customers who are *not* covered by CAR (e.g., homes and businesses), but not for those customers who *are* covered by CAR (e.g., large electric power generators).²²⁷ However, some parties that are not initially covered by CAR may voluntarily “opt-in” to the program or trigger the applicable compliance threshold. Likewise, parties that are initially covered by CAR may become eligible to “opt-out” of the program. An LDC may not know whether a customer’s coverage status has changed until after the LDC has surrendered compliance instruments for the relevant compliance period. The proposed CAR is unclear as to (i) which party (i.e., the LDC or the customer) is responsible for emissions and over what time periods *when an initially uncovered party becomes subject to the program*; and (ii) which party is responsible for emissions and over what time periods *when an initially covered party opts-out of the program*. If Ecology regulates LDCs for their indirect emissions under CAR, Ecology must clarify how these scenarios will play out so that LDCs can plan for compliance.
- *The process for voluntarily opting back into the CAR program after a party opts out.* The proposed CAR does not directly address whether a party that opts-out of the program during one compliance period can voluntarily re-enter the program in a later compliance period. (However, nothing in the proposed rule appears to preclude this.) Ecology should clarify this in the final rule.

viii. Ecology should clarify provisions on reserve ERUs

Under the proposed CAR, Ecology proposes to hold some generated ERUs in reserve.²²⁸ Ecology would use these reserve ERUs to offset emissions associated with certain activities, including the start-up of curtailed facilities.²²⁹

PSE requests Ecology to clarify:

- *Whether covered electric power sector sources are eligible for reserve ERUs.* Specifically, Ecology should clarify whether (i) covered electric generating sources that experience increased utilization due to the retirement of the Centralia units (or out-of-state coal units supplying power into Washington)

²²⁷ See Proposed WAC 173-442-050(2)(a).

²²⁸ Proposed WAC 173-442-240(1). For instance, Ecology would confiscate two percent of each non-EITE covered party’s emission reduction pathway annual decrease for the reserve.

²²⁹ Proposed WAC 173-442-240(4).

are eligible for reserve ERUs; and (ii) covered electric generating sources that curtail operations and restart operations are eligible for reserve ERUs.

- *The meaning of the phrase “harmonizing of ERU generation with reduced GHG emissions.”*²³⁰ Ecology should clarify in the final rule what “harmonization” would entail.

²³⁰ Proposed WAC 173-442-240(4)(d).

Section 6: Conclusion

PSE appreciates the opportunity to submit comments on Ecology's proposed CAR. While PSE recognizes the importance of addressing climate change, PSE believes that Ecology lacks legal authority to promulgate CAR. Further, CAR as proposed is fundamentally flawed and unlikely to achieve its intended goals. Ecology should withdraw the proposed rule and address the legal, technical, and policy concerns raised in these comments. Most critically, Ecology should (1) exclude the electric power sector from the final CAR because regulating this sector will cause net regional GHG emissions to increase and undermine Washington's efforts to comply with the federal CPP; and (2) exclude the LDC sector from the final CAR because Ecology lacks legal authority to regulate this sector's indirect emissions, and, even if Ecology had such authority, regulating this sector would cause unacceptable rate increases for LDC customers. Should Ecology proceed with finalizing the rule, PSE urges Ecology to adopt the proposed mechanisms and other recommendations outlined in these comments.

Dated: July 22, 2016

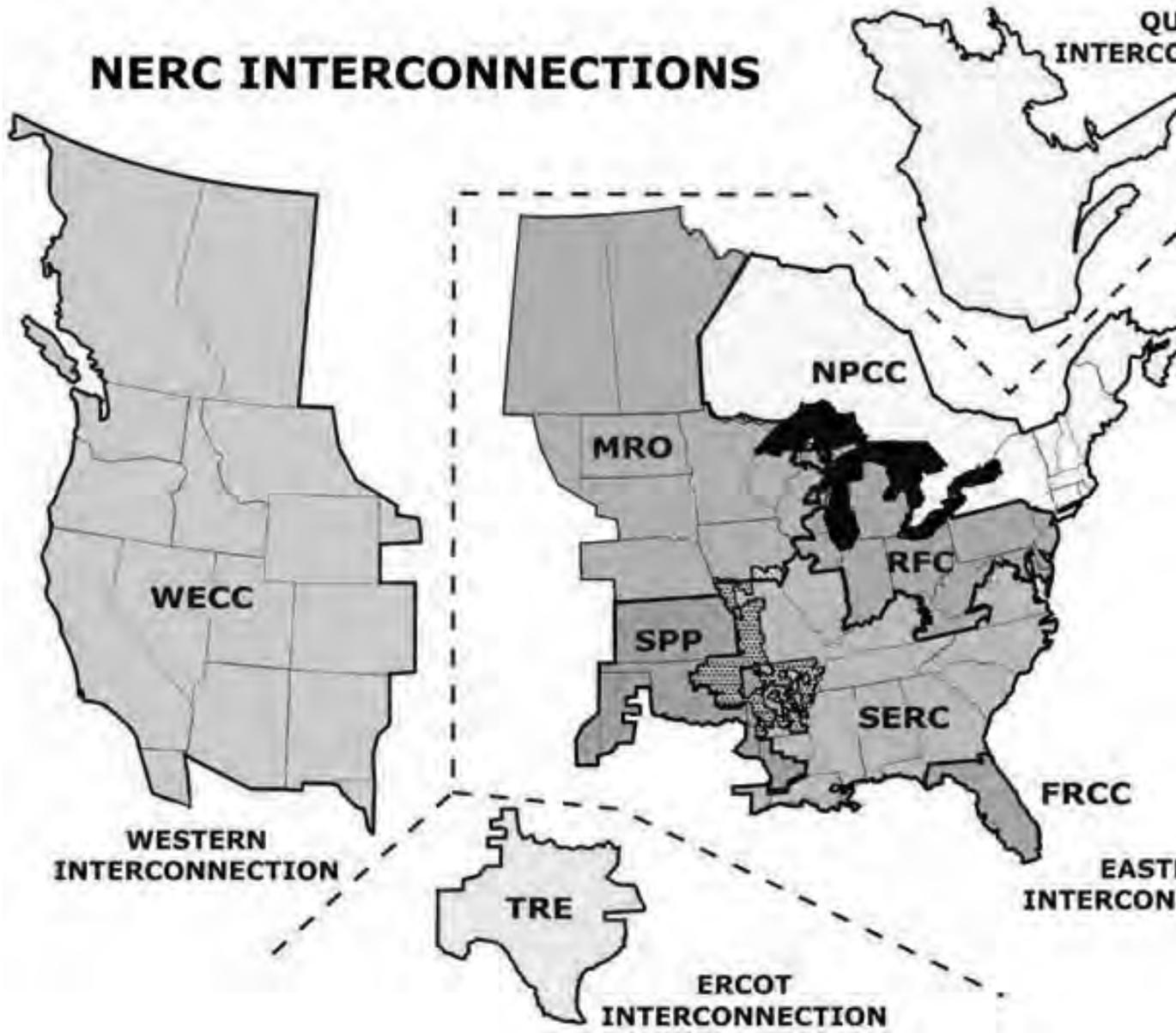
Respectfully submitted,



Steve R. Secrist

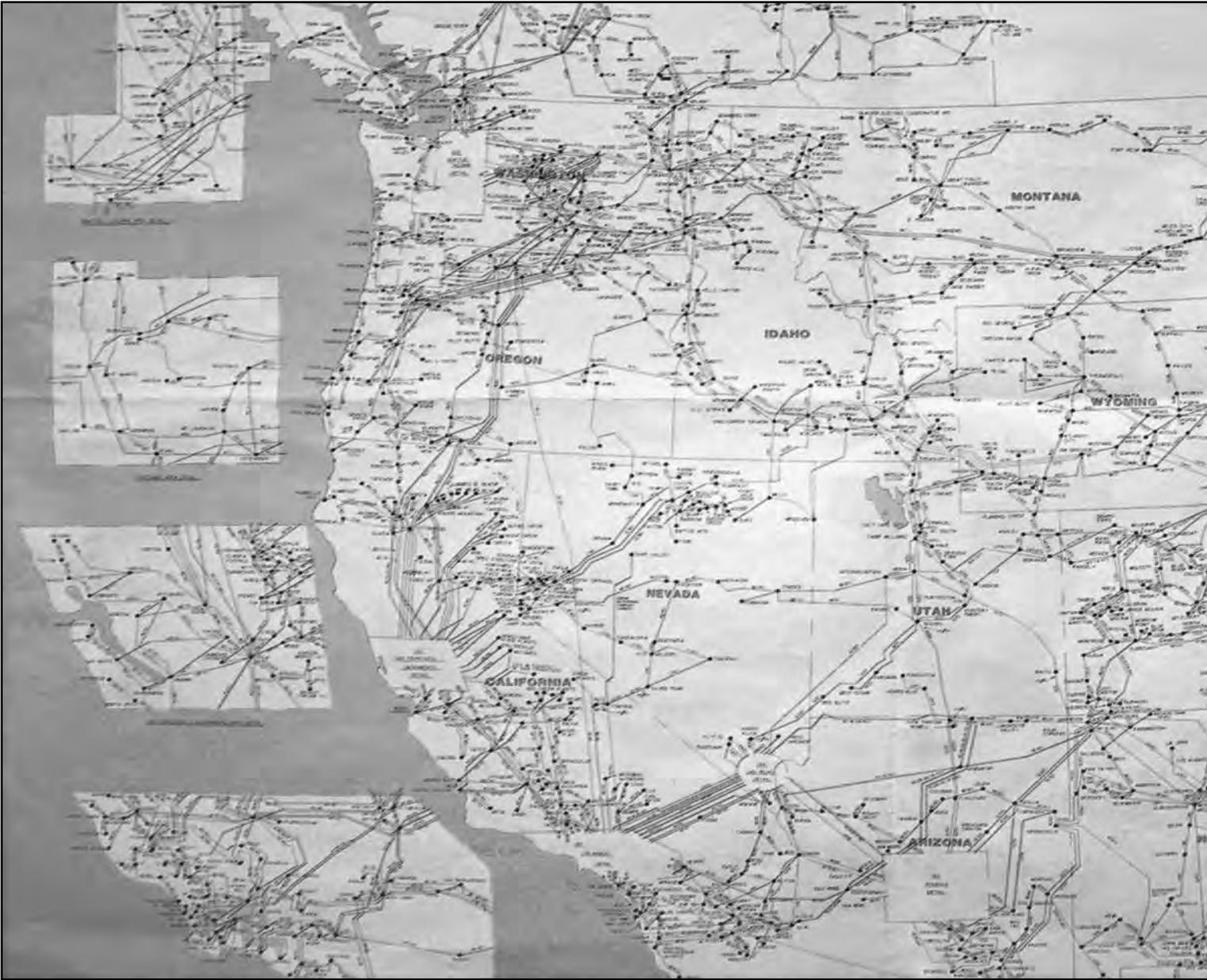
*Sr. Vice President, General
Counsel, and Chief Ethics
and Compliance Officer*
Puget Sound Energy
425-462-3178

Appendix A: NERC Interconnections Map (Figure 1)¹



¹ http://www.nerc.com/AboutNERC/keyplayers/Documents/NERC_Interconnections_Color_072512.jpg

Appendix B: Western Interconnection Map



Appendix C: Current State GHG Emission Performance Standards

Current State GHG Emission Performance Standards			
State	Emission Rates Standards (lbs CO ₂ /MWh)		
	New Units	Existing Unit Upgrades	Utility Load Serving Contracts (New & Renewed Longterm)
California	No restrictions	No restrictions	1,100
New York	925	925	No restrictions
Oregon	675**	No restrictions	1,100
Washington	970	970	970
**Cogeneration and offsets may be used to comply with the standard			

Appendix D: State GHG Emission Rates²

Needed % reduction in CO2 emissions rate (lbs/MWh)



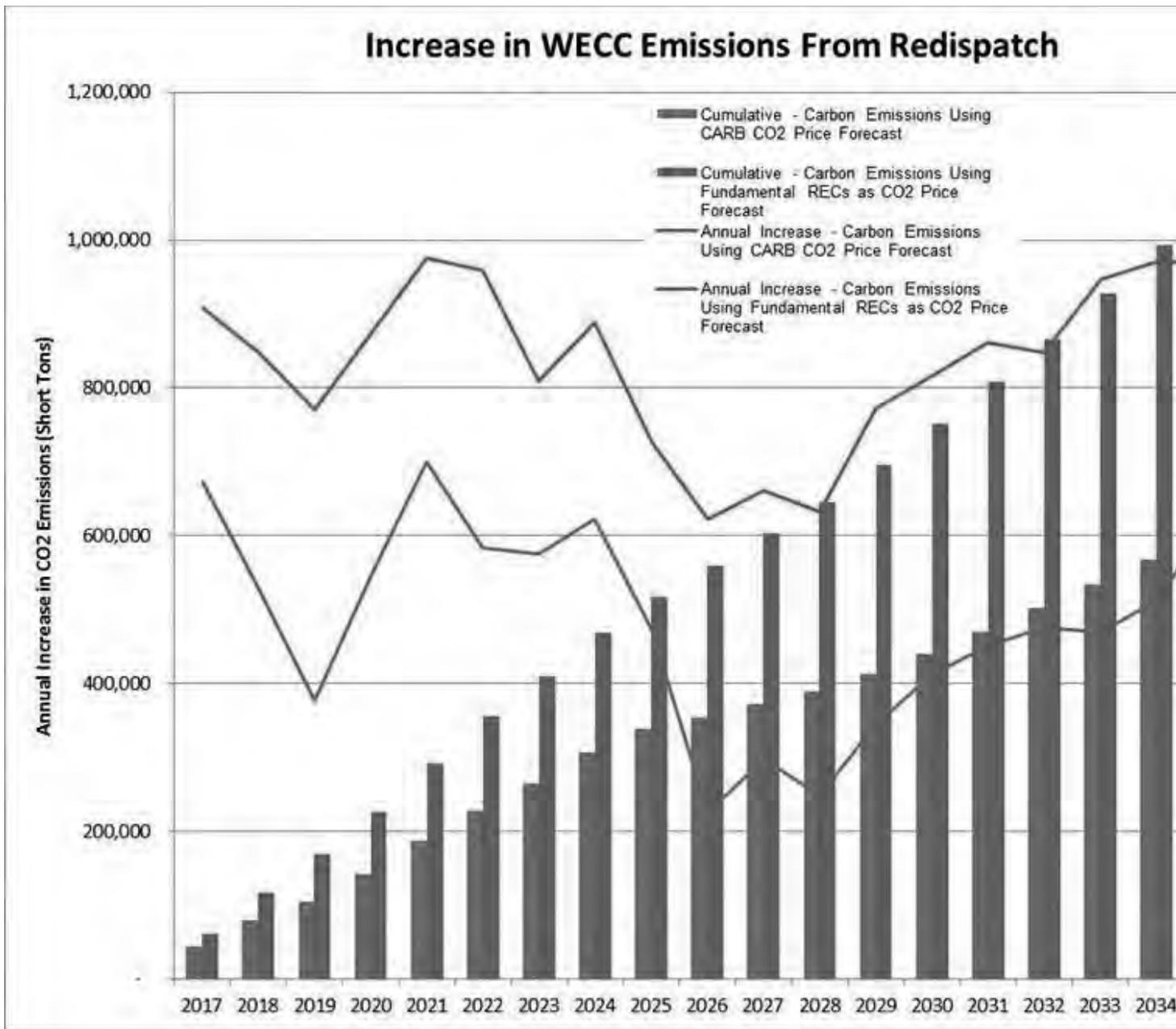
State	2020 emissions rate projections without CPP	Final emissions rate goal (2030)	Needed progress from 2020 projections
Alabama	1,386	1,018	27%
Arizona	1,409	1,031	27%
Arkansas	1,551	1,130	27%
California	712	828	-16%
Colorado	1,692	1,174	31%
Connecticut	858	786	8%
Delaware	861	916	-6%
Florida	1,170	919	21%
Georgia	1,135	1,049	8%
Idaho	766	771	-1%
Illinois	1,705	1,245	27%
Indiana	1,882	1,242	34%
Iowa	1,456	1,283	12%
Kansas	1,870	1,293	31%
Kentucky	1,796	1,286	28%
Louisiana	1,235	1,121	9%
Maine	736	779	-6%
Maryland	1,411	1,287	9%
Massachusetts	808	824	-2%
Michigan	1,588	1,169	26%
Minnesota	1,658	1,213	27%
Mississippi	1,107	945	15%
Missouri	1,950	1,272	35%
Montana	2,314	1,305	43%

State	2020 emissions rate projections without CPP	em ra
Nebraska	1,930	
Nevada	944	
New Hampshire	636	
New Jersey	981	
New Mexico	1,225	
New York	902	
North Carolina	1,273	
North Dakota	2,184	
Ohio	1,742	
Oklahoma	1,598	
Oregon	760	
Pennsylvania	1,486	
Rhode Island	845	
South Carolina	1,202	
South Dakota	1,229	
Tennessee	1,517	
Texas	1,515	
Utah	1,779	
Virginia	959	
Washington	634	
West Virginia	2,021	
Wisconsin	1,940	
Wyoming	2,264	

Sources: U.S. EPA, SNL Energy
Map credit: Whit Varner

² Annalee Grant, SNL Energy, *Some states still have long road to Clean Power Plan compliance* (Aug. 5, 2015), available at <https://www.snl.com/Interactivex/article.aspx?id=33449883&Printable=1&KPLT=2>.

Appendix E: Increase in WECC Emissions from Redispatch (Figure 2)



CO₂ Offset Price Scenarios:

1. CARB price starting at \$14/ton in 2017 and going up to \$54/ton in 2025
2. Fundamental REC price of \$44/MWh (\$107.75/ton)

Levelized cost of wind	\$91 /MWh
Levelized cost of power	\$47 /MWh
<hr/>	
Fundamental REC value	\$44 /MWh

Appendix G: Historic Dispatch—Washington State Natural Gas Turbine Fleet

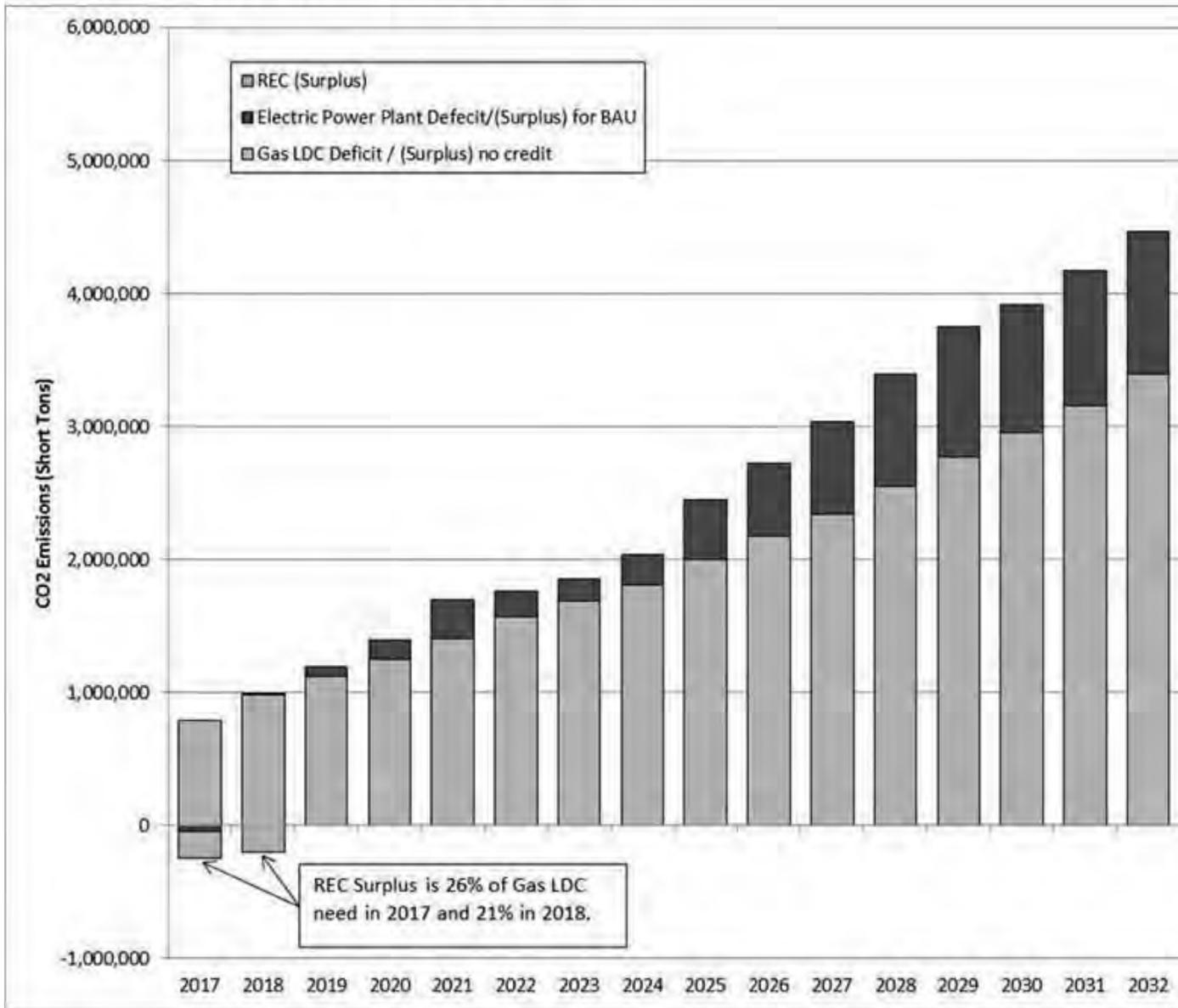
Historic Dispatch - Washington State Natural Gas Turbine Fleet

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Capacity Factor %	28.5%	27.8%	28.1%	33.7%	29.1%	14.0%	16.0%	32.5%	33.5%

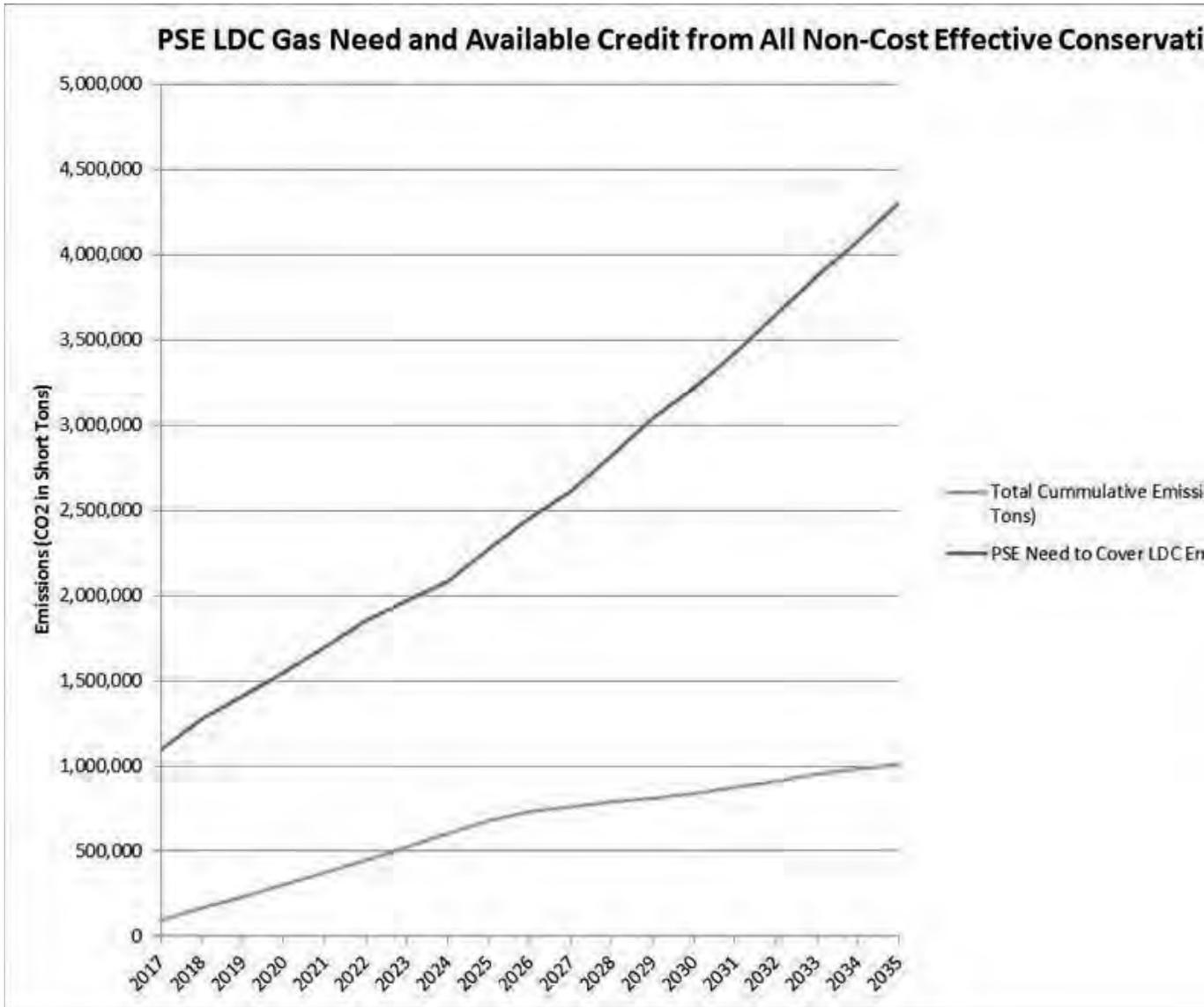
Source: SNL Energy

Appendix H: PSE's Projected ERU Shortfall (Figure 3)

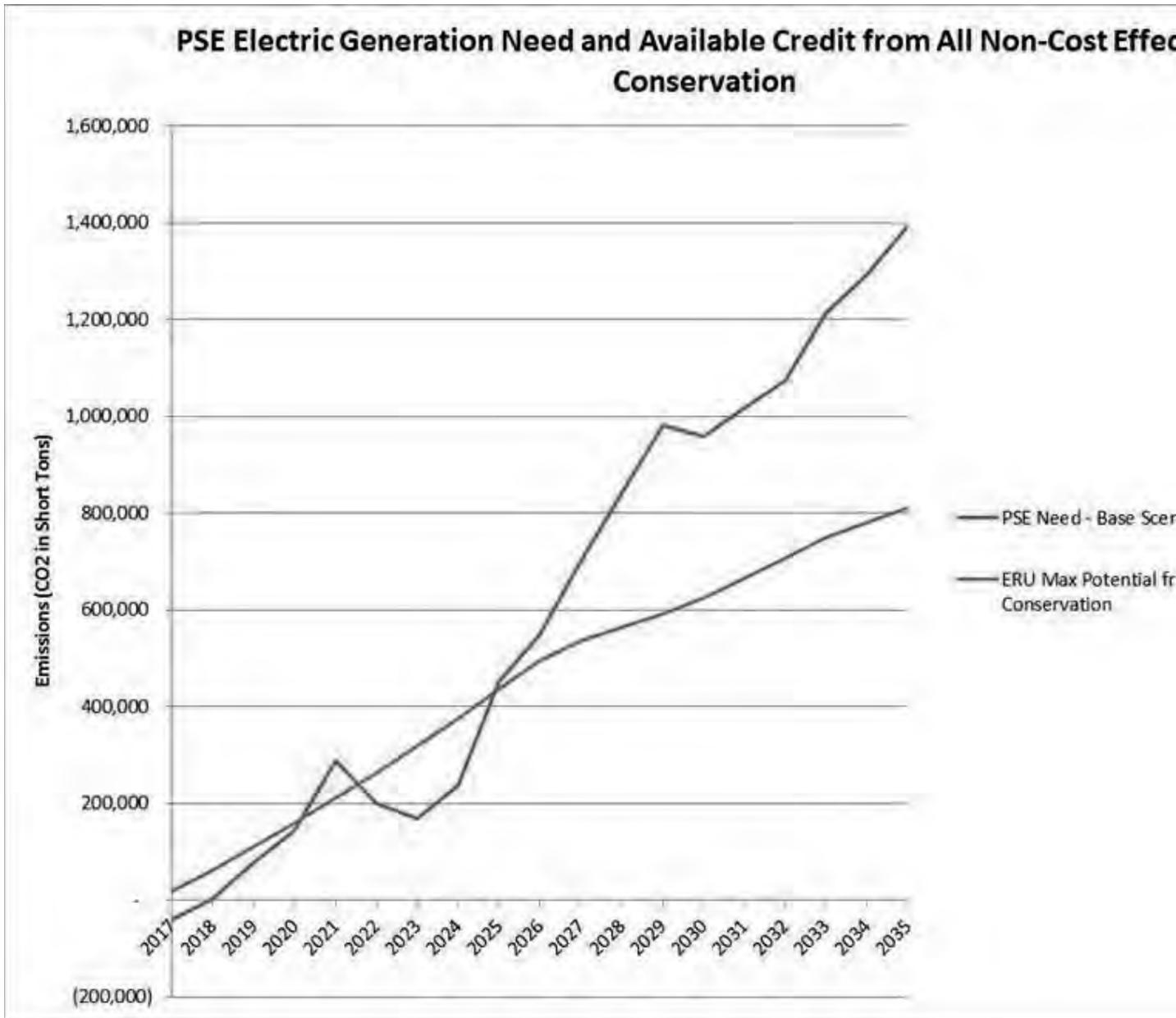
Analysis of REC Shortfall for PSE



Appendix I: ERU Potential From All Non-Cost-Effective Conservation (LDC Side)



Appendix J: ERU Potential From All Non-Cost-Effective Conservation (Electric Power)



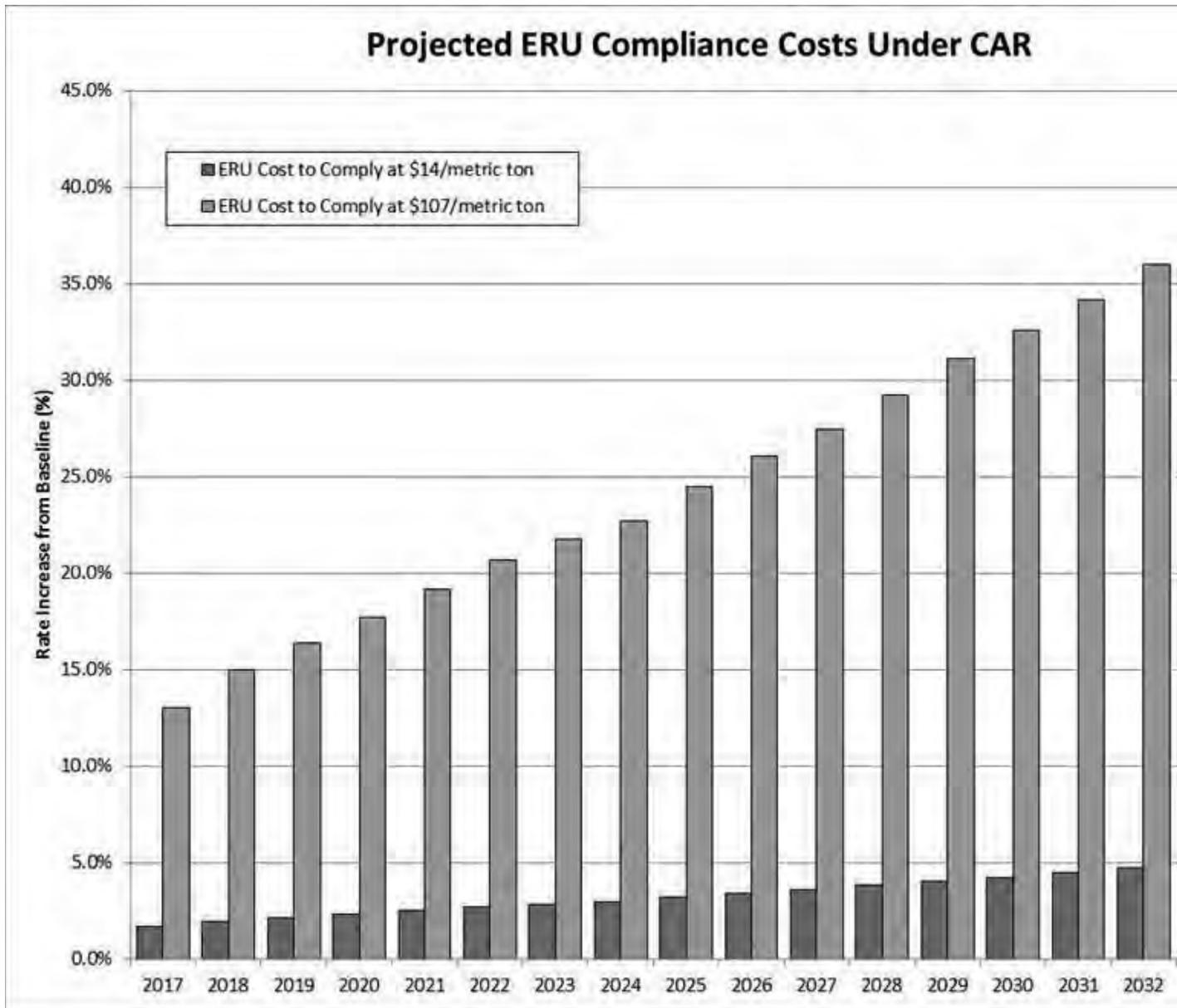
Appendix K: Annual ERU Cost from Non-Cost Effective Conservation

Annual ERU Cost From Non-Cost Effective Conservation

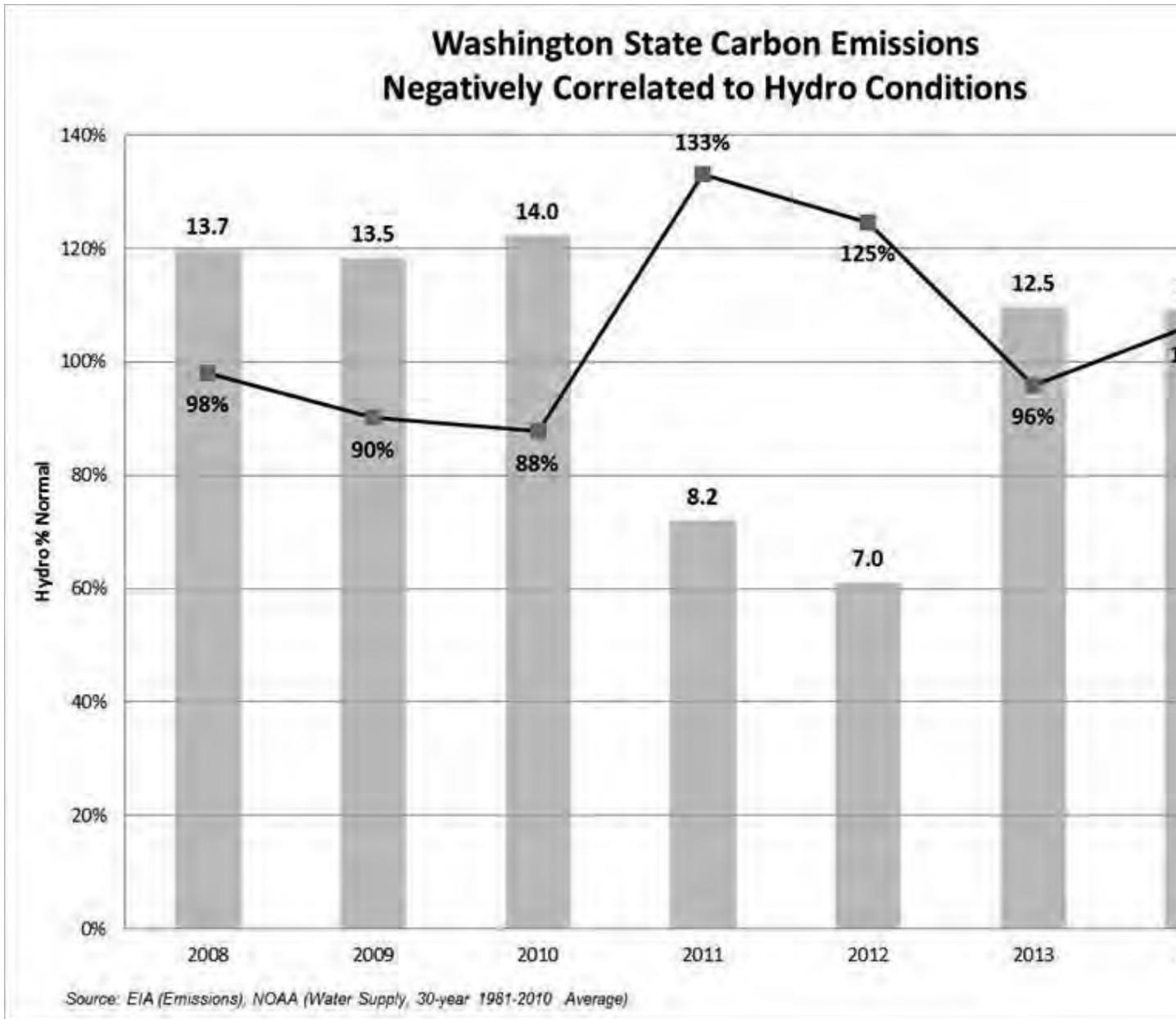
Non-Cost Effective Electric Generation ERU (\$/Short Ton)	2017	2018	2019	2020	2021	2022	2023	2024
	\$1,426	\$777	\$638	\$584	\$548	\$529	\$517	\$510
	2027	2028	2029	2030	2031	2032	2033	2034
	\$460	\$462	\$462	\$466	\$465	\$466	\$457	\$457

Non-Cost Effective Gas LDC ERU (\$/Short Ton)	2017	2018	2019	2020	2021	2022	2023	2024
	\$10,966	\$10,794	\$10,653	\$10,557	\$10,496	\$10,431	\$10,598	\$10,2
	2027	2028	2029	2030	2031	2032	2033	2034
	\$7,861	\$7,801	\$7,985	\$8,136	\$8,757	\$6,654	\$6,881	\$7,31

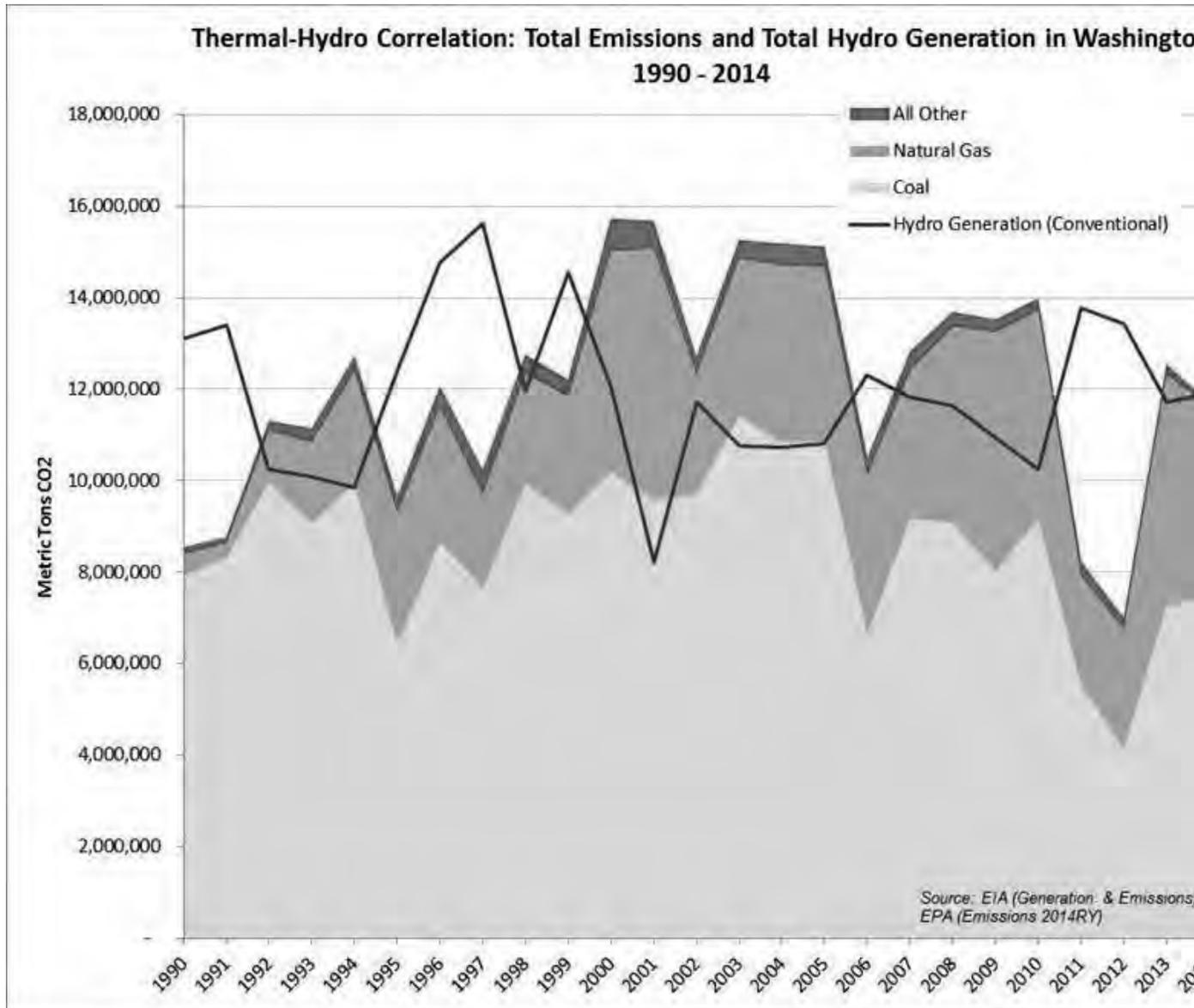
Appendix L: Projected ERU Compliance Costs Under CAR (Figure 4)



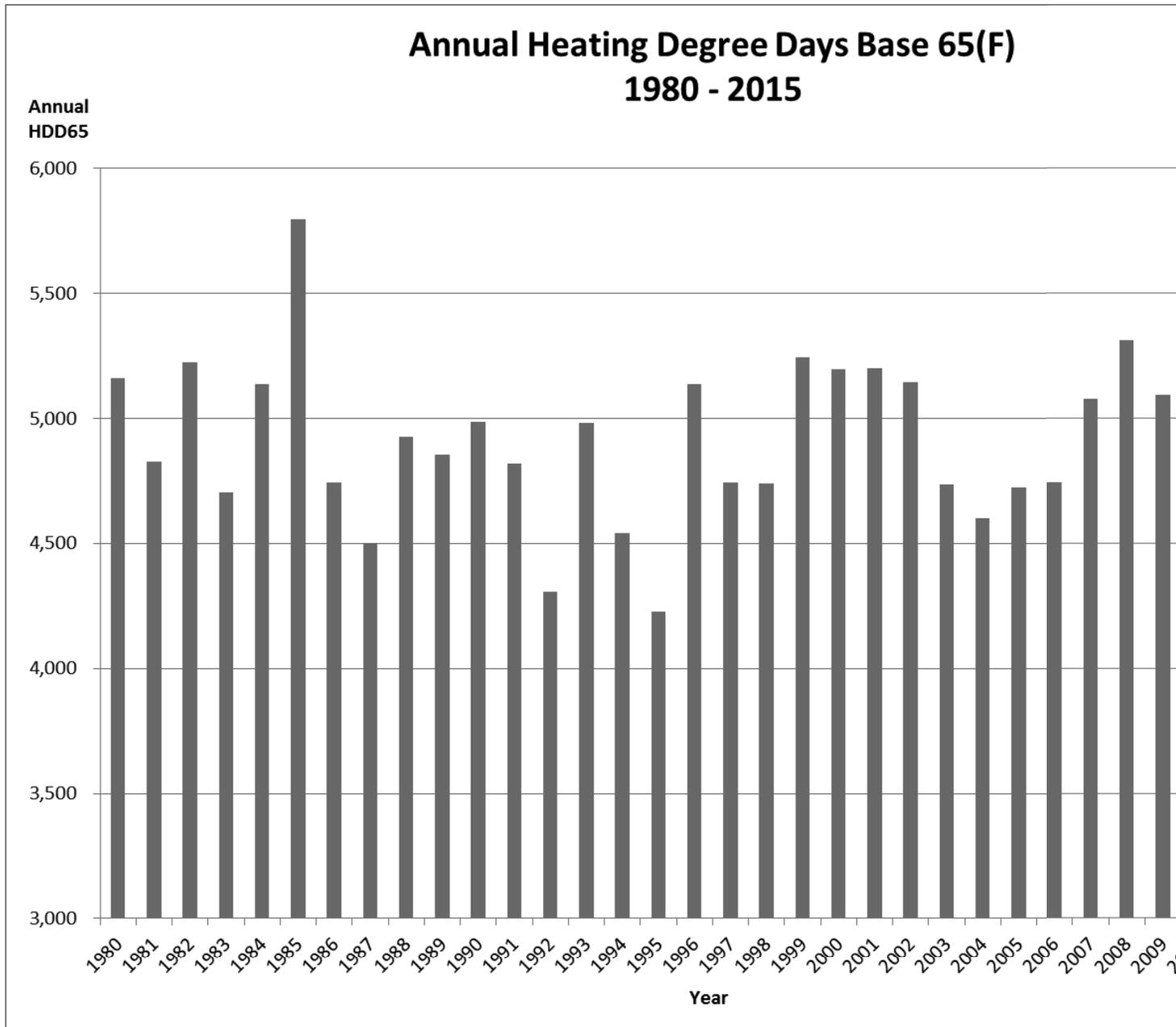
Appendix M: Washington State Carbon Emissions Negatively Correlated to Hydro Conditions



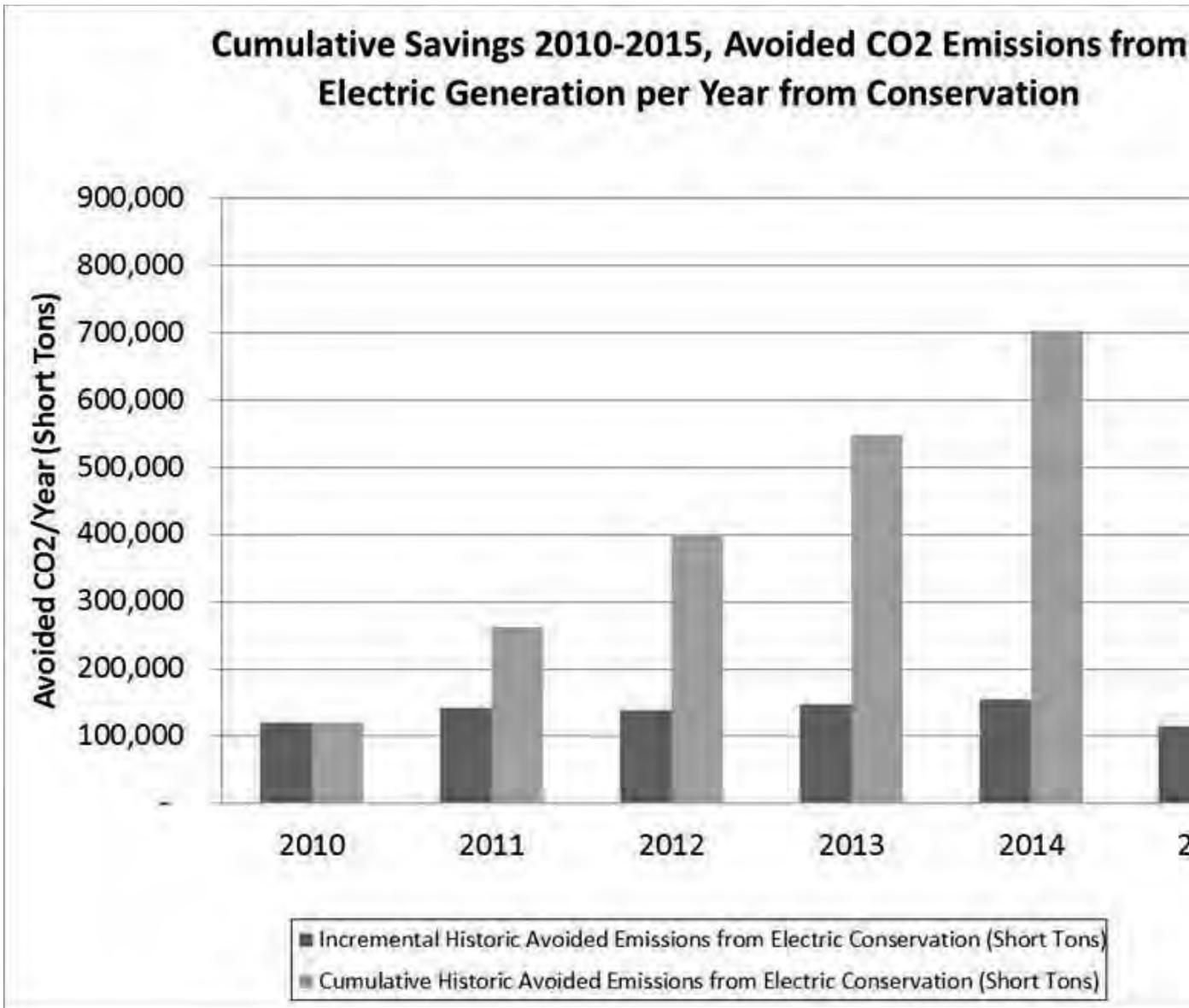
Appendix N: Thermal-Hydro Correlation: Total Emissions and Total Hydro Generation in Washington 1990 - 2014



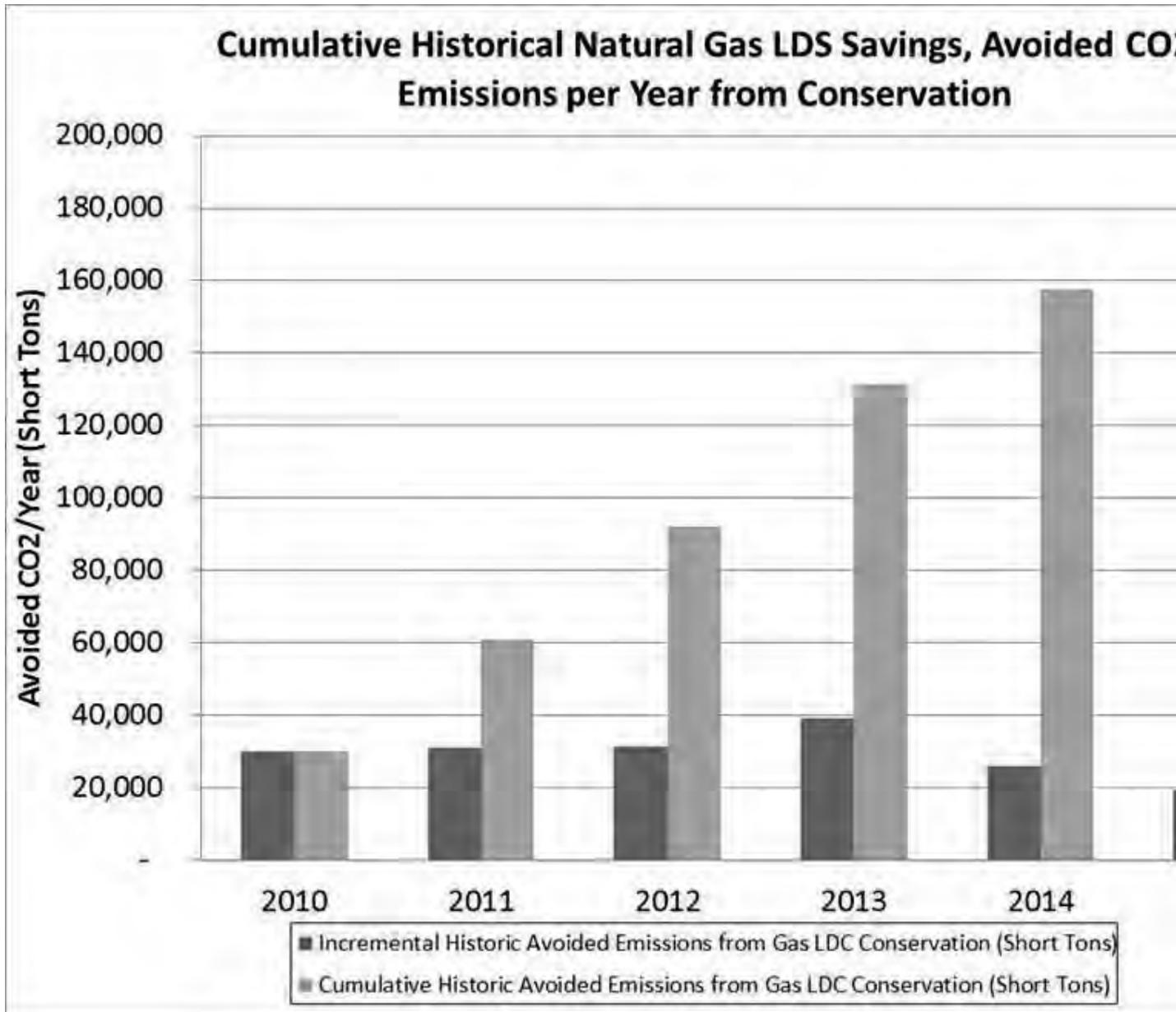
Appendix O: Historic Annual Heating Degree Days (Figure 6)



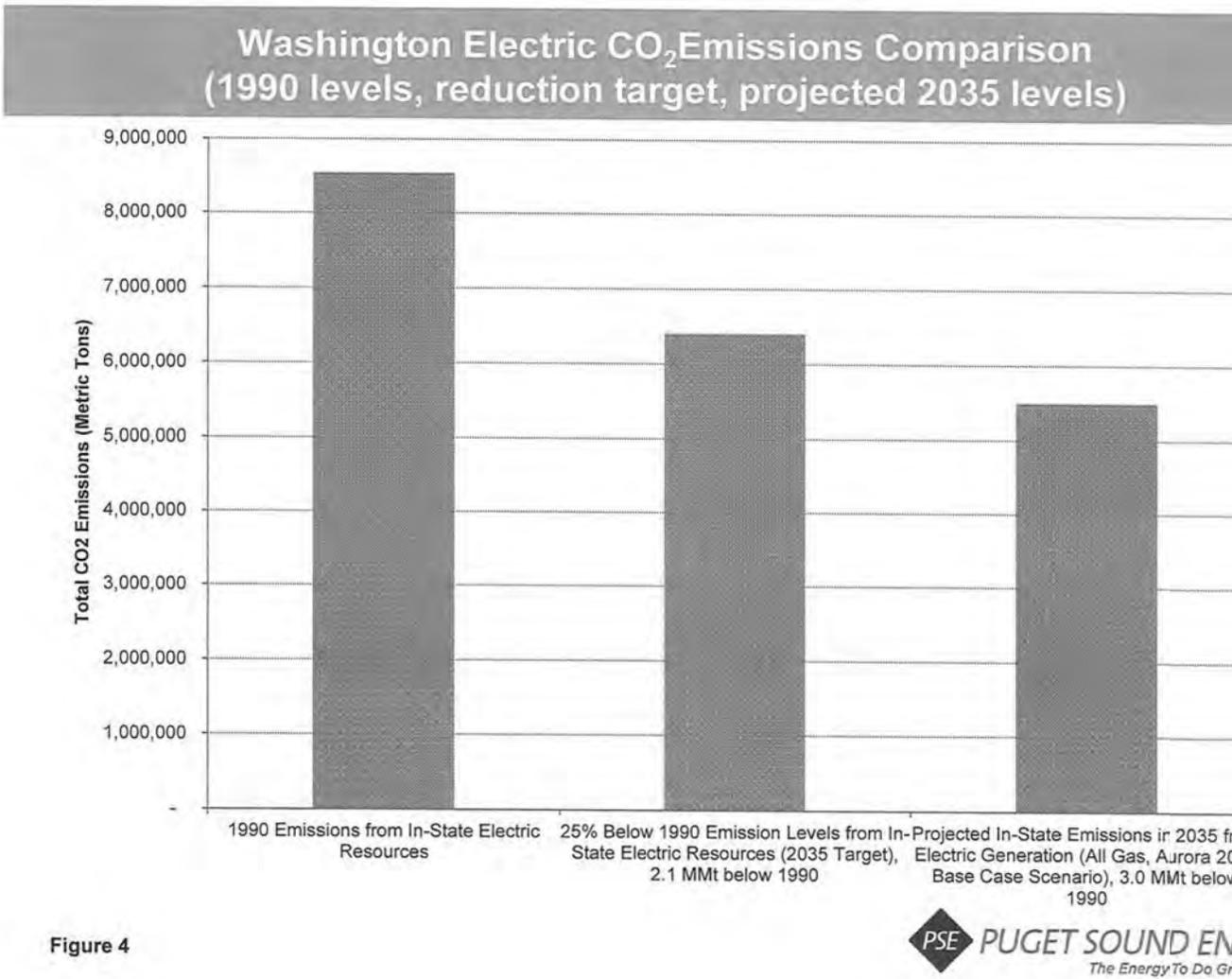
Appendix P: Avoided Emissions from Conservation 2010-2015 (Electric Power Side)



Appendix Q: Avoided Emissions from Conservation 2010-2015 (LDC Side)



Appendix R: Washington Electric CO₂ Emissions Comparison



Washington Electric CO₂ (by Facility, tons)

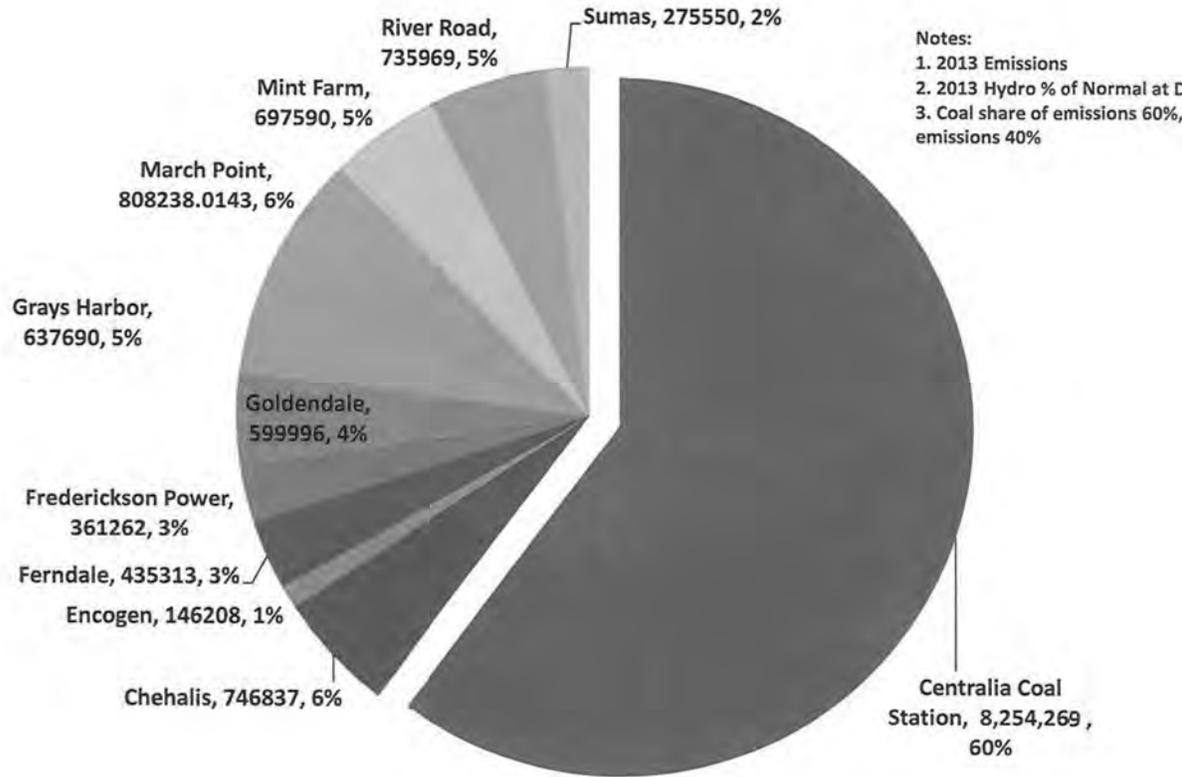
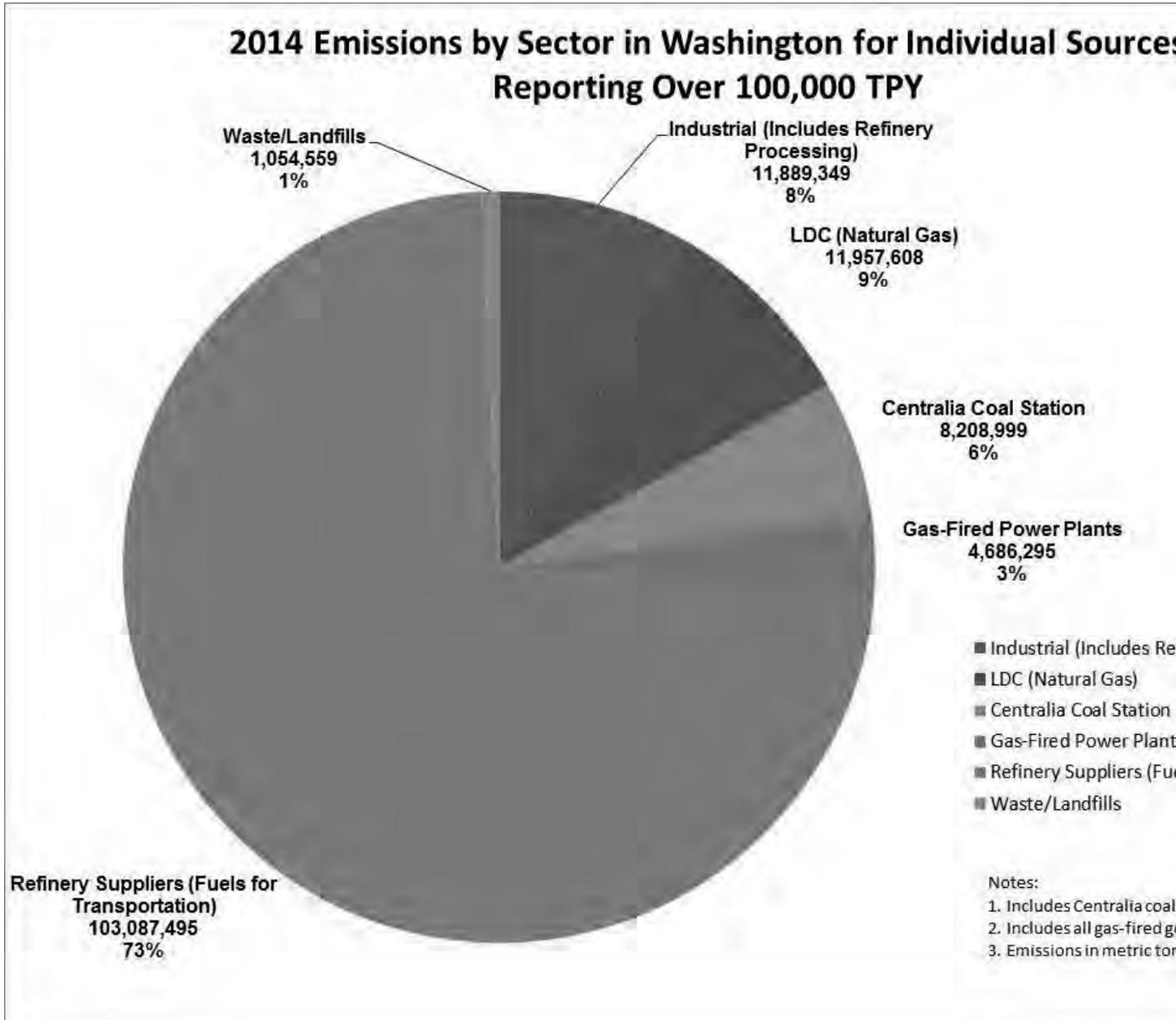


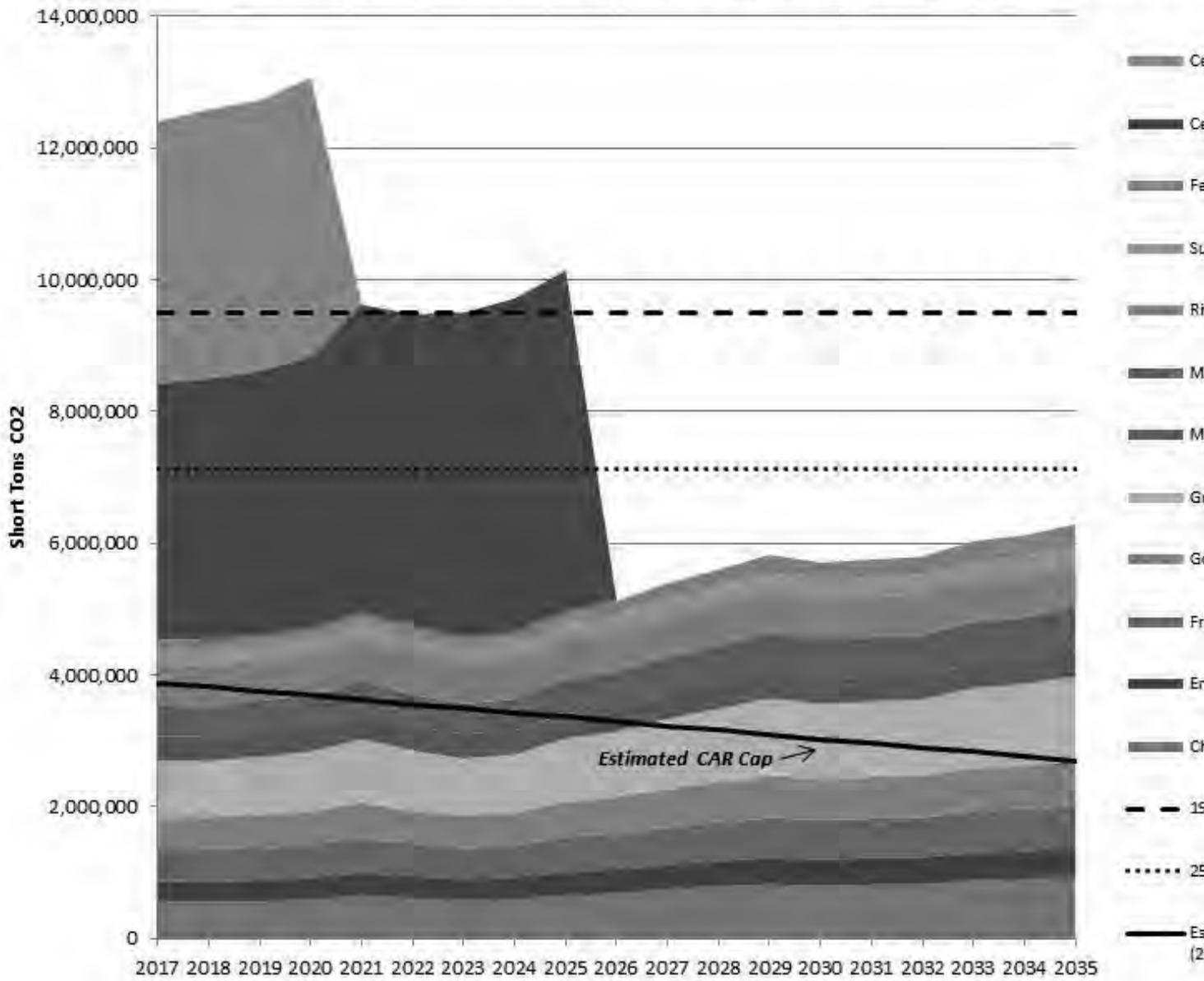
Figure 3



Appendix T: Washington Emissions by Sector (Figure 7)



Washington Emissions Estimate (Total Mass) - Affected Sources





www.publicgeneratingpool.com
thampton@publicgeneratingpool.com

July 22, 2016

Submitted via email: AQComments@ecy.wa.gov

Washington Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503

Subject: Comments on draft Clean Air Rule

PGP appreciates the opportunity to provide comments on the revised draft Clean Air Rule (CAR). The Public Generating Pool (PGP) is composed of nine consumer-owned electric utilities in Washington and one consumer-owned electric utility in Oregon. Collectively, PGP member utilities serve approximately two million people with a 6,000 MW utility-owned asset base that is 96% carbon-free. PGP is committed to a multi-sector low carbon energy future that is meaningful and cost-effective.

Given the regional nature of the wholesale power markets, the approach to carbon regulation in the state of Washington is an important issue to all consumer-owned electric utilities, whether they have a specific carbon obligation or not. If not crafted properly, regulation under the CAR could distort natural price signals in electricity markets and create the unintended consequence of increasing emissions within the region by using higher emitting out-of-state resources to serve Washington loads. For that reason, PGP supports regulation that facilitates a cost-effective and an environmentally effective approach to carbon reduction. At the highest level, the regulatory structure needs to:

- Take a multi-sector approach and provide the ability to transact across sectors to assure cost-effective carbon mitigation, and
- Recognize the regional nature of the electricity sector to assure real emission reductions can be realized, rather than “shifting” emissions out-of-state.

Support Multi-Sector Approach and Transition to Clean Power Plan

PGP applauds Ecology for the multi-sector approach under the draft rule. We believe a consistent price signal across sectors and throughout the region ensures cost-effective and equitable results. We recognize the challenges associated with implementing a multi-sector approach and appreciate Ecology’s leadership in this area.

We also appreciate Ecology’s engagement with the utility sector on aligning the rule with the Clean Power Plan (CPP). The CPP provides the best mechanism for achieving a regional approach to carbon regulation in the electricity sector. Given the regional and interconnected nature of the utility system, a regional regulatory approach is the only way to minimize emissions leakage and ensure real emissions reductions.

Electricity Sector Target as Proposed is Inequitable

With more than 80% of the electricity in this state produced from renewable resources, Washington’s electricity sector has the second lowest state-wide carbon intensity of all fifty states¹. Washington achieved this distinction through deliberate and significant investment by the electric sector in renewable resource and conservation acquisitions. The CAR’s application of common baselines and targets for all sectors does not account for

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significant actions already taken, thus placing a disproportionate emissions reduction burden on the electricity sector compared to any other sector. The implied target exceeds all federal and state emission reduction goalsⁱⁱ. In Appendix A, PGP's recommendation on how to modify the CAR target and avoid unintended consequences is more equitable than the current target.

Electricity Sector Target has Unintended Consequences

Regional electricity sector emissions will increase: The existing natural gas fleet in Washington is more efficient and produces fewer emissions than other thermal generation in the region. The current CAR target requires the existing natural gas fleet to reduce production below current levels. This outcome runs counter to the thorough analysis conducted by both the federal Environmental Protection Agency and the regional Northwest Power and Conservation Council that found Washington's existing efficient natural gas generating projects are vital in displacing higher emitting resources and integrating renewables, as well as maintaining the reliability of the grid. The plant operating limits as written in the draft rule would interfere with and reduce Washington state's ability to support these regional and national objectives. The proposed limits would raise operating costs for in-state resources above the cost of purchasing power from higher emitting out-of-state resourcesⁱⁱⁱ. While emissions from projects situated within the geographic borders of Washington state may decrease, overall carbon emissions for the region will increase. Finally, Washington state's ability to integrate renewable resources and maintain grid reliability will be compromised.

Complicates Transition to the Clean Power Plan: Although the draft CAR recognizes a transition to the CPP, the CAR target must still be modified to recognize the increased production from Washington's existing natural gas resources that is required to reduce regional electricity sector emissions. The CPP trading ready programs were designed to recognize the regional nature of the power system and provide for easy trading among states so that the lowest emitting resources would be operated to meet regional electric load. However, in order for Washington's low emitting resources to contribute, the target must be adjusted to provide existing thermal generation the ability to increase production, without penalty. As currently written, CAR reduction requirements appear incompatible with the design of the federal CPP. Before finalizing the rule, Ecology should clarify the regulatory transition to the CPP.

As written, the CAR undermines Washington state's ability to benefit from the trading ready options contemplated in the federal CPP. To the extent a state has excess emission reductions, the CPP allows them to be sold to another state, creating revenue that can be invested in specific state activities. If the CAR target is not adjusted, Washington – the second cleanest state in the nation – will not be able to sell any of its excess emissions reductions and may even be required to pay other states for emission reductions in order to meet the currently proposed strict standards.

The Draft Rule Does Not Provide Sufficient Incentives for Transportation Electrification

The transportation sector comprises nearly 50% of the emissions in the state of Washington and electrification of transportation is a key emission reduction strategy for that sector^{iv}. Analysis conducted by the Northwest Power and Conservation Council shows that transportation electrification is both a net economic benefit to the state and one of the cheapest means of reducing carbon^v. Specifically, their analysis indicates that transportation electrification, using the current power system resource portfolio, is a cheaper approach to carbon reduction than restricting existing natural gas production.

The strict target on the electricity sector negatively impacts the potential for the sector to be used to electrify the transportation sector. These targets will result in increased cost of electrification by increasing the overall cost of

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electricity. Further, the CAR limits the use of emission reduction units from the transportation electrification as a compliance strategy. The net effect is the current CAR structure inadvertently encourages utilities to spend money on out-of-state power purchases or allowances, rather than incenting them to invest funds in-state, on investments such as charging infrastructure or other electrification incentives. In the attached Appendix, PGP recommends additional options for the creation of emission reduction units (ERUs) in support of transportation electrification.

Recommended Modification to Electricity Sector Target

PGP requests a modified target for the electricity sector, similar in nature to the baseline and target modifications Ecology provided for the energy intensive trade exposed industries (EITI) to assure they were not penalized for early action. The following recommendation, as detailed in the Appendix, assures equity among sectors, avoids the unintended consequences noted above, supports electrification, and provides the foundation to transition to the CPP:

- Define an electricity sector goal based on state goals; and
- Allocate the electricity sector goal proportionally into facility-specific targets based on the capacity of covered generators.

Develop a transition plan to the Clean Power Plan

PGP requested in its December 2016 and March 2016 written comments that the regulation of the electricity sector occur under the CPP. PGP member utilities prefer the CPP's regulatory structure because it supports the development of a broad geographic carbon market through existing trading ready platforms. PGP members believe this will assure most consistent treatment of generators across Western states, while accommodating load growth and vehicle electrification. The CPP provides a better regulatory mechanism to incent efficient emissions reductions from the electricity sector in Washington and throughout the Western Electricity Coordinating Council footprint. PGP therefore requests again that the electricity sector be exempt from the CAR and regulated under the CPP.

Without an exemption from the CAR, the electricity sector requires a transition plan to identify how the cap and reduce program will migrate to a trading ready program under the CPP. Specifically, the plan must address how covered entities, other entities, and the state's target would be affected. Further, the CAR provisions should be modified to allow the electricity sector to transition to the state implementation plan as soon as it is approved. PGP requests that Ecology begin work on a transition to the CPP with the goal of having a state implementation plan go into effect by 2020.

Recommended Changes to the Rule Language

PGP is providing specific recommended modifications to the rule in the attached appendix. Recommended modifications are included in the following three categories:

1. Account for hydro variability. PGP is proposing a change to the baseline calculation for electric generating units to better account for the impact of hydro variability. The suggested change is intended to provide for the same 15% variability afforded other industries in Section 173-442-050 3(b)(B).
2. Ensure a sufficient and predictable supply of compliance options. The success of this rule depends on the certainty and availability of emission reduction units (ERUs). The current draft is very restrictive in how an ERU can be created. PGP has offered language to ensure that the full life of an energy efficiency measure, incremental hydro, and out of state RECs can be counted and to provide ERU opportunities for electrification of transportation.

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3. Align treatment of biogenic emissions of carbon dioxides with WA state law, policy and EPA guidelines. The draft Clean Air Rule treats biogenic emissions inconsistently with Washington state policy, Washington state law, and EPA guidelines. PGP recommends use of EPA methodology to address this inconsistency.

PGP's members appreciate the opportunity to provide comment both in writing and in person. I welcome any questions about the material we have provided. We look forward to continued conversation on this topic.

Sincerely,



Therese Hampton
Executive Director, Public Generating Pool

ATTACHMENT: APPENDIX – PGP Comments on Clean Air Rule dated July 22, 2016

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Klickitat County PUD / Lewis County PUD / Pend Oreille County PUD / Snohomish County PUD / Tacoma Power

APPENDIX
PGP COMMENTS ON CLEAN AIR RULE
July 22, 2016

Recommended Modified Electricity Sector Targets under the Clean Air Rule^{vi}

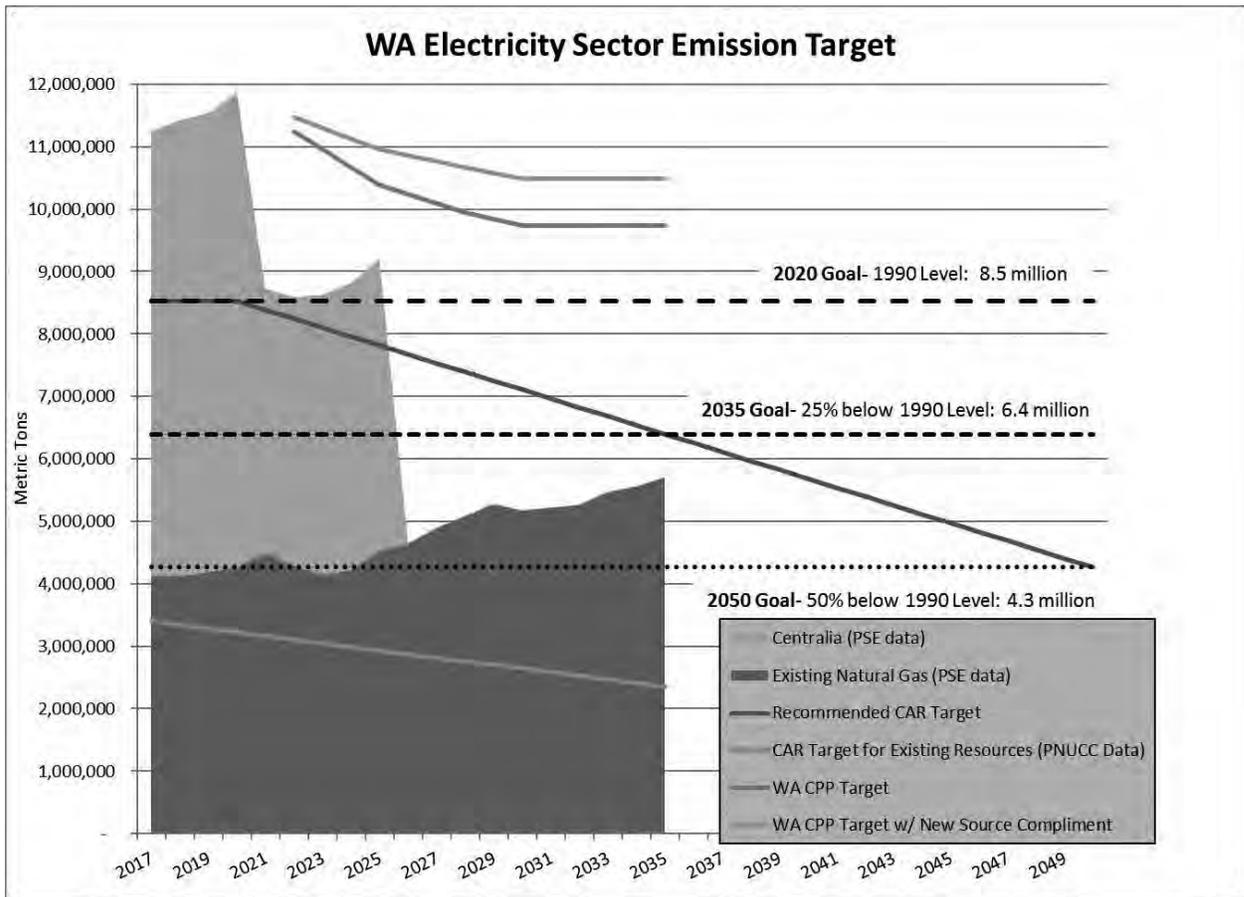
Purpose: Provide emissions targets for electric generating units subject to the CAR that are consistent with state statutes, readily transition to a state CPP target, provide for transition off in-state and out-of-state coal, and provide sufficient flexibility to meet load in low water conditions. The concept is specifically designed to allow existing natural gas resources to increase production without financial penalty as necessary to offset production of higher emission resources from in-state coal (Centralia) or out-of-state coal and less efficient natural gas.

Problem Statement: Ecology's current baseline and reduce approach results in an initial aggregated emission target of approximately 3.4 million metric tons. This emissions level:

- Does not allow for the necessary operation of existing natural gas to serve as coal displacement or to reliably meet load under all water conditions,
- Limits the ability for efficient Washington resources to contribute to regional electricity sector emission reductions, and
- Impacts the state's ability to benefit from trading opportunities under the CPP.

Proposed Approach:

1. **Set an Aggregate Emission Goal for In-State Electricity Generators:** Consistent with the state's emissions goals, use 1990 emissions as a reference point to establish an aggregate electricity sector emission target. PGP recognizes that the state's emissions goals are based on electricity consumption. However, given that the CAR can only regulate in-state electricity generation, our recommended approach uses 1990 emissions associated with in-state generation as the baseline.
 - Based on EIA data, PGP estimates 1990 emissions associated with in-state generation to be 8.5 million metric tons.
 - PGP recommends setting the 2017 - 2020 aggregate electricity generation emission goal at 8.5 million metric tons with a linear reduction to 4.25 million metric tons in 2050, which reflects the state goal of 50% below 1990 levels. The annual goals can be averaged into a 3-year goal to be consistent with the CAR compliance structure.
2. **Create Facility Specific Targets:** While under the CAR, facility-specific emission targets would be established by multiplying each facility's proportion of the total covered capacity (i.e. generators subject to the CAR) by the aggregate electricity emission goal.
3. **Restrict ERU Creation:** Facilities covered under the CAR would not be able to sell or trade Emission Reduction Units to other covered entities for reductions below their facility-specific targets, but could bank them to cover future changes in facility operations.



Benefits of a Modified Target

- **Eliminates market distortions that increase emissions.** The current CAR baseline and reduce targets will require facilities to either reduce production or pay compliance costs in order to maintain operation at current levels.
 - The compliance costs are uncertain, but based on current Renewable Energy Credit (REC) prices and California allowance prices, initial compliance costs may range from \$4.00 - \$13.00 per MT of CO₂^{vii}. These costs are anticipated to rise as demand increases.
 - Although costs will vary depending on the actual carbon emissions of each facility, costs for a facility with the state's assumed marginal emissions rate of 970lbs/MWh will increase by \$1.90 - \$6.19/MWh.
 - Depending on gas prices, this represents a 7% – 25% increase in production cost and, in most instances, will be higher than the cost of transmission to import out-of-state electricity.

Given the regional nature of power markets and the fact that most out-of-state power does not have any associated carbon compliance costs, utilities will be incented to purchase the out-of-state power, which may result in emission leakage. A modified target as PGP proposes would provide for operation of existing efficient in-state gas resources without additional carbon compliance costs, thereby avoiding emissions leakage.

- **Provides for displacement of higher emission resources.** Market factors are impacting the economics of operating coal fired resources. Low natural gas prices have already made coal resources less economic to

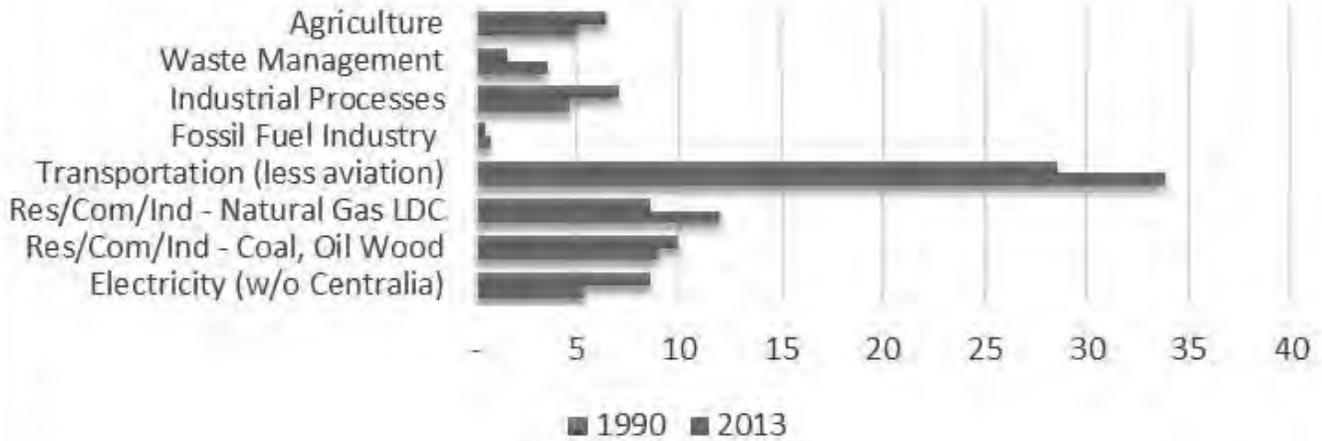
operate relative to natural gas facilities. Natural gas resources have lower carbon emissions than coal plants, with efficient natural gas plants producing almost 1/3 the carbon of a coal plant. Washington state is home to 4,000 MW of efficient natural gas that could be used to displace out of state coal and less efficient natural gas. However, without an adjustment to the CAR target, it will not be economic to reduce current coal production and replace it with lower emissions natural gas production.

Resource type	Average Heat Rate (Btu per KWh)	Pounds of CO2 per MWh
Coal	10,800	2,100
Natural Gas	10,400	1,220
Efficient Natural Gas	7,100	850

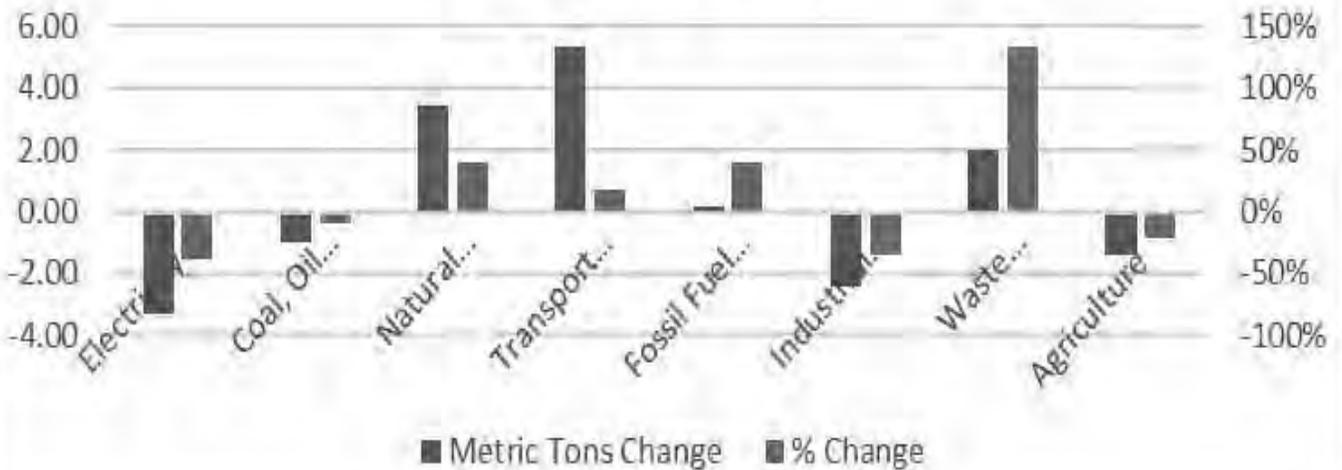
- Decreases the cost of transportation electrification.** PGP’s modified target will result in lower electricity costs than the proposed CAR target, which in turn will reduce the overall costs for transportation electrification. Lower transportation electrification costs will result in more widespread adoption of electric vehicles. This will bring about necessary change in the largest emitting sector and allow Washington to meet its greenhouse gas reduction goals at a lower cost to consumers.
- Reduces regulatory uncertainty.** The CAR’s new but short-lived compliance methods create regulatory uncertainty for covered generators because RECs and ERUs created under the Clean Air Rule will not be allowed for compliance under the CPP. The modified target is intended to reduce regulatory uncertainty by creating a target that is more consistent with a potential target under the CPP without short-term reliance on compliance mechanisms that will not be available in the future.
- Assures reliability of power system.** The Northwest Power and Conservation Council’s analysis for the 7th Power Plan indicated that existing natural gas is needed to assure that the region can maintain Resource Adequacy. The Council’s draft Resource Adequacy assessment for 2021 indicates a higher than acceptable loss of load probability assuming all current facilities are available^{viii}. The current CAR targets restriction will reduce the amount of natural gas production and could impact reliability. Further, the current CAR target does not provide sufficient operating flexibility to address additional thermal operations during a low water year. The recommended modified CAR target provides flexibility to cover low water years and peak system conditions.
- Provides sectoral equity.** Washington state’s electricity sector has been recognized as the cleanest in the country with more than 80% of electricity production coming from renewable resources. Part of that is due to historic investment in hydropower, but it is also due to significant recent investment in energy efficiency, new renewables, and pending closure of the last coal plant in the state. As the graphs indicate, over the last 20 years the electricity sector has reduced emissions by more than 40% while other sectors have increased their emissions by 20 – 40% over that same time period.

Ecology recognized the early actions of trade sensitive industries and provided a separate baseline and target setting process for EITI companies. The electricity sector also has taken early action in a competitive regional market. The recommended modified target assures sectoral equity by allowing the electricity sector to benefit from past investments and handle operational adjustments in a least-cost manner while still meeting the state’s carbon reduction goals.

Washington State Emissions 1990 vs. 2013 (metric tons)



Emissions Change by Sector 1990 vs 2013



Recommended Changes to the Clean Air Rule Language

Recommendation:	Drop 2012 from the baseline for electric generating units
Suggested language changes:	<u>173-442-050 Process to Calculate Category 1 baseline GHG emissions value, add new sub-paragraph under (3)(b):</u> “(iii) For electric generating units, any calendar year in which hydro production exceeds the 60-year water record average by more than 15%.”
Rationale:	Natural gas generation and associated emissions in Washington are highly correlated to variability in hydroelectric production. The CAR’s use of five-year averaged data for calculation of facility baselines is not sufficient to address this variability, due to the fact that 2012 was 22% above normal. Because 2012 was an outlier in the 60-year water record, its inclusion in the baseline calculation results in baseline values for electricity emissions that are significantly lower than they would be if more representative water years had been used. For this reason, 2012 data should be excluded from the data used in calculating baseline emissions for electricity generating units.

Recommendation:	Provide ERU creation for the life of energy efficiency measures
Suggested language changes:	<u>173-442-160 Energy Measures, modify language in sub-paragraph (a) as follows:</u> The acquisition of conservation and energy efficiency in excess of the targets required by the Energy Independence Act per RCW 19.28.040 and any additional acquisition targets established by the utilities and transportation commission by rule or order may generate ERUs over the life of the conservation or energy efficiency measure.
Rationale:	Qualified conservation and energy efficiency measures should be eligible to generate ERUs over the life of these activities. Although energy efficiency measures have multi-year savings, current reporting for 937 compliance include only the first-year savings associated with energy efficiency measures. Some form of additional reporting will be needed to provide the appropriate ERU benefits for the life of the measure.

Recommendation:	Provide ERU creation for incremental hydro
Suggested language changes:	<u>173-442-020 Definitions, modify language definition as follows:</u> (a) "Renewable energy credit" means a tradable certificate of proof of an eligible renewable resource, as defined in RCW 19.285.030(12), that is verified by the renewable energy credit tracking system identified in WAC 194-37-210(1) and which includes all of the nonpower attributes associated with that electricity as identified in RCW 19.285.030(15).
Rationale:	Incremental hydroelectric generation is recognized as renewable energy under RCW 19.285.030(12). The addition of a reference to this provision is necessary to explicitly recognize that acquisition of incremental hydro in excess of legal requirements is eligible to generate ERUs under the CAR.

Recommendation:	Allow out-of-state RECs to be used in ERU creation
Suggested language changes:	<u>173-442-160 Energy Measures, modify subparagraph 5(b)(I) as follows:</u> (i) Renewable resources eligible for generating ERUs include eligible renewable resources as defined by RCW 19.285.030(12). except that only those eligible

	renewable resources physically located in Washington may generate ERUs.
Rationale:	The proposed rule allows covered entities to comply with emission reduction requirements through purchase of allowances generated in other states, such as California. The CAR should therefore also allow RECs generated in other states to be converted to ERUs and used for compliance.

Recommendation:	Provide ERUs for transportation electrification
Suggested language changes:	<p><u>173-442-160 Transportation Activities, add new sub-paragraph (3)(c): <i>Vehicle Electrification Incentives</i></u></p> <ul style="list-style-type: none"> (i) Electric utilities may generate ERUS for provision of electricity for vehicles and other activities that support and provide financial incentives for electrification of transportation. Such activities may include installation of charging stations or rebates for vehicle acquisition. (ii) Generation of ERUs will be derived from carbon intensive methodologies consistent with those used under the California Low Carbon Fuel Standard, the Oregon Clean Fuel Standard or other methodologies approved by Ecology.
Rationale:	<p>According to the US DOE, Alternative Fuels Data Center, the annual carbon equivalent emissions from an EV in Washington averages 987 lbs whereas a gasoline powered vehicle emits 11,435 lbs. (http://www.afdc.energy.gov/vehicles/electric_emissions.php). Therefore, replacing a gasoline vehicle with an EV should reduce carbon emissions by more than 10,000 lbs. Given the significant carbon reduction that can be achieved through transportation electrification, the CAR should provide more incentives for electric utilities to invest in and support transportation electrification. Examples for how to calculate the benefits of these activities exist in California and Oregon’s fuel standards.</p>

Recommendation:	Align treatment of biogenic emissions with state law and EPA
Suggested language changes:	<p><u>173-442-040 Exemptions, add new sub-paragraph (1)(e)) Biogenic fraction of CO₂ emissions associated with electricity generation utilizing landfill gas, as calculated using methods for waste-derived fuel biogenic feedstocks in EPA’s <i>Framework for Assessment of Biogenic Carbon Dioxide Emissions from Stationary Sources</i></u></p>
Rationale:	<p>Washington state law and policy clearly recognizes and incentivizes renewable electricity generation, including from landfill gas. The CAR’s assignment of a carbon obligation to emissions from electricity generation from landfill gas runs counter to these laws and policies by creating an economic disincentive for such generation. Further, it conflicts with explicit recognition by the U.S. Environmental Protection Agency of the carbon neutrality of landfill gas generation.</p> <p>PGP recommends that Ecology align the CAR with existing federal and state policy by exempting the biogenic fraction of emissions from landfill generation, calculated using EPA’s Biogenic Emission Assessment Framework. Such an approach is consistent with the statutory mandate for Ecology to use reporting methods consistent with those used by EPA, because EPA has designed the Framework to be used <i>in conjunction</i> with GHG reporting requirements. Further, EPA’s expressed intention to utilize the Framework to assess the extent to which CO₂ emissions from biogenic sources incur a</p>

	compliance obligation under the CPP, establishes a clear precedent for appropriateness of using the framework under a direct emissions program.
Recommendation:	Allow for early transition to the Clean Power Plan
Suggested language changes:	<u>173-442-040 Exemptions, modify paragraph 4 as follows:</u> (3) Stationary sources included in the Clean Power Plan (40 C.F.R. Part 60 Subpart UUUU) will be considered to comply with the requirements of this chapter once subject to an EPA approved Washington implementation plan under the at the beginning of the first compliance period of the Clean Power Plan provided that:
Rationale:	EPA encourages states to develop and implement programs under the CPP prior to the official compliance period start date in 2022. The recommended modification anticipate that Washington could develop and implement a state CPP plan prior to 2022, and that electricity generators would be subject to the CPP as of state plan start date.

ⁱ According to the US Energy Information Agency the five states with the lowest carbon intensity are Vermont (26 kg CO₂/MMBtu), Washington (35 kg CO₂/MMBtu), Oregon and New Hampshire (both 36 kg CO₂/MMBtu), and Maine (38 kg CO₂/MMBtu). US Energy Information Agency, “Energy-Related Carbon Dioxide Emissions at the State Level, 2000-2013”, Report issued October 2015.

ⁱⁱ For the Electricity Sector: Federal CPP 2022 Target for WA = 11.2 million metric tons, WA State Emissions 2020 Target applied to in-state electricity production = 8.5 million metric tons, Clean Air Rule 2020 Target: 3.4 million metric tons.

ⁱⁱⁱ Assumes 2.25 RECs for every 1 MWh used for compliance with an initial REC price between \$1.78 and \$3.11 based on anecdotal input.

^{iv} WA Department of Ecology Greenhouse Gas Emissions Inventory released December 2014. Transportation emissions adjusted for aviation fuel and electricity sector emissions adjusted for Centralia using EIA data.

^v “Electric Vehicles (EV) and Utilities a Win-win Investment?” Northwest Power and Conservation Council presented to Power Committee, July 6, 2016.

^{vi} Modified Target and for Sector Comparisons Data: WA Department of Ecology Greenhouse Gas Emissions Inventory released December 2014 used for non-electricity sectors and EIA Detailed State Data Final annual data for 2014 released October 2015 to calculate emissions associated with in-state resources.

^{vii} Assumes 2.25 RECs are required for every 1 MWh. REC prices were estimated to be between \$1.78 and \$3.11 based on anecdotal input of current REC market prices.

^{viii} Draft 2021 Power Supply Adequacy Assessment, Northwest Power and Conservation Council presented to Power Committee, June 6, 2016.



July 22, 2016

*Protecting and
Preserving
Puget Sound*

Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia, WA 98504-7600

130 Nickerson Street,
Suite 107
Seattle, WA 98109

(Sent via email to: AQComments@ecy.wa.gov)

P 206.297.7002
F 206.297.0409

RE: Puget Soundkeeper Alliance Letter on Department of Ecology's Clean Air Rule Rulemaking

www.pugetsoundkeeper.org

Dear Mr. Wilson,

Puget Soundkeeper Alliance (hereinafter "Soundkeeper") is a water quality focused grassroots citizen's organization founded in 1984. Soundkeeper's mission is to protect and preserve the waters of Puget Sound. Representing over 3,000 members, supporters, volunteers and activists, Soundkeeper works to meaningfully decrease pollutants reaching the Sound by actively monitoring Puget Sound water quality, enforcing clean water laws, improving policies and regulations, preventing pollution and cleaning up waterways. Soundkeeper is profoundly concerned with the detrimental effects of ocean acidification on our waterways and believes a strong Clean Air Rule is an impactful way to combat this problem.

Ocean acidification is caused by uptake of carbon emissions from the atmosphere by the world's oceans, which in turn decreases the pH levels of the oceans. A decreased pH level has detrimental effects on ocean ecosystems. Recent research by the National Oceanic and Atmospheric Association (NOAA) has shown that carbon uptake has made water of the Puget Sound some of the most corrosive in the world. At the current pH level, these corrosive waters have been shown to impact the ability for oysters to grow shells. Furthermore, major negative impacts from ocean acidification are expected to cause problems for other marine organisms that build calcium carbonate skeletons. Without serious action, ocean acidification is expected to have a devastating effect on the Puget Sound ecosystem as well as the region's shellfish growing economy – exacerbating already problematic impacts of localized pollution sources.

The way to combat ocean acidification is by decreasing carbon emissions. A strong Clean Air Rule is a necessary step in mitigating ocean acidification and protecting the waters of our

state. Soundkeeper hopes that Ecology makes the right decision and publishes a strong Clean Air Rule that works to cut carbon emissions and in turn decrease the effects of ocean acidification. It is Ecology's obligation to protect the waters of Puget Sound and a strong Clean Air Rule is necessary to meet this obligation.

Sincerely,

Chris Wilke, Executive Director and Puget Soundkeeper

Sophia Ressler, Executive and Administrative Coordinator

REC Silicon Inc
1616 S. Pioneer Way
Moses Lake, WA 98837
USA
Phone +1 509 793 9000
Fax +1 509 764 9945
www.recsilicon.com



Maia Bellon
Director of Ecology
PO Box 47600
Olympia, WA 98504-7600

July 21, 2016

Dear Director Bellon:

REC Silicon is a leading producer of advanced silicon materials, supplying high-purity polysilicon to the solar industry worldwide. Polysilicon is the raw material used to produce solar panels. The Company's proprietary FBR technology is the most energy efficient technology in making polysilicon, and the fact that the power we use is generated by hydroelectric power makes REC Silicon probably the company with the lowest carbon dioxide emission per kilogram produced. As a company working in the solar industry we are, in general, very focused on the carbon footprint of our activity and the reduction of global carbon emissions.

The Clean Air Rule doesn't recognize carbon negative companies like REC Silicon as shown in a third party report provided to Ecology previously. Penalizing companies who are part of the solution will only encourage less efficient production elsewhere in the world resulting in an increase in global emissions. Washington should encourage innovative companies that produce products that reduce global emissions.

We suggest the following changes to the proposed Clean Air Rule:

- Allow companies that can show carbon negativity to be exempt from the rule.
- Recognize and reward companies who utilize best technology in their industry by limiting their reduction requirements. As explained by Ecology in public webinar, the proposed rule appears to recognize energy efficiency but it is not clear how this is accomplished or what this recognition means. Although recognizing and rewarding energy efficiency is the right direction, we would suggest that this component of the rule be more clearly defined.
- The prior draft of the Clean Air Rule provided relief to emitters that suffer economic hardship. The current draft rule does not appear to contain any such relief. We would suggest that economic hardship be recognized as a temporary exemption to the rule provided that any relief be predicated upon demonstration of defined criteria. Qualifying criteria should be such that an emitter could qualify for relief without being bankrupt or no longer a going concern.

The proposed Clean Air Rule should contain provisions that encourage renewable energy companies to produce in Washington State resulting in a reduction of global emissions.

Regards,

Tore Torvund, CEO

3Degrees
Absaroka Energy
American Wind Energy Association
Atkins
Bonneville Environmental
Foundation
Center for Energy Efficiency &
Renewable Technologies
Citizens' Utility Board of Oregon
Climate Solutions
Columbia Gorge
Community College
Community Renewable
Energy Association
DNV GL
EDF Renewable Energy
EDP Renewables
Environment Oregon
Environment Washington
Eurus Energy America
EverPower
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Geothermal Resources Council
Green Mountain Energy
HDR Engineering, Inc.
Iberdrola Renewables
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Kapla Law PLLC
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Information Center
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RES America Developments
Solar Oregon
Stoel Rives, LLP
SunPower Corporation
SWCA Environmental Consultants
Vestas Americas
Warm Springs Power &
Water Enterprises
Washington Environmental Council
WashPIRG
Western Resource Advocates



July 22, 2016

**Ms. Sarah Rees, Special Assistant
Climate Policy
Mr. Stuart Clark, Air Quality Program Manager
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600**

**RE: Comments of Renewable Northwest on Chapter 173-442 WAC,
Clean Air Rule Draft Proposal**

Dear Ms. Rees and Mr. Clark:

Renewable Northwest appreciates the opportunity to comment on the Washington Department of Ecology's ("Ecology") draft proposal of the Clean Air Rule, Chapter 173-442 WAC. We commend Governor Inslee and Ecology for the State's leadership on clean energy policies and for recognizing the public health and safety benefits of transitioning to a clean energy economy.

Renewable Northwest is a nonprofit advocacy organization that brings together its business and nonprofit members to promote the environmentally responsible expansion of renewable energy resources in the Pacific Northwest. Renewable energy in the region has led to significant carbon emission reductions by displacing fossil fuel generation and, in our view, will be a low-cost, low-risk compliance mechanism for regulated entities under the Clean Air Rule.

While Renewable Northwest supports the intent of the proposed rule, changes to the program design are necessary in order to achieve the desired outcome and protect the integrity of our existing renewable energy policies and programs. In particular, concerns around double counting, preserving the integrity of Renewable Energy Credits ("RECs"), preventing leakage, and aligning the Clean Power Plan target with the Clean Air Rule trajectory are of utmost importance. In the following comments, we put forth recommendations for how Ecology can best address these concerns to strengthen the rule and build upon the progress that Washington has already made.

I. The Clean Air Rule must address double counting in order to maintain the integrity of existing renewable energy policies and programs in Washington.

Renewable energy has proved to be one of the most effective technologies for reducing greenhouse gas emissions in Washington State. Washington's Energy Independence Act ("I-937") has resulted in the largest greenhouse gas emission reductions of any other policy in Washington¹ and will continue to reduce greenhouse gases as we continue to transition to a clean energy economy. The voluntary renewable energy market has also reduced greenhouse gas emissions in the state, with 8% of total retail customers in Washington purchasing Green-e certified renewable energy in 2014, resulting in seven million MWhs of renewable energy.² Renewable energy will continue to be a low-cost, low-risk mechanism for reducing emissions in the state and further improving the carbon benefits of increased transportation electrification. However, in order to continue building upon the successes of these policies, the Clean Air Rule must incorporate mechanisms to protect the integrity of the environmental attributes of renewable energy and not undermine the benefits that Washington's existing policies continue to deliver.

RECs are tradable certificates of proof of at least one MWh of an eligible renewable resource and represent the environmental attributes contained within that MWh of energy.³ Issues of REC ownership, the validity of claims, and avoiding double counting are central to preserving customer choice and maintaining a robust REC market. Currently, the owner of a REC is the only party that can claim the environmental benefits associated with that MWh of renewable energy. However, the crediting structure in the current draft proposal threatens to undermine the integrity of RECs generated in Washington State.

In the draft proposal of the Clean Air Rule, the structure poses a large risk of double counting. Emission Reduction Units ("ERUs") are the designated compliance mechanism under the draft proposal, representing one metric ton of CO₂e.⁴ ERUs can be generated from projects from within the regulated sector; for example, a renewable energy project would be eligible to generate ERUs for Clean Air Rule compliance so long as the RECs from those projects are not used for any other policy or program. Simultaneously, that same MWh of renewable energy may displace fossil fuel generation at a regulated facility under the Clean Air Rule, for which the regulated facility would also be given credit. Because the framework allows the same MWh of renewable energy to both generate an ERU and credit a regulated facility for reducing emissions, the project would be credited twice for each metric ton of carbon actually reduced. This potential double counting raises concerns around the rule's ability to achieve the intended outcome and threatens the integrity of existing clean energy policies and voluntary renewable energy programs.

The draft proposal indicates that emissions reductions must be additional to existing rule or law.⁵ However, crediting the same MWh of renewable energy with both an ERU and a

¹ Leidos (2013). Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State, Final

² Green-e Verification Report (2014). Center for Resource Solutions. <http://www.green-e.org/docs/2014%20Green-e%20Verification%20Report.pdf>

³ RCW 19.285.030 (20)

⁴ WAC173-442-020 (1)(m)

⁵ WAC 173-442-150 (1)(e)

carbon emission reduction would conflict with the additionality requirements. If a new renewable energy project generates RECs to be used for I-937 compliance, that same MWh may also reduce a regulated facility's compliance obligation, making reduction requirements no longer additional to the existing law. Because of double counting, the REC loses the carbon emission reduction attribute, which in turn, would undermine the value of the REC. Since I-937 requires that RECs contain all nonpower attributes,⁶ the Clean Air Rule may conflict with existing law if double counting is not adequately addressed because the carbon attribute would be lost. In order to avoid conflicting with the requirements of I-937 and the Clean Air Rule's additionality requirement, one MWh of renewable energy should not be able to generate a REC if a regulated facility is simultaneously receiving a carbon reduction benefit.

Maintaining additionality – or regulatory surplus – is also critical for preserving customer choice and a thriving voluntary renewable energy market. In 2014, the voluntary renewable energy market totaled 74 million MWhs in the United States, with approximately 4.9 million customers participating and representing approximately 2% of total electricity sales.⁷ Participation in voluntary renewable energy programs provides consumers with an ability to exceed regulations by purchasing renewable energy to match their needs, often through the form of REC purchases. The environmental attributes of a REC are a primary driver of voluntary renewable energy purchases, and the loss of those attributes may threaten the integrity of the market. If the carbon attribute associated with a customer's voluntary REC purchase is simultaneously used as a compliance mechanism for the Clean Air Rule, the REC will no longer be surplus to regulation and the value will be undermined. Without regulatory surplus, customers would no longer be able to claim emissions reductions as a result of their voluntary renewable energy purchases. Furthermore, existing and future programs may risk losing certification from Green-e, the leading independent consumer protection program for renewable energy sales.⁸ Without an effective mechanism to prevent double counting and maintain the carbon attribute of the REC, regulatory surplus will not be maintained and the voluntary renewable energy market in Washington may be compromised.

One mechanism to ensure the carbon attribute remains bundled with the voluntary RECs in states with greenhouse gas regulation is through the use of voluntary renewable energy set-asides. Renewable energy set-asides have been established in several trading programs, such as California and RGGI, and require that a specified number of emissions allowances be set aside and retired on behalf of voluntary REC purchases. Retiring allowances that will not be available for use by regulated entities ensures that the environmental benefits of voluntary REC purchases are surplus to regulation, enabling those purchases to retain Green-e certification and allowing customers to claim carbon emission reductions associated with their renewable energy purchases.⁹

⁶ RCW 19.285.030 (20)

⁷ NREL. Status and Trends in the U.S. Voluntary Green Power Market (2014 Data). <http://www.nrel.gov/docs/fy16osti/65252.pdf>

⁸ <http://www.green-e.org/>

⁹ Ibid.

Because Ecology has chosen a baseline-and-credit framework, allowance set-asides do not align with the structure and an alternative mechanism is needed to ensure regulatory surplus. After considerable feedback from stakeholders and consideration of concerns around double counting, Ecology made significant improvements to the rule through the addition of a reserve account. While the reserve account improves upon the original draft and begins to address double counting, it will be unable to adequately address the concerns without the following changes detailed below.

II. The reserve account must ensure that all reserve priorities are allocated sufficient ERUs.

The creation of a reserve account is conceptually similar to a set-aside, allowing Ecology to allocate or retire ERUs on behalf of certain projects while maintaining an overall cap. The current Clean Air Rule proposal identifies six priorities for withdrawals and retirements from the reserve account in the following order: resuming production at curtailed facilities; new entrants to the program; changes in production; addressing double counting; funding environmental justice priorities; and promoting the viability of voluntary renewable energy programs in Washington. Renewable Northwest acknowledges and appreciates that preventing double counting and the protecting the voluntary renewable energy market are prioritized as a use in the reserve account; however, we have concerns that the account may be insufficient to allocate the necessary ERUs to all of the stated priorities. For example, one 80 MW project would displace approximately 100,000 tons of carbon according to the conversion factor in the draft rule.¹⁰ Assuming the project displaces in-state natural gas, if the 100,000 RECs from this project are purchased on behalf of the voluntary renewable energy market, regulatory surplus is only maintained if 100,000 ERUs from the reserve account are simultaneously retired. According to Ecology's projections, actual emissions reductions contributions toward the reserve account in 2020 are projected to be 51,634 ERUs. While allocations to the reserve account as a result of curtailments are not certain, the reserve account could potentially be insufficient for several years if one 80 MW project comes online.¹¹

If allocations and withdrawals from the reserve account are prioritized – giving first preference to startups of curtailed facilities, new entrants in the market, and changes in production – it is less certain that the remaining priorities will be allocated ERUs. As the fourth and sixth priorities on the list, concerns around double counting and maintaining regulatory surplus with the voluntary renewable energy market and I-937 may not be addressed if the reserve account is depleted from allocations to the first three priorities.

In order to address prioritization of the reserve account, Renewable Northwest recommends that Ecology provide a mechanism for adjusting reserve account contributions as market conditions change. For example, if the reserve account is insufficient in the first compliance period, Ecology should have the ability to adjust the compliance obligation for regulated entities and allocate additional ERUs to the reserve account. Instead of prioritizing specific allocations and withdrawals, Ecology should eliminate any prioritization and ensure that all

¹⁰ Based on 33% capacity factor and one ton of carbon per 2.25 MWhs.

¹¹ Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis.

priorities receive sufficient ERUs. If Ecology is unable to allow for adjustable contributions to the reserve account, Renewable Northwest recommends that the Clean Air Rule first prioritize preventing double counting and protecting the voluntary market if the intent is to maintain regulatory surplus in existing policies and not exceed the cap under the proposed Clean Air Rule.

III. The reserve account must be charged with onsite emissions reductions that are not a result of curtailments in order to adequately address double counting.

Ecology will allocate two percent of a covered party's required annual emission reduction pathway to the reserve account.¹² However, it is unclear whether the reserve account will be charged with actual onsite emissions reductions or with ERUs that have been generated for compliance. In the latter situation, the reserve account may be charged with ERUs from projects or programs that are already at risk for being double counted and would not have the ability to sufficiently address double counting. Retiring a double-counted ERU on behalf of another double-counted ERU may reduce double counting, but will not eliminate it, and it threatens the effectiveness of the reserve account. Therefore, the reserve account should be charged with onsite emissions reductions that are beyond the emissions reduction pathway of regulated facilities.

Furthermore, ERUs from curtailments should be distinguished from ERUs generated from onsite emissions reductions and emission reduction projects and should not be allocated or retired from the reserve account in the same manner. Curtailed facilities pose a large risk of leakage, and, as identified in Climate Solutions et. al comments, the definition of curtailment can easily be gamed. Therefore, using ERUs generated from curtailments to address double counting or other priorities may reduce the likelihood of actual emissions reductions from the rule. ERUs from curtailments should be used solely to address startups, new entrants, and changes in production, whereas ERUs generated from onsite reductions should be allocated to or retired on behalf of the remaining priorities.

IV. Ecology must retire reserve ERUs to address conditions in which one ERU or REC is generated and a simultaneous ton of carbon reduced at a regulated facility.

Retirements within the reserve account are to be used to address conditions in which two ERUs may be generated for each metric ton of reduced greenhouse gas emissions from programs or activities.¹³ However, double counting will also occur in situations in which two ERUs are not necessarily generated, but rather one project generates an ERU while also reducing emissions at a regulated facility. For example, an ERU generated from a renewable energy project also displaces a metric ton of carbon, but does not necessarily create two distinct ERUs. In order to address this concern, Renewable Northwest recommends that Ecology insert language to also prioritize in the reserve account situations in which an ERU also displaces a metric ton of greenhouse gases.

¹² WAC 173-442-240 (1)

¹³ WAC 173-442-240 (2)(b)

Additionally, the reserve account should prioritize addressing double counting from new facilities that result in REC sales to Washington utilities for I-937 compliance, as well REC sales for compliance with other state RPSs. California, Oregon, and Washington laws require that RECs contain all environmental attributes, and the use of a carbon attribute for Washington's Clean Air Rule that is separated from the REC may eliminate a market opportunity for Washington RECs. Removing the ability for in-state renewable energy projects to meet those RPSs would inevitably disadvantage Washington projects and could harm economic development in the state.

V. Electric Generating Units that cease operations should not be credited with ERUs if emissions are shifted to out-of-state generation.

The term "leakage" refers to a situation in which a policy or regulation increases, or threatens to increase, the cost of production in one geographical area, and therefore production is transferred to a geographical area without the regulation. Because the electric grid extends beyond Washington's state boundaries, leakage is of primary concern and may threaten the effectiveness of the Clean Air Rule if not properly addressed. Shifting greenhouse gas emissions to another location reduces greenhouse gas emissions that are physically emitted from within Washington's borders, but may not result in global greenhouse gas emissions reductions.

In order to address leakage from stationary sources, the draft proposal exempts curtailed facilities - facilities that cease production for more than four consecutive months - from their reduction trajectory and allocates any ERUs from curtailment to the reserve account. However, electric generating units are exempt from this definition, providing no mechanism to prevent leakage and windfall profits in the electricity sector. Renewable Northwest agrees that including Electric Generating Units ("EGUs") in the curtailment definition may not be an appropriate mechanism for the electricity sector because some EGUs would annually meet the definition of curtailment; however, the risk of leakage still must be addressed.

To address the risk of leakage and windfall profits, Renewable Northwest suggests that Ecology prohibit EGUs from generating ERUs if emissions are shifted out-of-state. Under the current draft proposal, regulated facilities would be rewarded for reducing fossil fuel production in-state and shifting fossil fuel generation out-of state, generating ERUs for compliance under the Clean Air Rule but avoiding actual global emissions reductions. In our view, EGUs that reduce production or exit the market should not be eligible to generate ERUs if the utility simply shifts emissions out-of-state. The draft proposal requires that activities generating emissions reduction units be "real, specific, identifiable, and quantifiable," as well as "result in an irrevocable and nonreversible reduction of GHGs released to the atmosphere."¹⁴ If a facility reduces emissions in Washington, but shifts generation to other states, overall global emissions in the atmosphere may increase and be in conflict with the above-mentioned requirements of emissions reductions. Therefore, Ecology should not permit generation of ERUs from curtailed facilities that shift emissions to other states and should only consider reductions to be real if reduced generation in Washington does not lead to increased emissions at non-Washington facilities.

¹⁴ WAC 173-442-150 (1)

Furthermore, Ecology could convert the compliance obligation for EGUs to a rate-based compliance obligation, similar to the output-based compliance obligations used for Energy Intensive Trade Exposed industries, to accommodate changes in generation while preventing windfall profits to EGUs for shifting generation to neighboring states. While this may not prevent all leakage, it would reduce the incentive for windfall profits to regulated facilities and may strengthen the effectiveness of the Clean Air Rule.

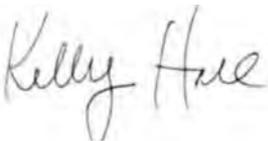
VI. Electric generating units should be obligated to reduce emissions on an equivalent reduction trajectory if regulated through the Clean Power Plan.

Renewable Northwest supports the provision allowing stationary sources covered under the Clean Power Plan to be considered to comply with the Clean Air Rule once the EPA has approved Washington's implementation plan. Because it is a nation-wide regulation, the structure can more efficiently and effectively regulate regional emissions for a grid that crosses state borders. However, under EPA's target for the Clean Power Plan, Washington will be permitted to increase emissions far beyond business-as-usual emissions projections, based on existing policies and programs. If Ecology's intent is to claim the same level of emissions reductions in the electricity sector as the other regulated sectors, the Clean Power Plan target must be at least as stringent as the trajectory laid out in the draft Clean Air Rule. If the electricity reduction trajectory is not as stringent, the overall cap in the Clean Air Rule will be compromised and emissions reductions in the electricity sector as a result of the Clean Air Rule could not be claimed.

VII. Conclusion

We thank Ecology again for the opportunity to submit comments on the draft proposal of the Clean Air Rule, and we believe that the rule has great potential to reduce greenhouse gas emissions in the state if carefully designed. Most importantly, we hope that Ecology makes critical changes to the reserve account recommended in this memo and that the Clean Power Plan target is aligned with the Clean Air Rule. Thank you for considering our recommendations, and we look forward to continued engagement in the rulemaking process.

Sincerely,



Kelly Hall
Washington Policy Coordinator
Renewable Northwest

Wilson, Sam (ECY)

From: Pederson, Matthew <MPederson@republicservices.com>
Sent: Tuesday, July 12, 2016 7:51 PM
To: ECY RE AQComments
Subject: Matthew Pederson - Full comments provided at July 12th hearing in Spokane

Statements to be presented at Public Hearing in Spokane July 12, 2016

Statements addressed to:
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

**SUBJECT: Proposed Rulemaking to Adopt a New Rule (Chapter 173-442 WAC)
and Revise Chapter 173-441 WAC**

My name is Matthew Pederson, Municipal Relationship Manager for Republic Services based in Spokane. My Office Address is 421 W. Riverside Ave, Suite 1040 Spokane, WA 99201.

These statements are being made on behalf of Republic Services, who is the owner and operator of the Roosevelt Regional Landfill - a regional municipal solid waste landfill in Klickitat County. These statements will be brief, and echo the most important substance of written comments that are being filed separately.

Republic Services is a leader in sustainability across the country and understands the intent of the clean air regulation being proposed by Ecology as a movement towards world-wide stewardship of our planet in a responsible manner. We have concerns, however, that the rulemaking activity to enact what appears to be a workable emissions cap-and-trade regulation is being over-reached in the State of Washington by the inclusion of landfills, which we strongly believe are inappropriate for this type of rule.

Landfills Do Not Fit the Intent of the Proposed Rule.

As described by the EPA:

“Landfills are different than many other traditionally regulated emissions source categories. Typically, entities regulated for air emissions are involved in manufacturing or production and their emissions are directly related to processes involved in creating products (e.g., vehicles, bricks) or commodities (e.g., natural gas, oil). When manufacturing or production facilities cease to operate, their emissions typically cease. Landfills are a service industry—a repository for waste that needs to be properly disposed—and their emissions are a by-product of the deposition of that waste.”

The proposed rule expects facilities to reduce emissions over time, while in fact landfills will have increasing emission rates during their operating life. Thus, the only ways that they could attempt to comply with the proposed rule would be to buy their way out of it by paying a penalty in the form of Emission Reduction Units or cease operation.

The unintended consequences of force-fitting landfills into this type of regulation.

The existing Roosevelt Waste-by-Rail Regional System is the lowest carbon footprint system in the region. The economics of the additional costs from purchasing Emission Reduction Units would make this system uncompetitive with solid waste facilities that would not have to comply with the rule because of their size or with facilities that are located in states that do not have such a rule. In effect, leakage would occur.

This leakage of waste outside of the borders or shifting of waste to smaller facilities would increase GHG emissions from the extra transportation. Additionally, up to 600 truck trips per day would be added to our state highways. In the economic analysis performed by Ecology for this proposed rule, Ecology believes that the additional costs for a facility to comply with the rule would be as simple as passing the costs on to its existing customers. Unfortunately this simple logic does not apply to the waste-management sector, because waste is a commodity that easily, and commonly, flows across state borders.

Suggested Alternatives for the Control of GHG Emissions from Landfills.

Landfills have been a significant “positive” to the social stewardship of the environment, and are way ahead of any other industrial sector with regard to historical control of their GHG emissions. Their success is attributed largely to prescriptive-based regulations imposed at the Federal and State levels to protect groundwater and air resources.

The solid waste sector, due to the closing of smaller less efficient facilities with the promulgation of the Resource Conservation and Recovery Act, have already reduced emissions to below pre 1990 levels, which is the goal of this Cap and Trade rulemaking.

The efforts of following best-management operational practices prescribed for landfill gas collection and treatment, combined with State-incentivized waste diversion, are appropriate means of approaching long-term GHG emission controls for waste facilities, as demonstrated by the track record of past efforts. We are very concerned that including landfills in a cap-and-trade type of emissions program will be non-productive and disruptive not only in the goal towards reducing GHG emissions, but on the whole front of promoting proper management of waste residuals in the State of Washington.

Thank you for your time,

Matthew Pederson
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July 22, 2016

Sam Wilson
Washington Department of Ecology
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Submitted via email: AQComments@ecy.wa.gov

RE: Comments of the Renewable Fuels Association in response to Proposed “Clean Air Rule” (Chapter 173-442 WAC) and Amendments to Chapter 173-441 WAC (“Reporting of Emissions of Greenhouse Gases”).

Dear Mr. Wilson,

The Renewable Fuels Association (RFA) is pleased to submit these comments in response to the Washington Department of Ecology’s proposed rule establishing a Clean Air Rule (CAR) (Chapter 173-442 WAC), as well as proposed amendments to the existing Greenhouse Gas Reporting Rule (Chapter 173-441 WAC).

RFA is the leading trade association for America’s ethanol industry. Its mission is to advance the development, production, and use of fuel ethanol by strengthening America’s ethanol industry and raising awareness about the benefits of renewable fuels. Founded in 1981, RFA serves as the premier meeting ground for industry leaders and supporters. RFA’s 300-plus members are working to help America become cleaner, safer, more energy secure, and economically vibrant.

I. Executive Summary

RFA supports responsible, science-based policies and regulations that compel carbon emissions reductions from the transportation sector. Emissions of carbon from fossil fuels must be greatly reduced as quickly as possible to avoid changes to earth’s climate and ocean systems. These changes present threats to our social, economic and environmental systems.

Biofuels like ethanol are part of the climate solution. Passenger cars are one of the largest sources of carbon emissions in Washington, and ethanol is already providing a climate-friendly alternative to fossil fuels for the state’s motorists. Analyses from the California Air Resources Board, Oregon Department of Environmental Quality, and U.S. Department of Energy show that first-generation ethanol is reducing greenhouse gas (GHG) emissions by 30-60% compared to petroleum, while second-generation ethanol can reduce GHG emissions by 80% or more.

Unfortunately, the proposed CAR entirely fails to recognize the climate benefits associated with biofuels, and in fact penalizes their use. Therefore, we are greatly concerned that the proposed

rule will have the perverse and unintended effect of substantially reducing—or even eliminating—the production and use of liquid biofuels in Washington. Rather than embracing biofuels as a tool for reducing emissions under the CAR, the proposal unbelievably assumes biofuels offer no carbon benefit relative to fossil fuels and would subject certain ethanol producers and importers to the same compliance obligation faced by fossil fuel producers.¹

This predicament stems from the proposed rule's utter failure to recognize the fundamental differences between the carbon cycles of biofuels and petroleum fuels. The proposed CAR treats biofuels and fossil fuels identically, which sets a dangerous carbon accounting precedent with potentially far-reaching impacts. Other GHG cap-and-trade programs exempt biofuels from a compliance obligation because it is broadly understood that bioenergy combustion emissions are "carbon neutral" (i.e., the biomass recently removed an amount of atmospheric carbon through photosynthesis that is equivalent to emissions from combustion). Yet, the CAR proposal eschews globally accepted bioenergy carbon accounting methods out of fear that properly recognizing the carbon benefits associated with biofuels would trigger the so-called "poison pill" legislative provision that would shift funding from climate-friendly transportation investments to road and highway construction projects.

However, the simple act of exempting biofuels emissions from coverage under the CAR would *not* trigger the "poison pill." Proper treatment of biofuels emissions under the CAR in no way makes the program synonymous with a "low carbon fuel standard" or "clean fuel standard," which clearly take a full lifecycle carbon intensity approach to carbon accounting.

Our request to remedy the proposal's fatal flaws regarding biofuels is simple: we ask that the final CAR exclude biofuels from coverage. Doing so would:

1. recognize that emissions from biofuels are intrinsically different than emissions from burning fossil fuels;
2. hold biofuels harmless instead of the current approach which will deter the biofuels industry from investing in Washington; and
3. eliminate the current draft's inconsistency with virtually every other GHG reporting and regulatory system across the globe.

Implementing the CAR as proposed would set a perilous regulatory precedent, deter investment in the state's biofuels market, and compel reduced consumption of low-carbon biofuels. For these reasons, and those set forth more fully in the comments below, we strongly urge the Department of Ecology to exempt biofuels from compliance obligation in the final CAR.

II. Carbon Emissions from Biofuels Combustion Do Not Contribute to Climate Change

Biomass crops used to produce energy (e.g., electricity or liquid biofuels) act as temporary carbon sinks. During growth, they quickly absorb CO₂ that was just in the atmosphere. The same amount of CO₂ is then returned to the atmosphere when the carbon in the crop is

¹ Washington Dept. of Ecology's most recent list of "Potentially Eligible Parties" identifies a number of companies whose primary business function is producing and/or marketing biofuels, including ethanol. <http://www.ecy.wa.gov/climatechange/docs/CARcoveredparties0516.pdf>

combusted for energy. In this way, the use of biomass for energy recycles atmospheric carbon as part of a relatively rapid cycle. In contrast, the use of fossil fuels adds to atmospheric CO₂ by emitting carbon that was previously sequestered deep underground for millions of years.²

Thus, carbon emitted from burning biofuels does not introduce “new” carbon into the atmosphere. Rather, burning biofuels emits the same carbon that was recently removed from the atmosphere and sequestered in the plants utilized to create the biofuel. This carbon was already present in the global atmospheric system, moving periodically from the atmosphere into the oceans, into plants, into soils, etc., and then back into the atmosphere. This is in stark contrast to carbon emissions resulting from burning fossil fuels. When coal, oil, natural gas or other fossil fuels are burned, “new” carbon is introduced into the atmosphere. It is this new carbon that is changing fundamentally our planet’s climate.

Of course, there are GHG emissions associated with the *production* of biofuels. Energy inputs are used to plant, grow, harvest, and transport biomass, as well as to convert the biomass into liquid fuel and transport it to the user. The emissions associated with this supply-chain energy use are the subject of “lifecycle analysis.” When considered on a full lifecycle basis, scientists generally agree that first-generation ethanol reduces GHG emissions by 30-60% compared to petroleum, while second-generation ethanol offers reductions of 80% or more.

But these “lifecycle” emissions, which are the result of energy input during the biofuels production process, are not the focus of the CAR. Rather, the rule focuses on the carbon embedded in the fuel itself and the emissions when this carbon is combusted. Therefore, it is appropriate to consider the origin of the carbon in the fuel itself. In the case of biofuels, this carbon was recently in the atmosphere, was removed from the atmosphere via photosynthesis, and is being returned to the atmosphere via combustion. Thus, looking only at the flow of carbon embedded in the biofuel itself, there is no net impact whatsoever on atmospheric carbon levels.

III. Exempting Biofuels from the CAR is Consistent with Accepted Carbon Accounting Protocols, as Well as Policies and Programs in Other Jurisdictions Seeking to Reduce Carbon Emissions

Recognizing the inherent carbon benefits of bioenergy, national and international scientific and regulatory bodies have adopted GHG accounting protocols that appropriately account for the CO₂ uptake associated with biomass. Failure to exempt biofuels in the CAR would run afoul of

² See Parish et al. (2012). “Comparing Scales of Environmental Effects from Gasoline and Ethanol Production.” *Environmental Management*, 50 (6): 979-1246. “A critical temporal distinction exists when comparing ethanol and gasoline life-cycles. Oil deposits were established millions of years in the past. The use of oil transfers into today’s atmosphere GHGs that had been sequestered and secured for millennia and would have remained out of Earth’s atmosphere if not for human intervention. While the production and use of bioenergy also releases GHGs, there is an intrinsic difference between the two fuels, for GHG emissions associated with biofuels occur at temporal scales that would occur naturally, with or without human intervention. ...Hence, a bioenergy cycle can be managed while maintaining atmospheric conditions similar to those that allowed humans to evolve and thrive on Earth. In contrast, massive release of fossil fuel carbon alters this balance, and the resulting changes to atmospheric concentrations of GHGs will impact Earth’s climate for eons.”

globally accepted carbon accounting practices and protocols, while at same time contradicting treatment of biofuels in carbon reduction policies and programs in other jurisdictions. In fact, the CAR's proposed treatment of biomass-derived liquid fuels is also wholly contradictory to the proposal's treatment of biomass-derived electricity.

a. National and International Accounting Protocols

Guidance issued to national governments by the United Nations International Panel on Climate Change (IPCC) specifies that emissions from the combustion of biomass are not to be included in national inventories of energy-related fuel combustion CO₂ emissions. Similarly, the World Resource Institute's Greenhouse Gas Protocol Initiative states:

Due to the biogenic differences between fossil fuels and biomass, they are categorized differently in national inventories. Emissions of CO₂ from the combustion of biomass are reported for informational purposes, but not included in national totals. This is because any net additions of CO₂ to the atmosphere resulting from biomass combustion should be captured by analyzing land-use, land-use change activities and their associated effects on terrestrial biomass carbon stocks.³

Thus, if the use of biomass for bioenergy had no impact on land use or land use change, emissions from biomass combustion are assumed to be offset by CO₂ uptake.

The U.S. Environmental Protection Agency (EPA), which follows the IPCC protocol, states that “[b]illions of tons of carbon in the form of CO₂ are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced.”⁴

Further, U.S. EPA's annual GHG inventory treats biomass emissions in the following manner:

The combustion of biomass and biomass-based fuels also emits greenhouse gases. CO₂ emissions from these activities, however, are not included in national emissions totals because biomass fuels are of biogenic origin. It is assumed that the carbon (C) released during the consumption of biomass is recycled as U.S. forests and crops regenerate, causing no net addition of CO₂ to the atmosphere.⁵

Washington's proposal to include emissions from the combustion of biomass-derived fuels clearly contradicts these globally and nationally accepted accounting methods.

³ See World Resources Institute. Greenhouse Gas Protocol. “Calculation Tools: Frequently Asked Questions.” <http://www.ghgprotocol.org/calculation-tools/faq>

⁴ U.S. EPA. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014, at ES-8. <https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf>

⁵ U.S. EPA. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014, at 3-1. [https://www3.epa.gov/climatechange/Downloads/ghgemissions/508 Complete GHG 1990 2008.pdf](https://www3.epa.gov/climatechange/Downloads/ghgemissions/508%20Complete%20GHG%201990%202008.pdf)

b. Other GHG Cap-and-Trade Programs

Similarly, other jurisdictions with existing or proposed cap-and-trade programs correctly exempt producers and importers of biofuels from having a compliance obligation for biofuels combustion. Some of these existing programs may ultimately be linked with the Washington CAR, which would create discord and inconsistency related to the treatment of biofuels.

Under the California cap and trade regulation, emissions from biomass and biofuel combustion are reported but *exempted from a covered entity's compliance obligation*.⁶ CO₂ emissions from the combustion of biodiesel, renewable diesel, and fuel ethanol are specifically identified as “emissions without a compliance obligation,” along with emissions from the combustion of wood, wood waste, biomethane, biogas, and a number of other biogenic GHG sources.

Quebec's program covers emissions from combustion of “automotive gasoline, diesel fuels, propane, natural gas and heating fuel, *except...the biomass and biomass fuel component of such fuel*,” meaning biofuels are exempted from a compliance obligation.⁷ The regulations further specify that, “[c]ombustion emissions are the emissions resulting from the exothermic reaction of any fuel, except CO₂ emissions attributable to the combustion of biomass or biomass fuels.”

Ontario's pending cap and trade regulation is also expected to exempt biofuels and biomass emissions from a compliance obligation, and may even allow emissions reductions resulting from biomass/biofuels use to count as emissions offsets.

c. The CAR proposal exempts emissions from biomass-derived electricity

Incredibly, the CAR's proposed approach to regulating emissions from biofuels combustion in mobile sources is wholly inconsistent with the proposed approach to emissions from biomass combustion in stationary sources (e.g., use of woody biomass to generate electricity). The proposal completely exempted “[e]missions of carbon dioxide from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals...” due to the Revised Code of Washington's (RCW) correct understanding that “...emissions of carbon dioxide from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals *shall not be considered a greenhouse gas* as long as the region's silvicultural sequestration capacity is maintained or increased.” It is perplexing that this approach would be (properly) applied to stationary emissions from bioenergy production from biomass combustion, but not to emissions from liquid biofuel combustion.

IV. Exempting Biofuels from the CAR Does Not Trigger the “Poison Pill” Provision

In 2015, the Washington legislature enacted a Transportation budget, ESSB 5987, which dedicated several new revenue streams for a wide array of transportation projects. Three of these new revenue streams – Vehicle Weight Fees, Commercial Driver's License fees and the Enhanced Driver's License fee – fund the so-called Highway Safety Fund, which provides much

⁶ See California Code of Regulations, Title 17, Section 95852.2.

⁷ See Quebec Environment Quality Act, Chapter Q-2, r. 46.1. Regulation respecting a cap-and-trade system for greenhouse gas emission allowances.

needed funding to a number of climate friendly transportation solutions like transit, Commute Trip Reduction Programs, HOV lanes, bike lanes, etc.

This revenue, anticipated to raise \$2 billion for these critical climate friendly transportation solutions, shifts over to the Connecting Washington Account, which funds primarily road and highway projects, in the event that:

(5) ...prior to July 1, 2023, ... (a) Any state agency files a notice of rule-making under chapter 39 34.05 RCW for a rule regarding a fuel standard based upon or defined by the carbon intensity of fuel, including a low carbon fuel standard or clean fuel standard. (b) Any state agency otherwise enacts, adopts, orders, or in any way implements a fuel standard based upon or defined by the carbon intensity of fuel, including a low carbon fuel standard or clean fuel standard.

This provision became known as the “poison pill” and was designed to provide a strong disincentive to the adoption of a “clean fuel standard,” a “low carbon fuel standard,” or any other standard “based on the carbon intensity of fuel.” The transportation budget was signed by the Governor and the language quoted above is now the law of the land.

We understand that one of the reasons the state is proposing to include biofuels in the Clean Air Rule is a concern that if they are excluded, the rule will be challenged as triggering the poison pill, potentially shifting hundreds of millions of dollars from transit and other climate friendly transportation investments to road and highway construction.

Whether this concern is well founded rests on the question of whether an exclusion of biofuels from coverage under the Clean Air Rule amounts to a “clean fuel standard,” a “low carbon fuel standard,” or a “standard based on the carbon intensity of fuel.” None of these terms are defined in the bill or anywhere else in state law.

Turning to other sources, a low carbon fuel standard is a standard that limits the “carbon intensity” of fuels.⁸ The term “clean fuel standard,” which is used less frequently than “low carbon fuel standard,” is a synonym for a low carbon fuel standard. California was the first jurisdiction in the world to adopt a low carbon fuel standard. It does not provide a definition of “low carbon fuel standard,” but it states the standard’s purpose as follows:

⁸ Compare to a “renewable fuel standard,” which designates certain minimum quantities (usually described as a minimum volume or percentage of annual total sales of transportation fuels) of biofuels in the total annual sales of transportation fuels. A renewable fuel standard focuses on volumes of biofuels, while a low carbon fuel standard imposes an overall carbon intensity standard applicable to all fuels. The former can only be met by the use of biofuels, while the latter can be met by using lower carbon fossil fuels like natural gas.

*The purpose of this regulation is to implement a low carbon fuel standard, which will reduce the full fuel-cycle, carbon intensity of the transportation fuel pool used in California....*⁹

The California regulation defines “carbon intensity” as follows:

*the amount of life cycle greenhouse gas emissions, per unit of fuel energy, expressed in grams of carbon dioxide equivalent per megajoule (gCO₂e/MJ).*¹⁰

Additionally, Oregon recently adopted a low carbon fuel standard, which it refers to as its “clean fuel standard.” It defines “clean fuel standard” as follows:

*“Clean fuel standard” means the annual average carbon intensity a regulated party must comply with, as listed in Table 1 under OAR 340-253-8010 for gasoline and gasoline substitutes and in Table 2 under 340-253-8020 for diesel fuel and diesel substitutes.*¹¹

Oregon defines “carbon intensity” as follows:

*“Carbon intensity” or “CI” means the amount of lifecycle greenhouse gas emissions per unit of energy of fuel expressed in grams of carbon dioxide equivalent per megajoule (gCO₂e/MJ).*¹²

British Columbia has also adopted a low carbon fuel standard. Like California, BC does not define “low carbon fuel standard” but it defines the standard’s purpose as decreasing the carbon intensity of transportation fuels over time and they define “carbon intensity” in a manner very similar to California’s and Oregon’s definitions.

The proposed Clean Air Rule is clearly not a low carbon fuel standard, even if biofuels are exempted from coverage. It is a greenhouse gas emission standard, imposing ever reducing limits on greenhouse gas emissions at covered stationary sources and on combustion of transportation fuels. The Department of Ecology describes the rule’s purpose as follows:

*Chapter 173-442 WAC will establish **emission standards for greenhouse gas (GHG) emissions** from certain stationary sources located in Washington State, petroleum product producers or importers, and natural gas distributors in Washington State. Parties covered under this program will reduce their GHG emissions over time.*¹³

⁹ CA Code Title 17§ 95480. Purpose Statement

¹⁰ CA Code Title 17 § 95481(a) 20. Definitions and Acronyms

¹¹ OAR 340-253-0040 Definitions (22)

¹² OAR 340-253-0040 Definitions (17)

¹³ Washington Form CR-105. Proposed Rule. May 31, 2016. (emphasis added)

The proposed rule does not limit or otherwise set a standard based on the “carbon intensity” of fuels. It does apply to producers and distributors of transportation fuels, but it does so by applying a limit on carbon emissions resulting from the combustion of the carbon embedded in those fuels, not by limiting or setting a lifecycle carbon intensity standard or attempting to address supply-chain energy use and emissions.

Likewise, a provision excluding biofuels from the rule would not establish a carbon intensity standard. Such an exclusion would simply relieve biofuel producers from an obligation to meet a GHG emission standard. For all the reasons outlined above, such an exemption is appropriate given the role biofuels play in providing a largely climate neutral alternative to fossil fuels.

And, equally importantly, such an exclusion would not trigger the poison pill. Only a “low carbon fuel standard”, a “clean fuel standard” or a standard based on “carbon intensity” would do so, and an exclusion from the rule’s emission standard would, in no way, contain such a provision.

Other jurisdictions provide further proof that exempting biofuels from the Clean Air Rule is not in any way synonymous or redundant with a low carbon fuel standard. California has both a system-wide cap and trade program (similar to Washington’s proposed Clean Air Rule) and a separate low carbon fuel standard. British Columbia has both a system-wide carbon tax and a separate low carbon fuel standard. Biofuels emissions are exempted from both California’s cap and trade regulation and British Columbia’s carbon tax; clearly the simple act of exempting biofuels from these programs does not obviate the distinctly separate purpose of a low carbon fuel standard.

V. Failure to Exempt Biofuels from the CAR Conflicts with State and Federal Renewable Fuel Standards, Leads to Decreased Consumption of Low-Carbon Fuels, and Deters Investment in Clean Energy Technologies

Failure to rectify the proposed rule’s mistaken approach to biofuels would not only result in a final rule that is scientifically indefensible and legally questionable, but it would also have devastating impacts on the nascent biofuels industry.

Under the proposal, a number of biofuel producers and importers who currently do business in Washington would be classified as “covered entities.” These businesses would thus be forced to reduce over time the GHG emissions associated with the combustion of biofuels they supply to the state. However, because the CAR excludes upstream carbon cycle impacts and focuses only on emissions at the point of combustion (i.e., the tailpipe), the biofuel supplier has absolutely no ability to reduce the CO₂ emissions associated with biofuels use. That is, while the supplier may be able to reduce the emissions associated with producing and transporting the fuel, it cannot reasonably reduce the actual carbon content of the fuel. Thus, the most likely alternative available to covered suppliers to reduce the GHG emissions associated with biofuel combustion is to reduce the volume of biofuel that is combusted (i.e., reduce the amount of fuel sold to Washington consumers).

This compliance strategy would not only increase fuel prices for consumers, but it would also shrink the market for biofuels in Washington. Thus, biofuel producers, suppliers, and clean energy investors would focus their financial resources in other markets where the carbon

benefits of biofuels are properly recognized. Specifically, developers of next-generation advanced biofuel technologies would avoid the Washington market and instead opt to direct their investments to adjacent markets like California, Oregon, and British Columbia where GHG reduction from the transportation sector is clearly incentivized.

Further, the CAR presents a substantial dilemma for companies obligated to comply with state and federal Renewable Fuel Standards (RFS). Washington, like many other states and the U.S. EPA, has promulgated an RFS program that requires fossil fuel suppliers to include certain quantities of biofuels in their product mix. However, the failure to exempt biofuels emissions from the CAR would run counter to these policies and will, in our view, result in the failure of the biofuels industry in Washington. On one hand, state and federal RFS programs compel fuel suppliers to increase the volume of biofuels they supply to the Washington market; but on the other hand, the CAR encourages suppliers to reduce the volume of biofuels supplied to Washington in order to reduce covered emissions.

VI. Conclusion

In closing, RFA believes that biofuels provide an important part of the climate change solution—in Washington, nationally, and around the world. To continue to be part of the climate solution, however, it is critically important that biofuels be exempted from compliance obligations under the final CAR. Doing so will properly recognize the carbon benefits associated with biofuels, ensure adherence to national and international carbon accounting methods, and ensure consistency with other existing and pending GHG cap-and-trade programs. Further, exemption of biofuels under the final CAR would not trigger the so-called “poison pill” provision because such an exclusion would not establish a “low carbon standard”, “clean fuel standard”, or standard based on “carbon intensity.”

We look forward to working with the Department of Ecology to establish a path forward to a final CAR that meaningfully combats climate change and ensures a continued role for biofuels in Washington.

Sincerely,

A handwritten signature in black ink that reads "Bob Dinneen". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

Bob Dinneen
President & CEO

July 22, 2016

Sam Wilson
Environmental Planner, Department of Ecology
P.O. Box 47600, Olympia, WA | 98504-7600
AQComments@ecy.wa.gov

RE: Comments on Proposed Clean Air Rule

Ruby Canyon Engineering, Inc. (RCE) appreciates the opportunity to provide comments on Washington State's Department of Ecology (Ecology) proposed Clean Air Rule (CAR). RCE is supportive of Ecology's effort to develop a program in Washington to reduce greenhouse gas (GHG) emissions.

RCE is a leading verifier and GHG consultant in the North American GHG markets, for both mandatory GHG reporting and carbon offset projects. RCE has completed over 500 GHG verifications in the last five years and is an American National Standards Institute (ANSI) accredited verification body as well as an accredited verification body under the California Mandatory GHG Reporting and Cap-and-Trade programs.

Overall Recommendations

Verifier Accreditation

RCE recommends that all 3rd party verifiers be ANSI accredited, in addition to receiving certification by Ecology. The majority of GHG programs in North America require ANSI accreditation for verifiers including: British Columbia (reporting and offsets), Québec (reporting and offsets), Ontario (reporting and offsets), Nova Scotia, Massachusetts Department of Environment (reporting), The Climate Registry, American Carbon Registry, Climate Action Reserve, and the Verified Carbon Standard. The use of accreditation bodies, such as ANSI, is seen as a best-practice worldwide and has been used in North America since 2008.

ANSI accreditation will provide Ecology assurance that all verifiers have:

- Appropriate technical qualifications and competencies,
- Appropriate auditing qualifications,
- Capability and defined processes to perform verifications activities,
- Internal policies to assess conflict of interest and impartiality,
- Technical sector competencies, and
- Professional liability insurance.

ANSI accreditation helps to ensure that services provided by verifiers are consistent and rigorous, providing environmental integrity to the CAR. GHG reporting and carbon offsets occur across multiple

sectors that can be quite varied (e.g. GHG emissions at a semiconductor facility vs. carbon credits generated by a dairy farm), and ANSI accreditation ensures that verifiers have the necessary competency to conduct work in a specific sector. In addition, ANSI accreditation ensures that all verifiers will follow the International Organization for Standardization (ISO) 14064-3:2006 standard, which is referenced by Ecology in WAC 173-442-220 (1)(c).

Verification of Annual GHG Reports, Compliance Reports and ERUs

Currently, it is unclear how the verification of Annual GHG Reports (WAC 173-441), Compliance Reports, and ERUs (WAC 174-442) relate and interact with one another and whether one verification company can be used for multiple purposes. RCE recommends clarifying how the verification components of these different areas interact.

1. Can the same verification company be used by a covered party for annual GHG reports and a compliance report for those same years?
 - a. If so, can verification site visits be combined for these two verifications?
2. How are the activities noted in section 173-442-220 different than 173-441-085? Are they meant to be similar/identical?
3. Can the same verification company be used for a compliance report that uses ERUs that were verified by the same verification company?

WAC 173-441-085 Clarifications and Recommendations

- Section (4)(a)(ii)
 - Please clarify whether a reasonable level of assurance is required for all verifications, as this section relates only to less intensive verifications.
 - Recommendation: A reasonable level of assurance should be required for all verifications under 173-441 and 173-442. All mandatory GHG reporting and carbon offset programs in North America require a reasonable level of assurance.
- Section (4)(a)(v)
 - RCE agrees with the approach of requiring a full verification and site visit every three years, with the added exceptions for significant changes from the preceding year.
 - Based on RCE's past verification experience in GHG reporting programs, a difference in emissions of 25% is very significant, especially when considering a materiality threshold of 5% as defined in section (3)(b).
 - Recommendation: A significant change in emissions should be defined as a difference greater than 10% from the preceding year.
 - A "significant change in sources" is not defined. Based on RCE's experience, the addition/subtraction of GHG sources at facilities can warrant a site visit based on the contribution of emissions from that source.
 - Recommendation: A significant change in source should be defined as the addition of any GHG source at a facility that causes an increase in emissions greater than 10%.

- Section (7)(a)(iii)
 - RCE recommends the removal of the Climate Action Reserve from this section. The Climate Action Reserve's program is only for carbon offset projects and is not related to GHG reporting. A verifier could be accredited under the Climate Action Reserve but have no verification experience and competency for GHG mandatory reporting.
- Section (7)(c)(ii)
 - Please clarify whether this requirement is meant for consulting services and not "any services", which could include 3rd party verification services.
 - If 3rd party verification is included as part of "any services" then this language does not align with other CAR language that allows a verifier to complete six verifications in a row.
 - Please also clarify whether "any services" includes previous 3rd party verifier services provided under a different program than Washington.
 - Recommendation: "Consulting" should be included in this section. Previous verification services should not trigger a high conflict of interest.

WAC 173-442 Clarifications and Recommendations

- General
 - Recommendation: Define materiality for the verification of ERUs and Compliance Reports (if applicable). A +/-5% materiality is standard across carbon offset programs and many GHG reporting programs. Some GHG reporting programs require that all correctable errors be corrected, regardless of materiality.
- Section 160 (2)
 - Please clarify whether projects that have already been verified and have generated emission reductions through an external registry program need an additional verification under CAR to generate ERUs.
 - If an additional verification is required, can the same verifier that provided the initial verification under the external registry program provide the second verification to generate ERUs?
 - Does the initial verification under the external registry program need to be completed by an Ecology certified verifier?
 - Recommendation: Provide additional detail and information on the process to create ERUs from an external registry program, including any verification requirements.
- Section 220 (6)(b)
 - This language does not align with the due date requirements outline in Table 5 under section 173-442-250. If compliance reports are submitted and verified every three years then limiting verifiers to six consecutive years does not align with this requirement.
 - Recommendation: A covered party may not use the same verifier for three consecutive compliance reports (covers nine years).

- Section 220 (6)(c)(ii)
 - Same comment as the third bullet under WAC 173-441-085 section above.
 - Recommendation: “Consulting” should be included in this section. Previous verification services should not trigger a high conflict of interest.

Sincerely,



Zach Eyler
Vice President, GHG Programs
Ruby Canyon Engineering, Inc.
zeyler@rubycanyoneng.com
Tel: (970) 241-9298
www.rubycanyoneng.com



July 13, 2016

Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

RE: Savers Comments to the Washington State Department of Ecology's Draft Carbon Regulations – Chapter 173-442 WAC

Dear Mr. Wilson:

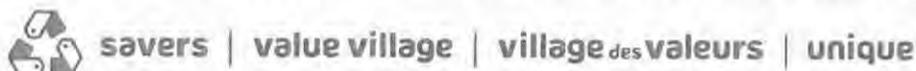
TVI, Inc., d/b/a Savers and Value Village, respectfully submits these comments regarding the Department of Ecology's draft Clean Air Rule, Chapter 173-442 WAC.

Savers is a Washington State success story, with our global company headquarters in Bellevue. The family that established our company moved it from California to Washington State 50 years ago. Today, we have approximately 330 thrift stores in the United States, Canada, and Australia, employing 22,000 team members globally and 1,500 in Washington.

Our business model is a major driver of environmental protection. We provide a platform for consumers to reuse and recycle clothing and other household items, which in turn removes significant amounts of clothing and other household items from the waste stream. We kept 650 million pounds out of the waste stream globally last year, including about 50 million pounds from Washington State's waste stream. If we are unable to sell and give an immediate new home to secondhand items in our 23 Washington State retail stores, we process those items for reuse in other markets or for direct recycling (cloth can be converted into insulation or wiping rags, for example). Through this business model, we are able to drive the reuse or recycling of more than 90% of the clothing that comes through our supply chain.

We have recently begun a public awareness campaign called "Rethink Reuse" to educate consumers on the under-discussed issue of the environmental impact of the textile and clothing industries. For example, it takes more than 700 gallons of water, not to mention pesticides, other chemicals, and a lot of energy, to make a new t-shirt. And with the average person throwing away 81 pounds of textiles every year, our landfills are becoming laundry piles.

In the draft Clean Air Rule, we were pleased to see that in WAC 173-442-160(7), the Department is considering allowing "waste activities" to qualify as generators of "emission reduction units." We note that the Draft Rule only allows waste activities that qualify under





existing protocols from the Climate Action Reserve to qualify as emission reduction units for the proposed Washington State program. Savers urges the Department to find a broader set of options, including any applicable future protocols from the Climate Action Reserve, other third parties, and a process for the Department to itself certify waste activities. This will allow more carbon reducing activities in the waste sector to be included in the program envisioned by the Clean Air Rule.

In particular, Savers recommends the following amendments to the draft Clean Air Rule in WAC 173-442-160(7):

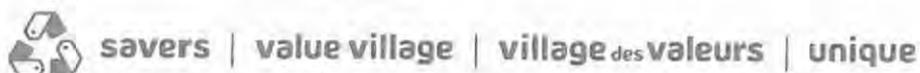
- (7) **Waste and wastewater activities.** GHG management activities addressing waste and wastewater infrastructure and activities ~~using~~including:
- (a) *U.S. Landfill* protocol from the Climate Action Reserve (as of May 1, 2016);
 - (b) *Organic Waste Composting* protocol from the Climate Action Reserve (as of May 1, 2016); ~~or~~
 - (c) *Organic Waste Digestion* protocol from the Climate Action Reserve (as of May 1, 2016); ~~or~~
 - (d) Other activities to recycle or reuse materials that result in GHG reduction, whether from the Climate Action Reserve, another third party validator accepted by the Department, or other activities as approved by the Department.

It has been estimated that every pound of clothing that is kept out of disposal saves three to four pounds of carbon dioxide. (See <http://www.planetaid.org/what-we-do/for-the-environment/recycling-textiles>.) If that estimate holds true, the 50 million pounds that we diverted in Washington State last year may have saved between 150 million and 200 million pounds of carbon dioxide. We believe that it is both warranted and good public policy to find a way to allow these activities to be part of the Clean Air Rule's emissions reduction program. With a flexible framework included in the final Rule, we would welcome the chance to further collaborate with the Department to be a part of the Washington State solution on climate change - and to showcase that a locally headquartered Washington company is leading the way on a cutting edge solution to waste and climate impacts in the clothing industry.

Thank you for your consideration of these comments. We also would cordially invite Department officials to come and tour our stores or our Fife recycling facility to learn more.

Sincerely,


Tony Shumpert
Vice President, Recycling





July 22, 2016

Submitted via email: AQComments@ecy.wa.gov

Washington Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503

Subject: Comments on draft Clean Air Rule

Thank you for the opportunity to comment on the Proposed Clean Air Rule. The City of Seattle and its electric utility, Seattle City Light, applaud the Governor's commitment to limit greenhouse gas (GHG) emissions from all sectors in order to address and minimize the adverse effects of climate change. Seattle City Light is proud to be greenhouse gas neutral since 2005. We believe meaningful action on carbon emissions reductions is a critical issue for Washington and the country.

Seattle City Light does not own, operate, or have any long-term contracts with facilities that are subject to the proposed Clean Air Rule (CAR). However, we operate in an electric market that is interconnected and therefore the rule will affect Seattle City Light and its customers. Our review considered how this proposed rule aligns with the U.S. Environmental Protection Agency's (EPA) Clean Power Plan and the state's obligation to write and implement a State Implementation Plan, as well as how the CAR impacts existing carbon offset markets in which Seattle City Light is an active participant.

We would like to acknowledge that we appreciate the hard work and time devoted to development of this rule by the Washington Department of Ecology (Ecology). However, from an electric power perspective, our review of the CAR raises a number of concerns. We have concerns whether the CAR effectively positions Washington State to be "trading ready" for the EPA's Clean Power Plan (CPP), a national plan to reduce carbon emissions from the power sector 30% by 2030. The approach in the CAR of placing a hard cap on emissions for each individual facility will in the short term lead to increased emissions regionally, and in the longer term leave the state ill positioned to evolve into the approach called for in the CPP. The advantage of the CPP is it addresses the regional interconnection of generating facilities across state lines, and allows for utilities to make trades to lower greenhouse gas (GHG) emissions. These trades help utilities to select effective emission reduction mechanisms that are the most cost-effective, thereby not unnecessarily burdening our customers with additional costs.

It appears the CAR may inadvertently result in electric utilities with natural gas facilities in the state choosing to use more coal-fired generation from either Centralia (which is exempt from the CAR) or from out-of-state coal facilities, such as Colstrip. Because Ecology does not have the authority to regulate out-of-state facilities, those non-Washington State facilities do not have to comply with the CAR. This could make those out-of-state facilities cheaper to run than in-state facilities and thus be

more attractive from cost perspective. There is real concern this trade-off could make exempt or out-of-state coal the most cost-effective alternative for a utility, with the unintended effect of increasing regional and global GHG emissions in the near term.

Seattle City Light believes the CAR can and should be changed to better support the goals and complement methods of the CPP that was developed with extensive input from electric power sector experts, and that takes into account the complexities and interconnections of the US electric power system. Unlike the rest of the country, Washington State's electric sector is not the biggest emitter of greenhouse gases in the state, and the electric sector will be even cleaner when the last coal-fired generation closes in 2025.

Even with the Supreme Court stay on the CPP, we believe Washington State should begin development of a strong SIP for the CPP immediately in order be ready to work with our regional partners in reducing carbon emissions from the interconnected electric sector. We can take full advantage of the abundant clean resources in the state and we can demonstrate to other regions how to make the CPP successful without unnecessary cost and reliability impacts. As an alternative, along with several other electric utilities, we would propose that Ecology consider allowing the electric utility sector to comply with the CAR's carbon emissions reductions through a robust CPP SIP sooner rather than waiting until the court challenges to the CPP are exhausted.

Seattle City Light meets our net-zero greenhouse gas neutrality annually through the purchase of third-party certified carbon emission off-sets. We have more than a decade of experience participating in a carbon offset market and we have a number of concerns about the logistics of the "emission reduction units" (ERU) concept as proposed in the rule. There is already an existing carbon offset market that functions today with rigorous guidelines, parameters and requirements that ensure offsets are valid and not double counted. We are very concerned the "ERU's" as proposed may jeopardize the existing carbon offset market, increasing the costs of offsets, and undermining the credibility of this market. We propose the CAR instead use terminology and methods consistent with existing established carbon markets and work within those existing, established frameworks. We have included specific recommendations in the technical comments at the end of this letter. We strongly advise against Ecology establishing a separate carbon market with possibly negative unintended consequences.

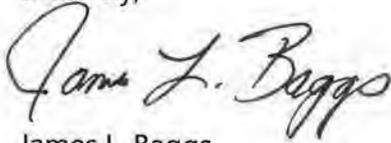
Seattle City Light operates the oldest energy conservation program in the country and has a strong track record of deploying effective and aggressive conservation programs. Our staff have a number of questions regarding the conservation provisions of the CAR. It is not clear if a utility not subject to the CAR can generate ERUs from conservation achieved above their goals established in the Energy Independence Act (RCW 19.285). It is also not clear how this excess conservation can be used or banked in relation to the banking provisions allowed in the Energy Independence Act.

The state of Washington benefits from the cleanest electric generation in the country. We believe the CAR should take more advantage of the opportunity to reduce emissions through electrification of sectors that are historically fossil fuel dependent, such as transportation and diesel powered industrial activities. In the City of Seattle the largest emitter of greenhouse gases is transportation. We would like to work with the state to develop more opportunities to leverage the CAR to more aggressively impact

carbon emission reduction in the transportation sector. We believe transit, maritime and airport operations, at a minimum, should also be considered as opportunities for greenhouse gas reductions in the CAR. The current proposal is too limited to have any great reductions. Please see the technical comments section for more details.

Seattle City Light supports the state of Washington's efforts to develop programs and regulations that result in reductions in GHG emissions. We agree action must take place, but the regulatory structure must be workable and achieve meaningful reductions. We would like to encourage the state to work with the utility sector and other stakeholders to make the changes necessary to finalize a proposed rule that accomplishes our shared goals.

Sincerely,

A handwritten signature in black ink that reads "James L. Baggs". The signature is written in a cursive, flowing style.

James L. Baggs
Customer Service, Communications and
Regulatory Affairs Officer
Seattle City Light

Cc: Larry Weis, General Manager & CEO, Seattle City Light

TECHNICAL COMMENTS

173-442-020 Definitions

- (1) (n) Emission reduction pathway/(o) Emission reduction requirement. The way these terms are being used is the same. The rule is defining pathway as the actual requirement. This is inconsistent with how this term is normally used. We recommend you simply have a reduction requirement. The term "pathway" should be used to define how an entity reaches the requirement.
- (1) (v) Vintage year. Vintage year in established carbon markets is the year in which the reduction occurs. You are proposing it be when the reduction is recorded; those are not necessarily the same. We recommend you use the established definition of Vintage Year being the year the reduction occurs.

173-442-040 Exemptions

- (1) (d) We recommend the state reconsider exempting the highest emitting electric generation facility in the state, otherwise there is a strong potential this facility will be used at a greater capacity than less emitting fossil fuel generation facilities.

173-442-050 Baseline

- (3) We believe, if the utility sector is included, the baseline should be consistent with the Clean Power Plan. Washington State is heavily dependent on hydro power which fluctuates annually. As with the CPP, it is important to set a baseline based on an average over several years.

173-442-060 Reduction Pathway

Again, we believe "pathway" is the wrong terminology and is inconsistent with the Clean Power Plan. This should simply be referred to as the Reduction Requirement. We believe a "Pathway" is how you reach the requirement.

- (1) (b) (i) We believe reductions for electric generating units should be consistent with the Clean Power Plan, which uses tools to accommodate the complexities and interconnections of the electric power system. The Clean Power Plan allows lower or non-emitting resources to be used in lieu of higher emitting resources, but overall the system or region must reach the goal, not individual units. We believe by developing and implementing an effective SIP for the Clean Power Plan, Ecology could better frame how electric generating units fit into this proposed rule.

173-442-070 Reduction Pathway and Reduction Requirement

The opening paragraph states “A mass-based GHG emission reduction pathway under WAC 173-442-060 (i) does not apply to EITE covered parties.” The rule does not define “mass-based.” Mass-based is one of the options states can use in the development of their SIP for the Clean Power Plan. Is Ecology using the same terminology and meaning as in the CPP or is it different? It is not clear how an entity is to use a “mass-based GHG emission reduction pathway” or what such a reduction is.

173-442-100 Emission Reduction Units

It is unclear if Emission Reduction Units (ERUs) are different than carbon offsets. Carbon offsets have an established market and work within a prescribed framework. We would be concerned that creating ERUs would be disruptive to the established carbon offset market. It is also unclear if an entity which does not have to comply with the Clean Air Rule can generate ERUs.

173-442-110 Generating Emission Reduction Units

Again, it is unclear if an entity not having to comply with the Clean Air Rule can generate ERUs and make available to entities that are subject to the CAR.

173-442-140 Exchanging Emission Reduction Units

Given Seattle City Light’s expertise with the established carbon offset market this provision seems inconsistent with how that market operates. Third parties can own and trade carbon offsets. Again, our concern is that the Clean Air Rule not have unintended negative impacts to the established carbon offset market.

173-442-150 Criteria for Generating Emission Reduction Units

- (1) (e) Does the additionality mean that if an entity exceeds its greenhouse gas emission reduction required in another law or rule it will count as an ERU? This should be clarified.
- (ii) (D) would the commute trip reduction (CRT) provision allow any participant complying with CRT be able to generate ERUs regardless of whether they are subject to the CAR?

173-442-160 Activities and Programs recognized as Emission Reduction Units

- (2) (a – c) This section is vague and confusing with standard terminology and methods used in the established carbon offset market. It is not clear if the protocols or offsets used in the established carbon offset market will qualify for emission reduction units as defined in this rule. Section (b) requires protocols be followed but Section (c) states that methodologies are not to be listed. It is confusing how this will actually work. We also see logistical challenges with trading if the credits cannot be owned by third parties, as third parties and trading are key components of the established carbon market. We would recommend this section be rewritten to be consistent with

existing carbon markets, to clearly define how the protocols are to be used, and to explain whether registered offsets will be eligible for use as ERUs.

(3) The transportation activities listed are very limited in scope and will likely have small impacts on greenhouse gas reductions. We would hope electrification opportunities related to transit, maritime and airport operations should also be included in the ability to generate ERUs.

(5) The energy measures could use clarification. Seattle City Light complies with the Energy Independence Act (EIA) but does not have to comply with the Clean Air Rule. It is unclear if any excess conservation in this rule aligns with the provisions in the state law which allows utilities to bank excess conservation for a period of time to be used in future EIA compliance years. Will a utility be able to bank for the EIA and then be able to use them for CAR if they do not need them under the EIA?

(7) Landfill methane destruction has become a common practice in the US. How will the CAR assure the landfill credits counted as ERUs are above and beyond business as usual? Are the protocols used by the Climate Action Reserve consistent with the protocols throughout the proposed Clean Air Rule?

(10) If the methodology is approved by Ecology, what measures will Ecology be taking to ensure there is no double counting of ERUs, especially if an entity can use external registries? Can an outside registry validate an ERU in Washington State or is Ecology the only allowable in-state validator?

173-442-170 Limitations on Allowances

It is unclear exactly how these allowances are created. Are allowances created by non-covered entities or outside GHG programs and eligible to be used by covered entities? Or, are the allowances created and issued by Ecology? It is also unclear how the Table 3 and Table 4 are reconciled. Are allowances and ERUs interchangeable? Can an entity use allowances from multiple vintage years?

(3) This section is unclear but seems to be referring to retirement of allowances. Is placing the allowances into a permanent holding account the same as retiring them?

173-442-230 Registry

Will the registry be part of an existing greenhouse gas tracking system or will Ecology be developing a whole new registry? How will this be funded?

173-442-240 Reserve

The terminology and descriptions used in this section are confusing and inconsistent with the established carbon market. The purpose of this account is not clearly explained. Ecology uses the term

“reserve” but appears to describe what is called a “buffer pool” in the established carbon market. We would recommend this section be rewritten to be clearly defined and consistent with existing carbon market terminology.

Finally, as with the issue regarding terminology the ability to contribute, retire and withdraw ERUs is inconsistent with the existing carbon market. In the carbon market various entities, including buyers, sellers, third parties and project owners, do own the carbon offset. Because they own it, they have the ability to bank it, sell it or trade it, as long as they follow existing protocols of the carbon market. The provisions in the Clean Air Rule should be consistent with the existing established carbon markets to reduce confusion or the potential of double counting.



MEMO

To: Sarah Rees and Bill Drumheller, Washington Department of Ecology
Chris Davis, Governor Inslee’s Policy Advisor for Carbon Markets

From: Derik Broekhoff and Michael Lazarus, Stockholm Environment Institute – U.S., Seattle

Re: Modifications to the Clean Air Rule to help improve its efficiency, equity, and performance

Date: June 28, 2016

Overview of Comments

We applaud the many efforts that the Department of Ecology has undertaken to solicit and seriously examine the many issues in developing an effective Clean Air Rule (CAR). The revised Rule offers many important improvements over the original version, from creating a reserve to allow for new entrants and help address double counting of emission reductions to applying a benchmarking approach that better aligns the Rule with the needs of manufacturing industries. However, getting the terms of a complex Rule just right, and avoiding unintended consequences, is a challenging endeavor. Upon close inspection, we found that while the general intent of many of the Rule’s features is sound, issues in the precise wording of a number of key clauses could lead to the Rule not fulfilling its overall objectives. In this memo, we identify these clauses and the concerns they raise, and then offer specific wording changes that could help to minimize these concerns, consistent with apparent intent of the Rule.

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1. Correcting/clarifying reserve contribution amounts

1.1 Allocation to the reserve appears too low by 1-2 orders of magnitude

<p>Issue: As written, WAC 173-442-240 (1)(a)(i)(A) suggests that Ecology will allocate 2% of each covered party's 1.7% required annual decrease in GHG emissions (WAC 173-442-060 (1)(b)) to the reserve. That amount equates to a mere 0.034% of each covered party's emission reduction pathway, or approximately 10,000 to 20,000 ERUs per year for the entire program. This would appear to be an untenably small quantity of ERUs relative to the various uses prescribed for the reserve in the remainder of the section. For example, a single new entrant to the program would likely require a minimum of 3.5 times this amount, if it is just above the threshold of 70,000 MT CO₂/yr. Per our prior comments, 2% of each covered party's <i>total emissions pathway (or obligation)</i> would be a more appropriate amount to enable the intended uses of reserve.</p>
<p>Suggested changes: Revise to indicate that Ecology will allocate 2% of each covered party's <i>emission reduction pathway</i> (WAC 173-442-060 (1)), not the annual decrease (WAC 173-442-060 (1)(b)).</p>
<p>Rationale: We believe this revision was most likely Ecology's intent when drafting this paragraph. It would provide for a credible quantity of ERUs allocated to the reserve.</p>

1.2 Formula for the reserve allocation for EITEs should be adjusted

<p>Issue: As written, WAC 173-442-240 (1)(a)(i)(B) suggests that Ecology will allocate to the reserve 2% of an EITE party's "contribution." However, the subsequent sub-clauses refer to quantities of ERUs that are to be "allocated" to or "retired" from the reserve. It is not clear whether only 2% of the quantity referenced in (1)(a)(i)(B)(I), for example, should be allocated to the reserve, or the whole quantity. Likewise, it is not clear how the 2% would apply to an amount to be <i>retired</i>, as referenced in (1)(a)(i)(B)(II).</p>
<p>Suggested changes: Revise WAC 173-442-240 (1)(a)(i)(B) so that a base amount equal to $2\% \times ((BP \times OB) - (BP \times OB \times RR \times (Y_x - 1)))$ is allocated to the reserve from each EITE party in each year. After this quantity is determined, each EITE party's allocation can then be adjusted by the term RA_x in Equation 2, based on whether their production is above or below baseline levels.</p>
<p>Rationale: We believe this revision was most likely Ecology's intent when drafting this subsection, but a necessary step was omitted. If the intent is to establish a reserve of ERUs roughly equal to 2% of the aggregated emission reduction pathways of all covered parties, then this revision is necessary.</p>

2. Correcting/clarifying language related to double counting adjustments

2.1 Current language can be clarified to address significant source of double counting risk

Issue:

WAC 173-442-240 (2)(b) is presumably meant to correct for situations where covered GHG emissions are reduced by activities or programs that also generate ERUs under WAC 173-442-160. In these situations, “double counting” will occur because the same emission reductions that generate ERUs per WAC 173-442-160 (2) will also result in an equivalent reduction in parties’ compliance obligations (as calculated in WAC 173-442-200).

As noted in our comments (February 12, 2016) on the prior version of this rule, this double counting problem could seriously undermine the integrity and credibility of this rule. One solution to this problem is to retire ERUs from the reserve equivalent to the number of ERUs generated by these activities.

To its credit, the revised rule appears to have adopted this type of “reserve ERU retirement” approach, however the precise language appears to address only some, and arguably the less frequent instances in which double counting may occur. Specifically, WAC 173-442-240 (2)(b) states that Ecology may retire reserve ERUs “to address conditions where two ERUs may be generated for each metric ton of reduced GHG emissions from programs or activities.” This clause only addresses the double counting situation where a program or activity reduces emissions and those reductions generate ERUs for the corresponding program or activity, while at the same time generating ERUs for a covered party.

However, when an ERU is issued to an activity or program for a reduction in covered GHG emissions, double counting will occur regardless of whether a covered party’s emissions end up below its emission reduction pathway. If a covered party’s emissions end up *above* its emission reduction pathway, two ERUs will not be “generated.” However, the affected covered party no longer has to reduce its emissions as much, and/or can acquire fewer ERUs from other parties in order to meet its compliance obligation. This effectively means that the reduction is fully accounted for within the balance of covered emissions, before any ERU is issued to the activity or program that caused the reduction under WAC 173-442-160 (2). Double counting will still occur, unless a corresponding ERU is retired from the reserve.

Suggested changes:

Change the phrasing of WAC 173-442-240 (2)(b) to: “To address instances where an activity or program reduces covered GHG emissions.”

Rationale:

This change will ensure that all possible instances of double counting will be addressed and compensated for.

2.2 Alternative approach to avoiding double counting could limit risk of reserve exhaustion

Issue:

One risk with generating new ERUs for activities and programs under WAC 173-442-160 (2), and then retiring ERUs from the reserve under WAC 173-442-240 (2)(b) to compensate for double counting, is

that reserve ERUs could be exhausted before all double-counted GHG reductions are compensated for. This creates unnecessary exposure for the program.

Suggested changes:

Use the mechanism described in WAC 173-442-240 (3)(b)(iv) exclusively to allocate ERUs to activities or programs that reduce covered GHG emissions.

Rationale:

Using WAC 173-44-240 (3)(b)(iv) exclusively would avoid the administrative burden of separately issuing ERUs to activities or programs, and then retiring reserve ERUs to compensate for double counting in accordance with WAC 173-442-240 (2)(b). It would also avoid the risk of Ecology being unable to correct for double counting because too many activities or programs come forward to claim ERUs under WAC 173-442-160 (2). Instead, ERUs would only be allocated by the EJAC until the reserve budget is exhausted.

3. Adjusting curtailment provisions to achieve intended outcomes

3.1 Adjustment can help avoid risks of exceeding aggregate emissions limit and potential for gaming

Issue:

Exempting maintenance, capital improvements, and life extension projects from the definition of “curtailment” could be problematic (WAC 173-442-020 (1)(k)). On the one hand, doing so means that covered parties are not unduly exempted from their annual emission decrease (as provided in WAC 173-442-060) if they undertake maintenance or capital improvements at a stationary source. On the other hand, given the potential windfall opportunity to generate ERUs from an exempted slowdown in production (because WAC 173-442-240 (1)(a)(ii) would presumably not apply), covered parties will have an incentive to classify any curtailment as falling into one of these exempt categories. In practice it may be difficult to distinguish between “valid” maintenance or improvement projects and those undertaken as cover for a curtailment exemption.

Furthermore, it is not clear why the 1.7% decline in a covered party’s emission reduction pathway should be halted in years during which there is recognized curtailment (WAC 173-442-060 (1)(b)(ii)). In particular, this provision appears inconsistent with the “aggregate emission reduction limit” referenced in sections 173-442-020 (1)(r) and 173-442-240 (2), since it means that aggregate allowable emissions will increase in perpetuity (because they will not decline as rapidly) following any curtailment.

Suggested changes:

- (1) Drop the exemptions from the definition of curtailment in WAC 173-442-020 (1)(k);
- (2) Maintain an annual decrease in a party’s emission reduction pathway in all cases, i.e., eliminate the exemption in WAC 173-442-060 (1)(b)(ii), and strike related provisions in WAC 173-442-070 (4)(c) and 173-442-240 (1)(i)(C);
- (3) Use reserve ERUs to ease a covered party’s startup burden associated with a return to production following a curtailment, as already provided for under WAC 173-442-240 (3)(a); and

(4) Disallow the return of ERUs from the reserve under WAC 173-442-240 (3)(a) if a covered party's curtailment was caused by any of the activities listed in WAC 173-442-020 (1)(k)(i).

Rationale:

If Ecology's intent is to ease the burden for covered parties that curtail due to economic hardship, then the return of ERUs allowed under WAC 173-442-240 (3)(a) should be sufficient for this purpose. The exemption from the annual decline in a covered party's emission reduction pathway is not consistent with Ecology's stated intent to establish an aggregate emission reduction limit.

Eliminating exemptions from the definition of curtailment will remove the possibility of "gaming" to receive an ERU windfall. Instead, making the return of reserve ERUs after a restart contingent on *the absence of* maintenance and capital improvement activities will ensure that covered parties do not receive an unwarranted windfall, while making gaming much more unlikely (because it would be difficult and/or fraudulent to hide a capital improvement project in order to claim economic hardship).

4. Clarifying compliance coverage for owners of stationary sources

4.1 Obligations should apply to individual stationary source facilities not entities

Issue:

In WAC 173-442-030 (3) and elsewhere there is some ambiguity about how the compliance threshold (and any compliance obligation) applies to covered parties that own or control more than one stationary source of GHG emissions. As written, this paragraph could be interpreted to mean that a covered party whose stationary source emissions *collectively* exceed the appropriate compliance threshold would have a compliance obligation, even if *individually* none of those sources exceed the threshold. As such, the compliance obligation appears to apply to a covered party's entity-wide in-state emissions rather than individual stationary sources.

Suggested changes:

Clarify language to indicate that the compliance threshold and obligation shall be applied on a facility basis for stationary sources, not to a covered party's entity-wide stationary source emissions. The same clarification should be made elsewhere throughout the chapter wherever relevant, e.g., WAC 173-443-050, WAC 173-443-060, etc.

Rationale:

We believe these changes would be consistent with Ecology intent regarding the coverage of the program.

5. Defining an aggregate emissions limit for the program

5.1 An added section should define what is already implicit in the rule

Issue:

WAC 173-442-020 (1)(r) refers to "an aggregate emission reduction limit." WAC 173-442-240 (2) also refers to this limit. However, the aggregate limit is not defined, nor is it clearly established or explained anywhere in the draft rule.

Suggested changes:

A section is needed to clearly define the aggregate emission limit and how it relates to the emission limits established for individual covered parties.

Rationale:

This should be done to clarify how the overall program will function. For example, we presume that the “efficiency reduction rates” that Ecology establishes for covered parties in WAC 173-442-070 (3)(b)(i) and (ii) should be linked to and consistent with the aggregate emission limit. Other elements of the program depend on an aggregate emission limit as well.

6. Correcting confusing, incomplete, or incorrect terminology and definitions

6.1 More straightforward terms and definitions could make the Rule easier to understand and implement

Issue:

The definition of an emission reduction unit (ERU) in WAC 173-442-020 (1)(m) does not explain its essential function.

Suggested changes:

Clarify that an ERU is an accounting instrument representing the reduction of one metric ton of CO₂e, which may be transferred among covered parties and used to demonstrate compliance as specified in WAC 173-442-200.

Rationale:

Without this explanation, the references to ERUs in the rest of the rule may be confusing or unclear.

Issue:

The terms “emission reduction pathway” and “emission reduction requirement” in WAC 173-442-020 (1) (n) and (o) may cause confusion, since – as the definition of “emission reduction requirement” indicates – they refer to emission *limits*, not quantities of emission reductions.

For example, the equation in WAC 173-442-200 (3) is not technically wrong, but its language is confusing: in plain language, subtracting a *reduction requirement* from a party’s actual emissions is not the same as subtracting an *emission limit* from those emissions.

Suggested changes:

Use more accurately descriptive terms, such as “annual emission limit” and “compliance period emission limit.”

Rationale:

These terms are more clear with respect to what they represent, and will make the definitions more comprehensible (e.g., a “compliance period emission limit” would be equal to the “sum of the annual emission limits” for a compliance period, instead of the “sum of the GHG emission reduction pathways,” which suggests multiple emission trajectories).

Issue: WAC 173-442-020 (1)(r) refers to “an aggregate emission reduction limit.” This term is confusing, since it implies that there is an aggregate limit on emission <i>reductions</i> for the program rather than an aggregate limit on emissions.
Suggested changes: Change this phrasing to “aggregate emission limit.”
Rationale: The term “aggregate emission limit” would more accurately convey the intended meaning.

Issue: In WAC 173-442-070 (3), the term “efficiency reduction rate” implies that a party becomes <i>less efficient</i> and consequently higher emitting each year. Likewise, the term “efficiency intensity distribution” in this subsection is confusing.
Suggested changes: Change “efficiency reduction rate” to “emission intensity reduction rate.” Change “efficiency intensity distribution” to “emission intensity distribution.”
Rationale: We believe these changes are likely what Ecology intended here.

Issue: WAC 173-442-070 (3)(b)(i) says that Ecology will set the efficiency reduction rate to a level <i>greater than</i> that required by WAC 173-442-060 (1)(a). But paragraph 173-442-060 (1)(a) does not require a reduction – it simply says a covered party’s initial emission reduction pathway is equal to the baseline GHG emission value. Also, it is not entirely clear what metric will be used for ranking the GHG emission efficiencies of sample EITE facilities – WAC 173-442-070 (3)(a)(ii) refers to “using paired GHG emissions and production data.” However, WAC 173-442-070 (2)(b) suggests the metric should be a ratio of GHG emissions to production quantities. This would imply that a facility with an output-based baseline less than or equal to the 25 th percentile value of the sector’s efficiency intensity distribution would have a <i>lower</i> emissions rate – i.e., they are already highly efficient – and therefore should have an efficiency reduction rate that is <i>less than</i> that required by WAC 173-442-060 (1)(b), not “greater than” as indicated in (3)(b)(i). By the same logic, covered parties with an output-based baseline greater than or equal to the 75 th percentile (WAC 173-442-070 (3)(b)(ii)) would have a <i>higher</i> relative emissions rate, and so should have an efficiency reduction rate <i>greater than</i> that required by WAC 173-442-060 (1)(b).

Suggested changes:

- In WAC 173-442-070 (3)(b)(i) and (ii), change references to “WAC 173-442-060 (1)(a)” to “WAC 173-442-060 (1)(b)”
- In these same paragraphs, change “greater than” to “less than,” and change “less than” to “greater than”

Rationale:

We believe these changes are likely what Ecology intended.

7. Correcting potential issues related to emission-reducing activities or programs

7.1 Additionality should be defined in a more rigorous manner, consistent with protocols referenced

Issue:

WAC 173-442-150 (1)(e) states that emission reductions from activities or programs that generate ERUs must be “additional to existing law or rule.” This is a necessary, but not sufficient, condition for defining the “additionality” of emission reductions from activities or programs. All of the various protocols from external registry programs listed in WAC 173-442-160, for example, apply tests for additionality that go beyond a simple check against legal requirements. In general, emission reductions that qualify for generating ERUs should exceed any reductions that would have occurred in the absence the Clean Air Rule (frequently referred to in other programs as a “business as usual” scenario).

Suggested changes:

Make clear the additional requirements for additionality embodied in various protocols listed in WAC 173-442-160. For example, the paragraph could stipulate that emission reductions from activities or programs that qualify for generating ERUs must exceed any reductions that would have occurred in a conservative business-as-usual scenario. Alternatively, the paragraph could stipulate that emission reductions from activities or programs that qualify for generating ERUs would not have occurred in the absence of the Rule.

Rationale:

This change would ensure that all activities and programs generating ERUs – either through the application of external protocols or other criteria listed in WAC 173-442-160 – are held to the same standards.

7.2 Language regarding “project types” is unclear

Issue:

WAC 173-442-160 (2)(c) is unclear in its language and intent. “Project types” are not an element of methodologies used to calculate covered party GHG emissions. If the intent is that eligible ERU project types must not reduce covered GHG emissions, then multiple activities nominally listed in WAC 173-442-160 sections (3), (4), (5), and (7) should be disallowed, since they do just that. Transportation activities listed in WAC 173-442-160 (3), for example, will reduce the GHG emissions of covered fuel producers and importers.

Suggested changes: Strike this paragraph, or clarify its intent and rectify other provisions accordingly.
Rationale: The paragraph is unclear.

7.3 Overlap among protocols should be removed to avoid protocol shopping

Issue: The manure methane module of the ACR <i>Grazing Land and Livestock Management</i> protocol in WAC 173-442-160 (6)(b) ostensibly covers the same activity (methane capture and destruction) addressed by the CAR <i>U.S. Livestock</i> protocol in WAC 173-442-160 (6)(c). Only one or the other should be allowed for that particular activity.
Suggested changes: Disallow use of the subcomponent of the ACR <i>Grazing Land and Livestock Management</i> protocol that covers methane capture and destruction.
Rationale: The presence of two protocols for the same activities creates the risk of protocol shopping, wherein proponents can compare and elect to use the protocol that yields the greatest revenue for their project. Other similar programs seek to avoid protocol shopping. The CAR <i>U.S. Livestock</i> protocol covers this particular activity in a more comprehensive fashion and is recognized under other U.S. regulatory programs.

8. Addressing issues with voluntary participation

8.1 Giving voluntary participants the option to opt-out enables gaming and can undermine program integrity

Issue: WAC 173-442-030 (6)(a) states that “a voluntary participant does not have a GHG reduction requirement.” It is not clear what this stipulation means exactly; in particular, it is not clear how a voluntary participant could participate without having an assigned emission reduction pathway and associated emission reduction requirement. If the intention is that voluntary participants face no compliance obligation if their covered emissions are greater than their emission reduction requirement, then this could be problematic because it would allow voluntary participants to simply inflate the total GHG emissions allowed by the program without consequence. It would also seem to obviate the need for the opt-out provisions in WAC 173-442-030 (6)(b).
Suggested changes: Require voluntary participants to face a compliance obligation if their covered emissions are greater than their emission reduction requirement, and remove the opt-out provision in WAC 173-442-030 (6)(b).

Rationale:

Without these corrections, a voluntary party could “game” the system and generate ERUs for one period, and then allow emissions to increase in subsequent periods without consequence. The net result could be a violation of the aggregate emission limit referred to in WAC 173-442-020 (1)(r) and WAC 173-442-240 (2).

9. Other useful clarifications

Issue:

The meaning and implications of WAC 173-442-040 (4)(c) may be unclear. In particular, if a unit within a facility is covered by the Clean Power Plan, but remaining units are not:

- Will the remaining units still be covered under the Clean Air Rule?
- If so, will the compliance threshold for the covered party under the Clean Air Rule be assessed only with respect to GHG emissions from the remaining units, or for the facility as a whole?
- (How) will the covered party’s baseline GHG emissions and emission reduction pathway be adjusted for the remaining units?

Suggested changes:

Provide more clarification on how differential coverage of generation units will be addressed.

Rationale:

As indicated, this section is not sufficiently clear.

Issue:

WAC 173-442-140 (3)(b) says that third parties may not “own” ERUs. Since WAC 173-442-120 (1) stipulates that ERUs are solely an accounting mechanism and not property rights, it is not clear what this prohibition against ownership entails.

Suggested changes:

If the intent is that third parties should not be able to establish a registry account, hold ERUs in such an account, and transfer ERUs within the registry system, then this should be clarified.

Rationale:

As indicated, the meaning of this paragraph is not sufficiently clear.

Issue:

In WAC 173-442-170 (1)(a), the statement that a covered party may use allowances to “generate ERUs” is unclear. Does this mean that allowances would need to be canceled or retired in the registry of an external program (as per (2)(c)), and that Ecology will then issue ERUs into the account of the covered party? If so, will ERUs generated in this way be flagged in some way so that the usage limitations described in (2)(a) and (b) can be enforced?

Similarly, WAC 173-442-170 (2)(a) is unclear. Are the percentages intended to refer to the percent of a covered party's compliance obligation that can be met by submitting allowance-derived ERUs?

Suggested changes:

Provide clarifying language as necessary.

Rationale:

As indicated, the language in these paragraphs is somewhat unclear.

July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504- 7600

RE: Comments on the Proposed Clean Air Rule

Dear Mr. Wilson,

SGL Automotive Carbon Fibers (SGL ACF) appreciates the opportunity to provide comment on the Department of Ecology's proposed revisions to WAC 173-441 and the proposed Clean Air Rule, WAC 173-442. SGL ACF lauds the desire to slow climate change and protect our environment as well as our state's economic health for future generations. It is unfortunate that, upon review, the proposed regulations are incomplete, subjective, capricious, and will not achieve the stated goals. The proposed rulemaking is vulnerable to inconsistent implementation that will waste the economic resources of the State, the public, and industry while doing very little for environmental protection.

Please see the attached comments. We appreciate your time and the opportunity to provide feedback on this significant rulemaking.

Sincerely,



Nichol Savko
Environmental Engineer

Comments on WAC 173-441 Amendment and WAC 173-442 Rule Proposals

WAC 173-441 Reporting of Emissions of Greenhouse Gases

1. The eligible third party verifiers section in WAC 173-441-085(7) is vague and does not clearly outline an objective path for Ecology, such as in (7)(a)(ii) – how does one demonstrate “to ecology’s satisfaction that the third party verifier has sufficient knowledge of the relevant methods and protocols in this chapter. Certification may be limited to certain types or sources of emissions.” This sounds resource-intensive for Ecology, and a potential financial waste which impacts the regulated community in the form of fees for cost recovery. Request that Ecology clearly define how this process will work so it is not subject to individual regulator opinion, and can be evaluated by the public and regulated community prior to its becoming law.
 - a. Also request that Ecology remove the redundancy and potential conflicts between WAC 173-441-085(7) and WAC 173-442-220(6).
2. WAC 173-441-085 (8)(c) – “Other forms of noncompliance with this chapter” is a catch-all that will waste resources without improving or protecting our environment. For consistent implementation of this regulation, Ecology should specify the other forms of noncompliance, for a given significance level, that may result in an adverse verification statement.
3. WAC 173-441-086 – Request that Ecology define the term “emissions level”, as the way it is used in this section has the potential to be confusing as it is a new term for this regulation. Perhaps a clarification reference to WAC 173-442.
4. There are references to “failure to submit a complete annual GHG report” in a timely manner. It is not clear whether a company would be subject to an adverse verification statement if following the Annual GHG Report Corrections process specified in WAC 173-441-085(5). Request that Ecology clearly specify that a company following this correction procedure is not subject to the adverse verification statement specified in WAC 173-441-085(8).
5. The requirement to provide data within 5 working days of a request is much too stringent (WAC 173-441-086(3)). Recommend the more standard and reasonable timeline of 30 days. If key personnel are on vacation, a 5-day response requirement would cause undue burden on the facility to gather this data. There does not appear to be any justification for this type of stringent and urgent response.
6. How does WAC 173-441-086(1)(d) work with WAC 173-441-086(4)? There appears to be a potential conflict – if a third party verifier agrees with the facility’s report, but “Ecology determines the absolute value of any discrepancy, omission, or misreporting, or aggregation of the three is at least five percent”, the facility should have some recourse explicitly outlined in this regulation. The regulation states that Ecology “may” adjust the assigned emissions level. In addition, if Ecology is certifying these third party verifiers, Ecology should be held to their assessment or have a clearly defined process for overruling the verifier’s assessment, to prevent subjective and individual assessments from Ecology personnel. Having a separate policy is insufficient, as various offices in Ecology can disregard it and implement the regulation inconsistently. This causes uncertainty and an unfair playing field for businesses.

- a. Request that Ecology remove the redundancy and potential conflicts between WAC 173-441-086 and WAC 173-442-220.
7. Request that Ecology define the term “positive verification statement” WAC 173-441-086(4). Who provides this? Ecology, or a third-party verifier?
8. WAC 173-441-090(1) – “Each day and each metric ton CO₂e of emissions of a violation constitutes a separate violation”. The way this is written is vague and difficult to implement. How can each metric ton CO₂e constitute a separate violation? If a company over-reports by 1,000 MT CO₂e, how does Ecology intend to penalize the company – and to what purpose? Request that Ecology re-evaluate this approach. A possibility is that penalties could be assessed by metric ton of CO₂e when it would change the emission threshold of a facility, and only based on blocks of MT CO₂e rather than individual MT CO₂e. Otherwise both Ecology and industries could find themselves spending a significant amount of resources negotiating penalties for very small amounts of emissions that do not have significant impact to the environment or human health.
 - a. In addition, if a company must make a correction to their annual GHG report, following WAC 173-441-085(5), they should not be subject to penalties. Request that Ecology clarify this within the rule.
 - b. Request that Ecology remove the redundancy and potential conflicts between WAC 173-441-090 and WAC 173-442-340.
9. WAC 173-441-110 – Small GHG emitters should not pay for the costs to administer the intensive CAR program for covered parties above compliance thresholds as defined in WAC 173-442-030(3) Table 1. Request that Ecology place the cost recovery burden upon those industries who are subject to the CAR rule, and minimize the WAC 173-441 fee burden on those facilities who are not subject to WAC 173-442.

WAC 173-442 Clean Air Rule

10. Request that the Clean Air Rule provide consideration for technical limitations or restrictions on costs. This is consistent with other environmental protection programs. This will address a situation where technological solutions are not available for a covered party to implement, creating an untenable situation.
11. Request that the Clean Air Rule provide an avenue for evaluation of a facility due to overall climate change impact, rather than localized impact. If a facility produces a product that is used in place of another product that has a higher carbon footprint, then there should be consideration for the overall reduction in environmental impact. Otherwise there could be unintended consequences that could increase the CO₂e emissions when viewed globally and systemically. This would be in line with the global method that Ecology used for this proposal’s cost-benefit analysis.
12. WAC 173-442-020 – the definition of emission reduction pathway appears to refer to the emission reduction requirement, but the differences are not easily discerned. Request that Ecology further clarify these definitions. Adding the appropriate units (e.g. MT CO₂e per year, per compliance period) would help.
13. WAC 173-442-020(1)(k) – Request that the definition of curtailment be adjusted to include the cessation of major processes within a stationary source due to economic

hardship (e.g. if there are three product lines manufactured at a stationary source, and one produce line is curtailed).

14. WAC 173-442-020(1)(l) – The list of EITE covered parties does not appear to have been considered with respect to the types of industry that are located in Washington State, nor does it provide a process for an industry or individual business to submit their case as an EITE if it is not on this seemingly arbitrary list of NAICS codes. Request that Ecology provide an objective, clearly outlined path for a covered party to be considered as an EITE to prevent unintended harm to Washington State manufacturers, and to allow a response to actual business conditions as time progresses.
15. Request that Ecology add definitions for the terms “first compliance period”, “efficiency reduction rate”, “efficiency intensity distribution”, “banked ERU”, “registry-specific protocol” (vs. methodology), “ERU process”, “allowances”, and “expired ERU”.
16. WAC 173-442-030(3) – the phrasing “A covered party...must comply with their compliance obligation under WAC 173-442-200” is opaque. According to WAC 173-442-200(3), the term “compliance obligation” means: “(sum of coverage GHG emissions for the compliance period) – (Emission reduction requirement for the compliance period) (in MT CO₂e)”. So this is a requirement to comply with a math equation, and is devoid of meaning. It is a calculation and not a compliance threshold. Request that Ecology clarify whether they mean emission reduction requirement/emission reduction pathway, and not the term compliance obligation in -030(3).
17. Request that Ecology change the use of the phrase “covered party” throughout -442. It is initially defined as (among other things) a stationary source located in Washington; however it is later used to *mean* a stationary source located in Washington with emissions above the compliance thresholds in Table 1. The definition of this term needs to be clarified. For example, as it’s currently written, under WAC 173-442-030(5), it appears that a stationary source located in Washington would not be subject to the CAR if it stays below 50,000 MT CO₂e and submits an intent to discontinue compliance reports (WAC 173-442-210(7), even if it was never subject to CAR in the first place. This confuses the compliance obligations for a covered party with covered GHG emissions less than the compliance threshold in Table 1 (WAC 173-442-030(3)). Is Ecology’s intent that every stationary source in Washington State submit compliance reports under WAC 173-442, regardless of greenhouse gas emission levels?
18. WAC 173-442-030(6) – Why is it necessary to put in regulation that voluntary covered parties provide a 90-day notice of intent to opt-out? What happens if they do not? Request that Ecology remove this requirement for a 90-day notice of intent to opt-out.
19. WAC 173-442-050(1) – recommend changing the language to the following, to increase clarity: “Ecology must assign a baseline GHG emission value to each non-EITE covered party *as shown in Table 2.*” Otherwise, this states that a baseline value must be assigned, but Table 2 indicates that a number of Category 2 covered parties may not actually ever have a baseline value assigned by Ecology, an apparent conflict.
20. WAC 173-442-050(1)(c) – Request that Ecology add the phrase “Adjustment may not apply retro-actively.”
21. WAC 173-442-050(4)(c) – Request that the decision to determine which method to use to set baseline emissions be more clearly outlined. What criteria will Ecology use to determine if the benchmarking process will be used (versus the average of the first three years of operation)?

These criteria should be subject to public review and comment, as the requirements of WAC 173-442 could be applied unevenly depending on which method is chosen; in other words, benchmarking could indicate that a facility is subject to the requirements three years earlier than another facility which did not use benchmarking, causing unfair and inconsistent regulation.

22. WAC 173-442-050(5)(c)(ii) and (iii) – why is (ii) necessary when (iii) is in the rule? Request that (ii) be removed to promote clarity.
23. WAC 173-442-060 – Request that Ecology make the following change “...with baseline GHG emissions values greater than or equal to 70,000 MT CO₂e the compliance threshold in WAC 173-442-030(3), or when requested...” to clarify that GHG emission reduction pathways must be assigned once the appropriate date and thresholds are triggered.
24. WAC 173-442-060(1)(b) – Request that Ecology add “Annual decrease subsequent to the first calendar year” for clarity, given WAC 173-442-060(1)(a).
25. WAC 173-442-060(1)(c) – If compliance demonstration is on a three-year basis, then why is Ecology issuing a compliance order with an emission reduction pathway on an individual year basis?
26. WAC 173-442-200(6) – Issuing a regulatory order requiring emissions reductions in the same year that the order is issued is not sufficient time to obtain funding or implement projects that will reduce CO₂e emissions. For this rule to be realistically implemented, the regulatory order must be issued prior to its subject period.
27. WAC 173-442-120(2) – Request that Ecology outline how it wants records of ERUs kept, rather than a blanket statement “in a manner prescribed by ecology”.
28. WAC 173-442-160(2)(c) - “Project types must not be included in the methodologies used in the emission calculations that generate the covered GHG emissions for any covered party reporting as per chapter 173-441 WAC.” Request that Ecology clarify this statement. What does this even mean?
29. WAC 173-442-170(1) – “A covered party may use allowances from external GHG emission reduction programs...” Request that Ecology clarify what is meant by external GHG programs. Does this mean programs not established by WAC 173-442, or does this refer to external in a more physical sense?
30. WAC 173-442-220(1) – Request that Ecology change this language as follows: “A covered party must demonstrate compliance with their compliance obligation ~~at the end of each applicable compliance period~~ by the due date of the applicable compliance report as specified in WAC 173-442-250 Table 5.” This will allow a covered party to obtain appropriate paperwork to be able to “demonstrate compliance”. For example, it will allow a covered party to purchase ERUs if necessary to meet their compliance obligation for that compliance period. Otherwise, a covered party may not know the precise amount of ERUs necessary to comply with their compliance obligation within the self-same compliance period.
31. WAC 173-442-210(2) – Ecology has not defined the format that covered parties must use to provide the compliance report; however Ecology is at the same time imposing a requirement that the covered parties are responsible for ensuring the Ecology receives the compliance report. It is entirely unreasonable to require companies to be held solely responsible for what is not within their control. For example, if Ecology intends to specify a web-based system for

submittal of the compliance report, and then Ecology does not ensure that it is working properly, then it is unreasonable to make the covered party responsible. In general, for other environmental reporting programs, companies are only held responsible for submitting the report in a timely manner, not for ensuring that Ecology receives it. Request that Ecology remove WAC 173-442-210(2) as it adds little benefit and significant burden.

32. WAC 173-442-210(4) – Request that Ecology specify what records need to be kept, as the current statement is vague and subjective. A possible example: “A covered party must retain records of the compliance report and its submittal date for ten years.”
33. WAC 173-442-210(5) – Request that Ecology adjust the compliance trap that was created. (5)(a) requires that covered parties must correct errors in their compliance report no later than 45 days after discovery of an error; however 5(c), (d), and (e) indicate that Ecology must first provide permission before a facility can correct it. It is therefore possible that a facility may be trying to correct the report, but because Ecology hasn’t allowed them to correct it, the facility may not be able to comply with 5(a) through no fault of their own. Therefore, request that Ecology adjust 5(a) to state: Covered parties must ~~correct errors~~ request to have a submitted compliance report for the most recent compliance period reopened for corrective edits and resubmittal no later than forty-five days after discovery of an error.”
34. Also, is Ecology not allowing correction of older reports?
35. WAC 173-442-210(5) – How does Ecology plan to address situations where the covered party and Ecology disagree on whether an error has occurred, and need longer than 45 days to resolve?
36. WAC 173-442-210 - What does the term “denial of compliance report” mean? Request that Ecology define this new term, or strike this provision and use standard environmental compliance language.
37. WAC 173-442-210(6)(a) – How does this statement relate to the title of this section, “Ecology denial of compliance report.”? This should be clarified, as it does not appear to be a complete thought.
38. WAC 173-442-210(6) - “Other forms of noncompliance with this chapter” is a catch-all. For consistent implementation of this regulation, Ecology should specify what other forms of noncompliance, for a given significance level, that may result in a denial of compliance report. Otherwise this seems subjective and open to abuse of authority.
39. WAC 173-442-210(8)(a) – How can Ecology not be responsible for failures in a system that it is in control of? And in turn, going back to -210(2), how can a covered party be held responsible for a system it does not control and is required to use by Ecology? This is unreasonable and illogical. Request that Ecology strike this provision.
40. WAC 173-442-220(3)(g)(i) – Please clarify how a third party verifier is going to conduct an onsite visit during a compliance period, which is before a compliance report has been created, and simultaneously verify whether all relevant emissions, emission reductions, and the accounting for ERUs are included in a compliance report that would not have been created yet. Or, please clarify this process to make the timing clearer to a covered party.
41. WAC 173-442-220(5) – Request that Ecology remove the redundancy and potential conflicts between WAC 173-442-220(5) and WAC 173-442-210(5).

42. WAC 173-442-240(1)(c) – This is the first and only mention of the term “expired ERUs”. Request that Ecology define how an ERU becomes “expired” within this program.
43. Request that Ecology more clearly identify how each of the following interact: WAC 173-442-130 Banking Emission Reduction Units, curtailment, WAC 173-442-160 Activities and Programs Recognized as Generating Emission Reduction Units, and WAC 173-442-240(1)(a)(ii) Reserve. Does a facility that undergoes curtailment automatically generate ERUs, and if so, shouldn't that be specifically included under WAC 173-442-160?
44. WAC 173-442-240(3)(a), Allocating 50 percent of all ERUs that were allocated to the reserve during the calendar year prior to restart seems arbitrary and potentially insufficient to allow a covered party end a curtailment.
45. WAC 173-442-340 – Request that Ecology clarify the timing – if a failure to meet the compliance obligation occurs, the clock should start from the date of the compliance report deadline, not from the end of the compliance period. This will allow a covered party the opportunity to verify their emissions and obtain ERUs to meet their compliance obligation.
46. WAC 173-442-360 – Since a report is a communication, does Ecology intend that compliance reports be submitted to Ecology in the methods described in this section? If not, then request that Ecology clarify this. If so, then Ecology should reference this section when discussing submittal requirements in WAC 173-442-210.

July 18, 2016

Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

RE: Comments to the Clean Air Rule

Dear Mr. Wilson:

As Co-Chair of the South Puget Sound Asian Pacific Islander Coalition (APIC), I wanted to state there is no question that Climate Change is happening and increasing carbon emissions and greenhouse gasses trapped in our atmosphere are directly involved. We realize that Climate Change is a global problem, but our local communities can play a major role in implementing an effective clean air strategy for Washington State.

Representing Asian Pacific communities in South Puget Sound, we also understand that communities of color are sometimes adversely impacted by high carbon emissions because of where our communities are often located in vicinity of energy intensive, trade-exposed industries (EITEs), and who may be directly exposed to conditions that impact water quality and public health. In the South Sound, we have seen Climate Change bring an increase in acidity levels in Puget Sound and Hood Canal, which in turn has impacted sea life including shellfish that are smaller with thinner shells. Other cases seen of local lakes with higher levels of toxic blue-green algae, and at lower water levels due to lower snow packs seen in recent years. Lower precipitation levels in recent years have also brought on higher wildfire danger in local forests. Without emission reduction targets in place, we feel this will ultimately impact economic opportunities in the long run – especially for communities of color who work in the shellfish and forest products industries.

Part of the Clean Air Rule is the role of the Environmental Justice Advisory Committee in holding large carbon emitting industries accountable to meeting state emission reduction goals and protecting the rights of vulnerable communities. We would like to see representation on the Environmental Justice Advisory Committee by delegates from the Asian Pacific and other communities of color in presenting environmental justice concerns. We also would like to see the role of the Advisory Committee to expand to include conducting an impact analysis of highly impacted target populations; such as a review of disparities in air quality in areas populated by tribal communities, low income, immigrant/migrant populations, on top of reviewing emission reduction units.

Thank you for your time.

Sincerely,

Brian Lock

South Puget Sound – Asian Pacific Islander Coalition



SPOKANE CITY COUNCIL
808 W. Spokane Falls Blvd.
Spokane, WA 99201-3335
(509) 625-6255

July 22, 2016

Sam Wilson
Washington Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Dear Sam,

Thank you for the opportunity to comment on Ecology's proposed Clean Air Rule.

We believe strongly in our State making investments that will reduce our greenhouse gas emissions and have a beneficial impact on climate change. We appreciate and support Governor Inslee's climate protection goals. Overall, we think the proposed Clean Air Rule helps Washington State meet these goals.

You may know that the greater Spokane community has been contributing to carbon emission reductions in our state for the last 25 years with the choice to incinerate rather than landfill our solid waste at the Waste to Energy facility (WTE). Back then, we closed several landfills that had become Superfund cleanup sites that were threatening the water quality in our sole-source aquifer, which provides drinking water to more than a half million people.

Unfortunately, there is no perfect solution to managing municipal solid waste. Over the past years, as elected officials in Spokane, we have gained a greater understanding of the trade-offs and choices available to us. While there are always risks and long-term impacts to managing solid waste, the Waste to Energy facility was the choice our citizens made for our disposal option. Here are the facts about its carbon footprint:

- Over the life-cycle of the waste, the EPA has estimated that a minimum of one ton of CO₂ equivalents are avoided for every ton of municipal solid waste directed to WTE rather than transported to a landfill.
- Using EPA's estimate, that would translate to about 250,000 tons of avoided CO₂ equivalent emissions **annually** based on our current solid waste volumes.
- At that rate, over the 25-year life of the facility, processing our municipal solid waste at WTE rather than landfilling has avoided 6.25 million metric tons of CO₂ equivalent.
- Additionally, without WTE, the City would have to long-haul its solid waste to a landfill at least 200 miles away, further adding to the carbon footprint of processing our municipal solid waste.

With those facts in mind, as a City, we are asking Ecology to reconsider how Spokane's Waste to Energy Facility is affected by the proposed Clean Air Rule.

- **The Waste to Energy Facility should be exempted from the rule because of the ongoing carbon emission reduction benefit provided by the facility.** Remember, we have already avoided 6.25 million metric tons of CO₂e, based on EPA calculations on the benefit of Waste to Energy disposal over landfilling.
- **At a minimum, we believe Ecology needs to consider the overall benefits of our solid waste disposal system in Spokane, rather than isolating a single component.**
 - The biogenic carbon portion of our emissions should be exempted.
 - A credit should be provided for our energy creation at WTE, which is far more efficient than methane capture and reuse at landfills.
 - A credit for avoided tons of CO₂e resulting from our recycling and composting diversion programs should be provided.
 - Carbon-reducing investments made by the City should be valued higher than purchasing of “credits” from others within or outside of our state.

Solid waste collection and disposal is a critical community service, without a profit motive. We ask that the State look carefully at the Waste to Energy facility and treat it fairly in the Clean Air Rule, recognizing that Spokane’s Waste to Energy facility has avoided millions of tons of CO₂ and, as a county, we have one of the highest recycling rates in the State. We are concerned that these issues have not been considered in the Rule.

We do believe we should continue to work to reduce the amount of waste our citizens produce. We welcome the State working with Spokane to develop programs and investments that will reduce waste and subsequently reduce greenhouse gas emissions. We all know that this is ultimately the best way to achieve climate goals as they relate to solid waste.

Thank you for your work on the Clean Air Rule and thank you for your consideration of our comments.

Sincerely,



Amber Waldref
Spokane City Councilmember, District 1



Lori Kinnear
Spokane City Councilmember, District 2



Karen Stratton
Spokane City Councilmember, District 3



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July 22, 2016

Sam Wilson
Washington Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Via Email: AQComments@ecy.wa.gov

**RE: City of Spokane Comments on the Proposed Clean Air Rule
(Chapter 173-442 WAC)**

Dear Mr. Wilson:

This letter is in response to the Washington State Department of Ecology's (DOE) request for comments on the Proposed Clean Air Rule, Chapter 173-442 WAC, that would establish greenhouse gas (GHG) emissions standards starting in 2017 for a number of facilities and industries, including the City of Spokane's Waste to Energy (WTE) Facility.

The City of Spokane (City) is an advocate for environmental responsibility and protection, including the reduction of GHG emissions. Spokane has been contributing to carbon emission reductions in our state for the last 25 years as a result of the Spokane community's decision to develop a WTE Facility to dispose of its municipal solid waste. And, with the passage of City Resolution 10-38, the City established targets for a 30 percent reduction of GHG emissions by 2030 from a 2005 baseline and has already implemented a number of projects that reduce our impact. Indeed, Spokane is part of the solution DOE seeks through the development of the Clean Air Rule.

With these comments, the City would like to share its concerns about how WTE is impacted by the rule, local governments' responsibility to manage solid waste, and the potential costs of compliance. We also would like to share some proposed solutions to our concerns.

Spokane Solid Waste Management & WTE Background

The City's WTE Facility provides disposal for the Spokane region's solid waste, which provides a beneficial alternative to a landfill and generates power. The WTE Facility was built more than 25 years ago, replacing leaking landfills that had become Superfund cleanup sites and that were located over our sole-source drinking water aquifer. The \$110 million project included a \$60 million investment from DOE.

The facility can handle up to 800 tons of municipal solid waste a day and can generate 26 megawatts of electricity, enough to power 13,000 homes daily. WTE produces 10 times the amount of energy from a ton of garbage compared to landfill methane recovery-reuse. The City works diligently to maintain high air quality standards. Emissions from WTE are well within the limits of federal standards for new facilities and well within our current permit limits. For most regulated emissions, the actual emissions from WTE are less than 10 percent of the emissions

allowed under our air permit. The City has a long history of making voluntary upgrades at the WTE Facility to reduce or improve emissions, and the City is committed to continuing that work.

Our solid waste program also includes a comprehensive program for recycling and composting to meet the state objectives of reducing, reusing, and recycling wastes. Our recycling rate is 52%, higher than most other places in the state of Washington. Since implementing single stream recycling in 2012, more than 7,000 customers have downsized their garbage carts because they are recycling so much. Additionally, our food and yard waste subscription composting service is growing rapidly. In the last five years, the number of customers who have opted for the service has increased by 23 percent to nearly 25,000 customers.

The City continues to look for ways to increase recycling and reuse. For example, one current effort is under way to find a beneficial use for the ash that is generated from the WTE incineration process.

WTE GHG Benefits

As you are aware, there are many studies and policies that document the GHG benefits of WTE as compared to landfills, but we'll just use a few key facts to highlight our point.

The U.S. Environmental Protection Agency (EPA) estimates that a minimum of one ton of CO₂e is avoided for every ton of municipal solid waste directed to WTE rather than transported to a landfill.¹ Using this EPA estimate, Spokane avoids approximately 250,000 tons of CO₂e emissions annually based on current solid waste volumes. At that rate, over the 25-year life of the facility, processing our municipal solid waste at WTE, rather than landfilling, has avoided 6.25 million metric tons of CO₂e. These are conservative estimates; new assessments being reviewed by the EPA may support looking at these gases over a 20-year life versus a 100-year life, which would mean WTE's advantage could grow up to three-fold.

The U.S. Department of Energy (USDOE) describes WTE's benefits somewhat differently but just as positively. According to a 2011 analysis by USDOE's National Renewable Energy Laboratory (NREL), WTE is the only energy-generation option that reduces GHGs. WTE prevents landfill methane emissions, according to the study; other green energy options (including wind, solar, and nuclear) simply avoid new emissions. A more recent look at WTE by USDOE provides a more comprehensive assessment of WTE's GHG emission mitigation benefits.²

Ultimately, though, as compared to landfilling, the WTE has a positive impact on GHG emissions in three ways: (i) generating electricity (or producing steam for process use), which reduces use of fossil fuels and the resulting GHG emissions; (ii) avoiding the methane emissions that would result if the same waste is landfilled; and (iii) recovering ferrous and nonferrous metals which, in turn, avoids the additional energy consumption that would be required if the same metals were produced from virgin ores. And, of course, most notably,

¹ <https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/airem.html> (scroll to "Greenhouse Gases")

² <http://www.nrel.gov/docs/fy13osti/52829.pdf>

methane, a prominent landfill gas, has 21 or more times the heat-trapping potential of carbon dioxide when measured over a 100-year period and is well documented as a significant factor in causing climate change.

Local Governments & Solid Waste Management

Although we clearly support the community's chosen WTE disposal method, we find ourselves aligned with other local governments working to manage solid waste. According to state law, local government has the primary responsibility to ensure adequate handling of solid waste and for solid waste planning. (Chapter 70.95 RCW) The City of Spokane and other local governments do not have a profit motive for operating disposal options, including WTE and landfills, but rather a public health obligation and a statutory mandate.

In Spokane, we understand that the cost of entry into the WTE world, combined with low commodity prices for recyclables and relatively cheap natural gas, will likely prevent other local communities within our state from investing in WTE solutions today. As a result, we believe that local government solid waste management activities should be looked at holistically, seeking out the common actions that would lessen the impact of these activities on GHG emissions in our state.

Ultimately, the best strategy for reducing the impact of the solid waste industry on carbon emissions is to focus not on the disposal end of the system, but to look "upstream" at waste prevention, reuse, and recycling.

We recommend Ecology consider models embraced by other places, including the state of California and the East Coast cooperative effort called the Regional Greenhouse Gas Initiative.³ We must use a hierarchy of reduce and reuse first, followed by recycling and composting, then recovering energy, and finally, as a last option, landfilling, in order to help achieve GHG emissions reductions over time. As a state, we should work to close the remanufacturing loop, creating demand within the state for recycled goods that will enhance our green economy and reduce the GHG impact of shipping recyclables to other states or around the world. This effort will likely also result in the creation of strong, family-wage jobs.

Biogenic Carbon Discussion

Like other local governments providing solid waste management, we would like to discuss how biogenic carbon is treated within the proposed rule. By statute, the draft rule includes an exclusion for emissions from woody biomass because those emissions are biogenic. Woody biomass is not the only source of biogenic carbon. At our WTE Facility, some 55 to 60 percent of our emissions are biogenic. Essentially, these emissions are part of the natural carbon cycle; requiring the WTE to reduce naturally occurring CO₂ greatly intensifies the burden of the rule on the City's facility ratepayers. Without the biogenic component, The WTE Facility's CO₂ emissions are just over the 100,000 metric ton initial threshold for the rule.

³ <https://www.rggi.org/>

Lack of Authority to Buy ERUs

The proposed rule anticipates the purchase of credits or Emission Reduction Units (ERUs) to achieve compliance if emissions cannot be reduced. We are concerned that such a purchase would not be an appropriate expense of our solid waste utility. Under Washington state law, government-owned utilities face a strict set of rules on how ratepayer dollars can be used. Essentially, utility dollars must be spent on activities that benefit the utility customers, not the general public. See *Okeson v. City of Seattle* (159 Wash.2d 436, 447 (2007) (*Okeson III*)). In that case, the court considered whether Seattle City Light's purchase of carbon offset credits from a third party were an appropriate use of ratepayer dollars. In its opinion, the court said:

"Cleaning up the utility's own emissions is an inherent part of the utility's operations, and therefore serves a utility purpose, but cleaning up other parties' emissions in order to combat global warming for the betterment of everyone everywhere serves a general governmental purpose and is not for the special benefit of the utility or its ratepayers."

While this issue needs to be explored further, it appears that the proposed Clean Air Rule's requirement for the purchase of allowances and ERUs from third parties could be seen as a benefit to the general public rather than to the City's solid waste utility customers. If public utilities are legally unable to purchase ERUs, the City would be forced to accept fines, which appears to be an unjust and unintended application of the rule.

A Look at the EITE Criteria

The proposed rule includes alternative requirements for industries that it has classified as energy intensive and trade-exposed (EITE). Ecology's website provides the agency's policy basis and rationale for the favorable treatment, and these conditions could easily apply to solid waste disposal activities. Specifically, different treatment for EITE industries is premised on recognition that carbon emissions are unavoidable for some source categories, and rather than simply imposing increased costs through the required purchases of allowances and ERUs, Ecology focuses on maximizing use of the best technology for lowering GHG emissions. To ensure equal treatment among industries, Ecology could consider classifying local government solid waste activities as EITE. For solid waste, the focus would then be on waste prevention, reuse, and recycling.

Costs of Compliance

The citizens of the greater Spokane area already have paid a premium for a cleaner solid waste disposal option at the WTE Facility over the last two and a half decades. They affirmatively decided to invest in a better way to dispose of solid waste, and tipping fees at our facility are priced at slightly more than \$105 a ton.

The City's median household income is just \$43,694, which is lower than the state and national median household income figures. As a result, the City is very thoughtful about providing our citizens with affordable utility rates. Recently, our Mayor and City Council committed to limiting

annual utility rate increases to inflation. The City approved three years of rates with that inflationary limit for 2015, 2016, and 2017, with a goal of continuing that approach over the next 20 years.

It is worth noting that the City not only operates solid waste collection and disposal utilities, but also water and wastewater/stormwater utilities. These utilities face significant cost pressures to achieve environmental regulatory compliance and to maintain and update our large systems. Indeed, in the wastewater area alone, the City is investing more than \$300 million in projects to upgrade wastewater treatment and manage overflows from combined sewers. All of these cost pressures have to be balanced in order to maintain affordability for customers.

Even with those challenges, the City has voluntarily invested in projects in recent years that have lessened our GHG emissions. We would like to list a few:

- **Single Stream Recycling.** Spokane consistently has had a recycling rate that's higher than the state average. The City implemented a single-stream recycling system in late 2012. Within the first year, the City saw an 80 percent increase in the recyclables collected curbside. This is a great example of source reduction; more than 7,000 customers have downsized their garbage carts since 2012 because they are recycling so much material. These customers save about \$12 a month on their utility bills so there is a financial incentive to recycle more. In general, studies show, communities that rely on waste to energy for disposal actually recycle at a higher rate than the national average.
- **Conversion of Solid Waste Fleet to Compressed Natural Gas.** In 2015, the City began a conversion of its solid waste collection fleet from diesel fuel to compressed natural gas (CNG). CNG-powered trucks reduce GHG emissions by 30 percent over diesel, and they produce 60 to 90 percent less smog-producing pollutants. The City has 20 CNG trucks now and will convert its entire fleet of about 80 trucks over the next seven years.
- **New Combined Fleet and Solid Waste Facility.** In August 2015, the City opened this new combined fleet maintenance and solid waste collection facility. The two-story, 57,500-square-foot center replaced three old and energy-inefficient facilities.
- **Composting.** The City has a robust subscription-based curbside composting service, as well as inexpensive clean green drop-off at its solid waste transfer station. In 2010, the City expanded its curbside service to include food wastes and food-soiled paper, like pizza boxes. In the last five years, the number of customers who have subscribed to the curbside service has increased by 23 percent to nearly 25,000. In 2015, the City collected 22,000 tons of clean green material overall.
- **Forest Spokane Initiative.** In 2014, the City launched the Forest Spokane initiative with a goal of planting 10,000 trees over three years to provide environmental and social benefits. Trees help to sequester CO₂ by converting and storing CO₂ in the form of wood produced and by lowering the demand for heating and cooling.

These specific initiatives are enhanced by other projects, including the extension of bike lanes, pedestrian and bicycle separated trails, and additional sidewalks that help to reduce the reliance on motorized transportation options. Our regional transit authority, Spokane Transit Authority, also is seeking to implement bus rapid transit improvements within our City.

In the world of local government, these kinds of investments take years to develop, plan, and implement. Limiting the timeline for receiving credits for such actions to May of 2016 takes into account neither the pace of projects nor the availability of funds at the local government level.

Proposed Solutions

Carbon dioxide is a by-product of combustion. Today, no technology exists to further reduce the carbon emissions at our WTE plant, as long as we process the same amount of material. That means Spokane has two ways to comply, as the rule is currently proposed:

- **We buy our way out of the regulation, by purchasing credits or accepting fines.** Buying credits will be expensive and will not achieve any advances in reducing the GHG impact of solid waste disposal. While there are many unknowns about the market value of purchased ERUs, the cost will be substantial. We estimate the total credit purchase to exceed \$2 million per compliance period based on an ERU market value of \$15 per credit. As we mentioned earlier, we also question whether the purchase of credits is an appropriate expense for public utility ratepayers, since such credits would benefit the general public rather than specifically our customers. If our utility were barred legally from buying credits, we have calculated our fines to equal around \$2 million a year at a minimum based on our reading of the rule.
- **We close our facility and landfill our waste,** in essence, “dumping” our solid waste problem and subsequent GHG emissions on another county—and quite possibly on another state without such regulation. Our net carbon footprint would increase substantially because each ton of trash would now be responsible for at least an additional 1 ton of CO₂e based on EPA analysis, and we would also have to long-haul our trash to a regional site; the closest site is 200 miles away. Additionally, landfills in our state are in a similar predicament. Emissions from landfills actually will increase in the large landfills over time as the waste decomposes on a life-cycle basis.

Neither of these options is acceptable to the City.

We understand that it is difficult to find the exact right balance in such complex rulemaking, but as a City, we respectfully request Ecology reconsider how Spokane’s management of solid waste and the WTE Facility are affected by the proposed Clean Air Rule.

- **The WTE Facility should be exempted from the rule because of the ongoing carbon emission reduction benefit provided by the facility.** At a minimum, Spokane’s WTE facility already has avoided 6.25 million metric tons of CO₂e, based on EPA calculations on the benefit of WTE disposal over landfilling. WTE’s role in GHG

mitigation is widely recognized by everyone from the EPA to the Intergovernmental Panel on Climate Change (IPCC) to CalRecycle, to name a few.

- **The state should recognize the statutory obligations of local governments to manage their solid waste by exempting those activities.** The best strategy for reducing the impact of the local government's solid waste activities on carbon emissions is to focus not on the disposal end of the system, but to look "upstream" in the process. We must look more comprehensively at how materials that would otherwise become waste can be more sustainably managed. Let's work to reduce and change packaging of goods. Let's find ways to improve recycling of food waste. Let's educate people about the multiple benefits of recycling. And let's figure out how to create markets for recyclables and green jobs. These are programs that the State should invest in.
- **Ecology needs to consider the overall benefits of the solid waste disposal system in Spokane, rather than isolating a single component.**
 - The biogenic carbon portion of our emissions should be exempted.
 - A credit should be provided for our energy creation at WTE, which is far more efficient than methane capture and reuse at landfills.
 - A credit for avoided tons of CO₂e resulting from our recycling and composting diversion programs should be provided.
 - Carbon-reducing investments made by the City should be valued higher than the purchase of "credits" from others within or outside of our state.

Twenty-five years ago, the state of Washington joined the Spokane community in selecting WTE as a positive disposal choice. Today, it makes sense for the state to continue to seek GHG benefits from that investment in such a way that is sustainable for the long-term. We believe solid waste can be a success story for the state in reducing GHG emissions, but through other avenues than the proposed Clean Air Rule. We would welcome the opportunity to work together with DOE and the State to find ways to enhance our green economy, create jobs, and improve our environment.

The City of Spokane has focused on finding solutions to complex problems like this that are both environmentally and financially responsible. We believe that's achievable here. Thank you again for the opportunity to present our concerns and share Spokane's story.

Sincerely,



Scott Simmons
Public Works & Utilities Director

CC: David A. Condon, Mayor
Ben Stuckart, City Council President
Spokane City Council Members
Keith Phillips, Office of the Governor
Chris Davis, Office of the Governor
Grant Pfeifer, Department of Ecology

Questions for Ecology re CAR 2.0

1. Are the compliance thresholds in WAC 173-442-030, Table 1 based on emissions from a source or on aggregate statewide emissions by sources owned by a single “covered party”?
2. A covered party incurs compliance obligations under WAC 173-442-030 Table 1 based on average emissions over an historic compliance period. Are compliance periods fixed three year blocks, per Table 1 and Table 3? Do Category 2 sources join the program at times other than year one of a new compliance period? See WAC 173-442-050(4) (Ecology assigns a baseline based on the first three consecutive calendar years after 2012 with average covered emissions $\geq 70,000$ tpy). When do compliance obligations begin for a source that emits 95,000 tpy in 2019 through 2022?
3. Did Ecology intend to define a “covered party” without regard to GHG emission rate? See WAC 173-442-020. If so, what are the responsibilities of a covered party with emissions during the first compliance that average below 70,000 tpy? Do they require a regulatory order? See WAC 173-442-200(6). Must they “demonstrate compliance with their compliance obligation at the end of each applicable compliance period” as provided in WAC 173-442-200(1)? Must they submit a compliance report as provided in WAC 173-442-210(1) (“Each covered party must submit a compliance report.”)
4. WAC 173-442-200(6) says Ecology will, by January 30 of the second year of a covered party’s first compliance period, issue a regulatory order establishing emission reduction requirements for each covered party. Aren’t compliance obligations determined retrospectively? For a Category 1 source would the second year of the first compliance period be 2013? Is it possible to meet the deadline set by this subsection?
5. One regulatory order for all time? Or one regulatory order for each compliance period? See WAC 173-442-200(6)(d) and WAC 173-442-070(4). For a non EITE stationary source with average emissions during the first compliance period of 72,000 tpy would Ecology issue a regulatory order in 2018 for the compliance period beginning in 2035? See WAC 173-442-200(6)(c):

Ecology must assign GHG emission reduction requirements to each covered party with a baseline GHG emissions value greater than or equal to 70,000 MT CO_{2e} per year, or when requested by a voluntary party.

6. Ch. 172-442 sets standards for “petroleum product producers.” See WAC 173-442-020. Where is that term defined? Does it include any operation other than a petroleum refinery?
7. WAC 173-442-050(2)(c) requires petroleum product producers and natural gas distributors to “submit to Ecology all emissions data submitted to EPA, or required to be retained by EPA, under 40 CFR Part 98 . . .” Why is a reporting rule contained in ch. 173-442? Does Ecology

assume that “emissions data submitted to EPA” includes anything other annual GHG emissions? How about “required to be retained by EPA”? What is the difference between data reported to EPA and data required to be retained by EPA?

8. Does WAC 173-441-120(2)(h)(v) require refiners, importers and exporters to report GHG emissions for each product they distribute?

Exporters choosing to report emissions associated with exported products to ecology under these subparts and refineries and importers must report information for each product where emissions were calculated.

9. What is the meaning of WAC 173-441-050((3)(d)(vii)?

(vii) For reporting year 2014 and thereafter, you must enter into verification software specified by the director the data specified in the verification software records provision in each applicable record-keeping section. For each data element entered into the verification software, if the software produces a warning message for the data value and you elect not to revise the data value, you may provide an explanation in the verification software of why the data value is not being revised. Whenever the use of verification software is required or voluntarily used, the file generated by the verification software must be submitted with the facility's annual GHG report.

10. WAC 173-441-130 prescribes calculation methods for suppliers of fuels reported to DOL. Does WAC ch. 173-442 use the calculations developed under 130 for any purpose?

11. Why does WAC 173-441-020 revise the EPA definition of “facility” to include the phrase “unless otherwise specified in any subpart of 40 CFR Part 98 as adopted by May 1, 2016”? What does that clause mean?

"Facility" unless otherwise specified in any subpart of 40 C.F.R. Part 98 as adopted by ((January 1, 2015)) May 1, 2016, means any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right of way and under common ownership or common control, that emits or may emit any greenhouse gas.

12. Why does Ecology in WAC 173-441-120 designate suppliers of petroleum products and natural gas as “facilities”?

13. WAC 173-441-050 directs “suppliers” to report annual emissions of CO2 based on fuels reported to the DOL. Does that instruction conflict with the reporting obligations in WAC 173-442-120?

14. WAC 173-441-020(1)(j) defines “supplier” to include “distributor” as defined in RCW 82.38.020 (“a person who acquires fuel . . . from a terminal or refinery rack for distribution within Washington”). Does ch. 173-441 describe what a distributor must report?
15. Are fuel distributors covered parties under ch. 173-442? If so, does ch. 173-442 double count emissions from distributors and refineries?
16. WAC 173-441-120(2)(h)(ii)(A) defines “export” to include a requirement that “The final distribution of the product must occur outside of Washington state.” For fuels delivered by a refinery to a separately owned terminal, how would the refinery obtain this info?
17. The EITE rule (173-442-070) and the rules for setting Category 2 baselines each include a benchmarking process that requires GHG efficiency data from sources outside Washington. To set the “ninety percent most efficient facility” (WAC 173-442-050(5)) or the “efficiency intensity distribution for each sector” (070(3)) Ecology or covered parties obtain source-specific production/sales data for individual sources throughout an industry sector. Where will Ecology get this info?
18. Does the CAR contain any mechanism to increase a covered party’s baseline for (a) increases in production within a party’s permitted limits or (b) permitted production increases?
19. Does the rule specify the effect on an EITE’s emission reduction pathway of having a low or high efficiency intensity distribution? See WAC 173-442-070(3)(b)
20. Who is responsible, as between Ecology and an EITE, for supplying the information needed to complete an EITE benchmarking analysis? See WAC 173-442-070(3)(b)(iv):

If Ecology determines an EITE covered party has not supplied sufficient information to complete this assessment, then the EITE covered party's efficiency reduction rate must be set at a level that would reduce emissions at a rate greater than required to meet the GHG emission reduction pathway that would have been required by WAC 173-442-060 (1)(a).

21. WAC 173-442-140 prohibits “third parties” from owning ERUs. Does the rule define third party? Are activities and programs that generate ERUs under WAC 173-442-160 “third parties”?
22. Each subsection of WAC 173-442-160 states that Ecology will assign the appropriate quantity of ERUs generated by programs and activities listed in 160. Does the CAR provide any process or time line for Ecology assignment of ERUs? Is there any process for Ecology approval of ERU generation methodologies in subsection (10)?
23. Does Ecology know of any external GHG emission reduction programs that meet all of the criteria in WAC 173-442-170? Does Ecology have confirmation from CARB that AB-32 allowances may be used to meet Washington compliance obligations? More specifically,

does Ecology currently believe that covered parties will be able to meet the requirements of WAC 173-442-170(3) (“The covered party must document that an allowance used as an ERU has been invalidated from use or placed into a permanent holding account in its originating market.”)

24. In WAC 173-442-240, what is the difference between “retirement” of an ERU and “withdrawal” of an ERU?

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July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504 - 7600

Electronic Submittal –
AQComments@ecy.wa.gov

RE: Comments on the Proposed Clean Air Rule

Dear Mr. Wilson:

Tesoro appreciates the opportunity to comment on the proposed draft Clean Air Regulation (CAR) as noticed for review on June 1st, 2016. The draft regulations include a new regulation (WAC 173-442) and an amended regulation (WAC 173-441). Tesoro reliably provides a substantial volume of clean gasoline and diesel to Washington consumers and operates multiple facilities within the state, including a refinery – employing 430 people and providing approximately 60 MM\$ in tax revenue to the state and local jurisdictions. Tesoro has tremendous concern about the design and implementation of this regulation and its impacts on our operations and reliable fuel supply to consumers.

We understand that the Association of Washington Businesses (AWB) and the Western States Petroleum Association (WSPA) have provided comments on this draft regulation as well. Tesoro supports those comments, but wishes to focus on a couple of specific aspects of the proposed regulation.

Regulatory Adoption and Implementation Should be Delayed

Tesoro requests that the Department of Ecology (Ecology) defer adoption and consider a longer implementation period for a variety of reasons as follows:

- Legislative authority has not been granted for such a regulation. Any carbon reduction regulation of this magnitude that widely impacts the Washington economy, including both businesses and consumers, should be established by a deliberative process in the legislature. While development of the many detailed provisions necessitated by such a complex regulation must be undertaken via a regulatory process, many aspects of such a profound regulation are best established by elected officials representing impacted constituencies. Key design elements include; but are not limited to, scope of covered entities/sectors, scope of eligible reductions, rate of

cap decline, allocation methodology, consumer protection (cost containment), leakage prevention, and linkage philosophy. In addition to looking at program design elements, the legislature needs to look at how such a regulation comports with or displaces other policy and regulatory initiatives including incentive programs, efficiency standards, other direct emissions standards at all governmental levels, and other market programs. The legislature is also the best place for those representing the people of Washington to debate the costs and benefits of various approaches.

- The regulation is neither complete nor workable. Ecology has done a tremendous job assembling the framework of a very substantive regulation in a completely inadequate amount of time. However, without repeating the details of the AWB and WSPA letters referenced above, there are many gaps and frankly more questions than there are answers about how this regulation is going to work. Regulated entities, including Tesoro, have attempted to help Ecology fill these gaps but there has just not been enough time to reach mutual understanding or consensus on key provisions. While we appreciate Ecology's willingness to work with us and make changes as needed throughout implementation, it is really in both our interests to take more time developing the needed provisions up front based on the appropriate legislative direction. As we have seen in other similar programs – certainty is key and a regulation that is unfinished or in flux harms the effectiveness of the regulation.
- Incurring a reduction obligation in 2017 is not rational. Even in the hypothetical case where there was clear legislative direction and a more fully developed regulation, it is not fair to impose a compliance obligation on an entity just a few months following adoption. Even worse – we will not fully understand our 2017 obligation until 2018 due to the method of establishing the baseline which serves as the first year's compliance obligation. There is no time to plan for this obligation within our operations or to establish an external reduction project to cover our obligations. This apprehension is made worse by the uncertainty in our ability to access external markets like the allowance market in California. The impact of this approach is not made better by the fact that the compliance obligation does not really come due until the end of the first compliance period. This is akin to giving someone a new credit card with a balance already on it, but explaining that they should be ok because they still have time to pay off. Implementation of any compliance obligation should only occur after that obligation has been established and adequate time to plan for and initiate compliance actions is provided.
- More time is needed to establish a rational and equitable reporting system As has been discussed at length with Ecology, the current proposal to use EPA Subpart MM reports has many drawbacks compared to using the Department of Licensing (DOL) fuel reports. While neither reporting system is 100% fit for purpose, the DOL reporting system offers many advantages and in Tesoro's view can be more easily augmented if necessary to meet Ecology's needs. Using the DOL reporting system is consistent with current statute, covers a majority of the emissions that Ecology wants included, is subject to existing, stringent accuracy and verification standards,

avoids the errors and complications associated with the EPA reporting system (details enumerated in the AWB and WSPA letters), and perhaps most importantly already accommodates equitable reporting of production, imports, and exports without development of new reporting systems. Regardless of the reporting method selected – more time is needed to establish the reporting tool – and implementation of any obligation should be deferred until after this tool has been established; a trial reporting period has proven successful, and both in-state and out-of-state fuel producers incur an obligation on the same effective date. At a minimum, Ecology should provide themselves flexibility to utilize alternative reporting mechanisms either temporarily or permanently should the current approach preferred by Ecology become untenable.

Overall – Tesoro’s recommendation is that no emission reduction obligation should occur until at least 3 years after legislative authority has been granted. This allows 1 to 2 years to develop the regulation and 1 to 2 years to implement the reporting component of the regulation. This also provides covered entities time to plan for the obligation and develop emission reduction strategies.

Adequacy of Reserve

Tesoro appreciates Ecology recognizing the need to accommodate growth within the regulation equitably between new and existing facilities. The original version of the regulation only enabled new facilities to get a starting baseline whereas projects at existing sources that resulted in emission growth were subject to 100% obligation upon operation. We are glad that Ecology recognized the need to provide existing entities in the state the ability to expand and modernize equitably with new facilities. Accommodating growth within the state is an important mechanism in preventing leakage.

While Tesoro supports the approach preferred by WSPA that all new and existing projects that are approved through the state’s rigorous permitting process be accommodated outside of the cap, we do understand Ecology’s desire to utilize the reserve approach proposed in the draft regulation.

With respect to the reserve, we have concerns about the adequacy and availability of the credits held in the reserve. We understand through conversations with Ecology that a majority of the credits expected in the reserve will come from curtailments. However, we have seen no analysis to indicate how many credits are expected from curtailments and when they are expected to enter the reserve. Similarly, it would be helpful to know if Ecology is aware of any draws on the reserve in the near-term. We request that Ecology provide such an analysis based on what is known in terms of supply and demand over the first two compliance cycles in as much detail as possible without compromising confidential business information.

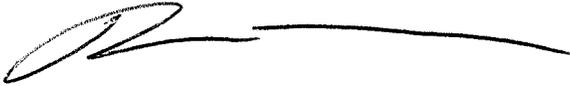
Secondarily, we also recommend that any permitted projects, for which credits are removed from the reserve and managed by Ecology, not be subject to reduction obligations. These projects have presumably been permitted and have adopted relevant control technology without ability to achieve further reductions. It would be complicated for both Ecology and covered

entities to manage multiple reduction obligations with varying schedules at a single facility as different projects evolve over time in addition to the base facility obligation.

Lastly, we request that if the reserve provisions remain in the regulation, that we also begin a conversation about what happens if there are not enough credits in the reserve at some future point in implementation. Tesoro believes that options should be examined that do not require further reduction of the cap to generate the extra credits needed.

Tesoro appreciates the opportunity to submit comments on the draft CAR regulation. Please contact me at (916) 462-5062 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Miles Heller', with a long horizontal flourish extending to the right.

Miles Heller
Director, CA Fuels and Regulatory Affairs

Comments of the
Policy Institute for Energy, Environment and the Economy
University of California at Davis

July 22, 2016

James Bushnell
Professor, Department of Economics
UC Davis

Julie Witcover
Assistant Project Scientist
Institute for Transportation Studies
UC Davis

We are grateful for the opportunity to comment on the proposed Clean Air Rule (Chapter 173-442 WAC, with associated amendments to Chapter 173-400 WAC and Chapter 173-441 WAC). The establishment of greenhouse gas emissions caps in multiple states can greatly advance the efficiency and pace of emissions reductions throughout the western United States. These comments convey our impressions of the design of the proposed regulation, and the lessons that can be drawn from how it compares to similar efforts that have been attempted or applied in other parts of the U.S. or the world. Our comments are organized around four topics; the general design of the regulation, some implications of the design, incentive features of the regulation, and considerations regarding the transparency and liquidity of an emission reduction unit market.

I. General Design

The proposed regulation differs in important ways from cap-and-trade systems elsewhere, but it may be useful to note that, with two notable qualifications, it is functionally equivalent to a conventional cap-and-trade program where 100% of the allowances created under the cap are allocated to the covered industries. If an annual cap of all covered facilities were established based upon the 2012-2016 average emissions of those facilities, with a similar reduction trajectory as the proposed regulation, both total emissions allowed and responsibility for where reductions are made would be the same under a cap-and-trade with full allocation and a cap-and-reduce regulation. Like a conventional cap-and-trade system, this regulation provides compliance entities the flexibility to either reduce emissions themselves or offset their lack of reduction through paying for the over-compliance of other facilities through a tradable credits system. This flexibility promotes the achievement of an aggregate emissions reduction goal at the least cost.

In both a standard cap-and-trade with allowances allocated up to the cap and a cap-and-reduce regulation benchmarked on historical average emissions, compliance

entities bear the costs only of emissions beyond the facility-level target. A traditional cap-and-trade, however, has as a design choice how much of the cost of emissions up to the cap is the responsibility of the compliance entity (ranging from none of the cost, implemented by full allocation of allowances, to all of the cost, implemented by no allocation of allowances).¹ Cap-and-trade thus provides greater design flexibility as to what level of costs of emissions below the cap is borne by the compliance entity.

From a policy design perspective, the emissions reduction unit approach applied to covered facility emissions would, by itself, preserve the marginal incentives for efficient abatement decisions that result from a standard cap-and-trade program. In theory, entities with abatement costs below the cost of acquiring an emissions reduction unit (ERU) should choose to abate, whether they have excess ERUs in their possession or not. This allows for abatement to be undertaken by those who can accomplish it at lowest cost, and for those firms to be rewarded, through the sale of ERUs, for those reductions. These incentives, and the flexibility they embody, lie at the core of the appeal of market-based environmental regulations such as cap-and-trade.

There are aspects of the design, however, that can distort the marginal incentives of regulated parties in ways that could have important impacts on policy outcomes. Two of the most prominent sources of these potential distortions are: i) the treatment of energy intensive trade exposed (EITE) industries; and ii) the ability of firms to generate ERUs through investments in sectors already subject to the cap imposed by this rule. While the development of these two elements is no doubt motivated by additional policy goals, their inclusion may impact not only the sectoral focus of abatement investment activities in ways that depart from the most efficient outcomes, but also aggregate state emissions levels. We discuss these points further in Section III on incentives below. In general, when we refer to the “ERU approach” we are referencing the portion of the proposal focused on the more traditional historical-based approach for determining facility-level emissions targets; we then discuss how the effects differ due to EITE or alternative ERU generation activities.

II. Implications of the Emissions Reduction Unit approach

At the most basic level, the distribution of allowance value is not central to the effectiveness of a cap-and-trade program. If allowances are distributed in a way that is not linked to ongoing business decisions, the correct incentives for emissions reductions are preserved no matter who receives the allowance value.

¹ This is why we view a cap-and-reduce approach, and much of the proposed regulation, as largely equivalent to a standard cap-and-trade program with a full allocation of the allowances: firms in either program would be in an identical financial position of assuming no cost for emissions under the cap.

An implication of the ERU approach, which does not “create” allowances but instead allows them to be produced by entities that over-comply with their cap, is that it prevents the State or regulator from applying the value embedded in ERU or potential ERUs (that is, value associated with emissions up to the cap) to some other purpose. This approach has several implications that are analogous to those already identified by analysis of cap-and-trade programs under full allocation of allowances.

II.a. Revenue neutrality means no revenue recycling

First, there is no opportunity to use the implied emissions value for any other purposes. A strain of economics literature has pointed to the *revenue-recycling effect*,² in which funds raised through the sale of allowances (or value embedded in ERUs) or a tax could be used to reduce other taxes that distort the economy. When such funds are returned as a lump sum, or in this case not collected at all, there is no opportunity to use the funds to reduce distortionary taxes, or apply them to other possible desirable investments.

II.b. Pass-through of marginal emissions costs

A result from economics relevant for policy consideration here is that, in general, the pass-through of emissions costs to retail prices should be expected to reflect the marginal cost of the emissions reduction units. The allocation of allowances, if based upon historic rather than ongoing emissions or output, should not affect pass-through to retail prices. This means that, although a firm may not be a net buyer or seller of ERUs under the proposed regulation, it should still be expected to raise the prices of its products to reflect the cost of those ERUs. The effects will be somewhat different for energy intensive trade exposed industries, as discussed below.

A hypothetical example illustrates the principle: suppose that an ERU costs \$10/ton CO₂e, and a petroleum fuel importer historically brought in an average of enough fuel to emit about 100,000 tons CO₂e (e.g., 10 million gallons of fuel with per gallon combustion emissions of .01 ton). If the importer chooses to import the same type and amount of fuel in the first year reductions are required (purchasing ERUs for \$10/ton), it would have to purchase about 17,000 tons of ERUs (for roughly \$17,000) to cover emissions above the first year cap. However, from the firm’s perspective, the marginal cost of importing fuel would have increased by 10 cents/gallon. In other words, the cost of selling one more gallon of fuel will have increased by 10 cents/gallon and the importer can be expected to pass nearly all of that increase in cost through to wholesale and retail fuel prices. Therefore it will increase its revenues by 10 million gallons x 10 cents/gallon, or \$1 million and face a cost increase of \$17,000.

² See Goulder, Lawrence H. "Climate change policy's interactions with the tax system." *Energy Economics* 40 (2013): S3-S11 and Aldy, Joseph E., et al. *Designing climate mitigation policy*. No. w15022. National Bureau of Economic Research, 2009.

The degree of pass-through of any surcharge, fee or tax will depend upon the relative price-sensitivity (or elasticity) of supply and demand for the product in question. Historically, taxes on fuels have been largely passed through to retail prices.³ At the opposite extreme would be an industry that is substantially trade exposed and competes strongly with firms outside of Washington not subject to the regulation. These firms would have little ability to pass on their compliance costs to product prices that are set by unregulated competitors. We discuss the situation for this case (EITEs) below.

This illustration is not meant as a criticism of this aspect of the design, but to underline the basic economic fact that firms can be expected to make decisions based upon their marginal costs of compliance, and that lump sum transfers (or equivalent treatment) of allowance value would not be expected to alter those decisions. It is now well understood that allocation of 100% of emissions costs to industries will result in a net gain for those industries as price increases alone can be expected to offset much of the increase in compliance costs.⁴ The structure of the ERU approach, by functionally recreating a cap-and-trade regime with grandfathered allocation, will very likely result in similar windfalls for some covered industries. This fact may surprise some, and the activity could raise suspicions of anti-competitive behavior, but it is a natural consequence of the design of the approach.

II.c. Transition flexibility

One last aspect in which the ERU approach differs from a cap-and-trade with full allocation is a reduced ability to use reduction units (or their equivalents) for transition policies and the mitigation of price volatility. Many cap-and-trade programs have made substantial allocations to covered entities in the early years of implementation, then gradually reduced those allocations over time. Such a process provides for some transitional compensation for entities newly subject to the regulation, while allowing for an eventual alternative use of the implied ERU (or

³ Marion, Justin, and Erich Muehlegger. "Fuel tax incidence and supply conditions." *Journal of Public Economics* 95.9 (2011): 1202-1212.

⁴ Despite the historical tendency in cap and trade markets to award emissions allowances proportionally to emissions, several papers have concluded that this likely amounts to overcompensation of the affected industries. Bovenberg and Goulder ("Neutralizing the Adverse Industry Impacts of CO₂ Abatement Policies: What Does It Cost?" In *Behavioral and Distributional Effects of Environmental Policy*, edited by Carlo Carraro and Gilbert E. Metcalf, 45-85. Chicago: University of Chicago Press. 2001) and Goulder, Hafstead, and Dworsky ("Impacts of alternative emissions allowance allocation methods under a federal cap-and-trade program." *Journal of Environmental Economics and Management* 60 (3): 161-81. 2010) utilize general equilibrium models to assess the likely impacts of a carbon tax and various cap-and-trade policies on a wide set of industries. Burtraw and Palmer ("Compensation rules for climate policy in the electricity sector." *Journal of Policy Analysis and Management* 27 (4): 819-47. 2008) simulate the US electricity sector under potential cap-and-trade scenarios. All these studies find that for many industries, compensation of less than 20 percent of emissions would offset the profitability impacts of regulation. Empirically, Bushnell, Chong, and Mansur (Profiting from Regulation: Evidence from the European Carbon Market, *American Economic Journal: Economic Policy*, 5(4): 78-106. 2013) found that share prices of the most carbon intensive publicly traded companies declined when the EU carbon price dramatically fell in 2006.

allowance) value. Where ERUs are only produced by covered entities, and not held by the State or regulator, such a transition approach becomes much more complex, if not impossible.

One area in which the rule does apply some transitional changes is in the treatment of Energy Intensive Trade Exposed industries. Firms in these industries will have their reduction pathways calibrated to their ongoing local production of their goods. As explained below this approach greatly dilutes the impact of ERU prices on the perceived cost of local production, however this dilution does diminish over time as the efficiency improvements that firms are required to make under this program grow. While this partially phases out the beneficial treatment of EITE industries over time, as discussed below, the treatment overall is relatively generous to several industries compared to other EITE programs.

II.d. Cost containment

The latest version of the rule creates an independently controlled reserve of ERUs, however it does not appear that this reserve would be utilized for purposes of formal cost-containment. In cap-and-trade markets such as the Western Climate Initiative (currently California and Quebec), prices are constrained in the upward direction by the holding of a reserve of additional allowances that are made available only when prices reach a price-containment threshold level. The revised regulation would establish a modest ERU reserve, but it appears it would not be used explicitly for purposes of cost containment.

The lack of explicit price containment in the proposal would be much more concerning if not for the fact that the proposal also allows the use of allowances from an outside “established multisector GHG emission reduction program,” where those programs’ rules permit, as a substitute for ERUs. Such “one-way” linkage would likely provide a rather robust ceiling on Washington ERU prices. Note, however, that the proportion of compliance that can be covered through such imported allowances declines over time (from 100% initially to 5% in 2035 and beyond); likewise there are limits on use of imported allowance by year the allowances are generated. Both could have the effect of diluting the robust ceiling on ERU prices.

However, there is no equivalent mechanism for placing a *floor* on ERU prices. Emission price floors are in general enforced through the withholding of tradable program credits (ERUs or other instrument) from the market when prices drop below a minimum level. Since there is no central control over the supply of ERUs in a basic cap-and-reduce approach, the only way to support a price floor would be a standing offer from the State or some other entity to buy ERUs at a given price. Such a policy would be revenue *negative* and therefore likely impractical.

Given the ERU framework, some justifications for a price floor (e.g., any revenue concerns) may not apply, but it is worth noting that the stability of a carbon price is

considered a beneficial attribute for promoting investment and long-run planning in emissions reductions.⁵

II.e. ERU "Reserve"

As we understand it, the reserve mechanism in the proposed regulation appears to be primarily targeted to two purposes; addressing excess ERUs created through certain investment activities (a topic discussed further below), and creating a fund to provide ERUs to facilities that reopen after curtailment and for Environmental Justice investments. However, it is difficult to know whether the reserve fully addresses the situation of an ex-post determination that too many ERUs were awarded. If the reserve is meant to claw back "excess" ERUs, it would have to sufficiently populate the reserve from reductions exceeding the originally required 1.6667% per year. The revised rule allocates to the reserve ERUs equivalent to 2% of "each party's emission reduction pathway annual decrease." This accounts for the difference between the originally proposed 1.6667% decrease and the new 1.7% reduction requirements. The proposed rule is unclear about how these ERUs are procured or produced, but it does not appear to be a "tax" on generated ERUs that would only apply to the fraction of a facility's emissions in excess of or below the emission pathway. Our interpretation is that, instead, these ERUs will in effect be generated by the state in amounts equivalent to 2% of all firms' reduction requirements.

If this is a correct interpretation of the proposal, retiring ERUs from the reserve would decrease total emissions relative to the original proposal only if the 2% reserve is larger than the possible sources of excess emissions. The reserve also appears to create emissions "headroom" for start-up of curtailed or new facilities, although the headroom could be reduced through state action if the ERUs generated from investment activities were judged to be duplicative.

III. Incentive features of the regulatory design

The proposed regulation has several potential incentive effects on covered and uncovered parties. For the portion of the system functionally equivalent to fully grandfathered cap-and-trade, the proposal provides incentives to covered firms to either reduce emissions (if abatement costs are below ERU prices) or purchase ERUs (if costs are above). Through these incentives, the system allows covered

⁵ See Aldy, Joseph E., Alan J. Krupnick, Richard G. Newell, Ian W.H. Parry, and William A. Pizer. "Designing climate mitigation policy," National Bureau of Economic Research Working Paper #15022, June 2009, and Burtraw, Dallas, Karen Palmer, and Danny Kahn. "A Symmetric Safety Valve." Discussion Paper 09-06. Washington D.C.: Resources for the Future. The merits of cost-containment are also discussed at length in Borenstein, Bushnell, Wolak, and Zaragoza-Watkins, "Report of the Market Simulation Group on Competitive Supply/Demand Balance in the California Allowance Market and the Potential for Market Manipulation," June 2014.

entities to allocate responsibilities for abatement in a decentralized fashion which, absent other distortions, can produce an efficient distribution of abatement responsibilities. As described above, such incentives are at the heart of a cap-and-trade program. This regulation captures and implements this key element for existing covered entities. However, the regulation does raise several potential incentive issues worth considering not usually of concern in a standard cap-and-trade regime, in the overlap of alternative ERU generation activities and covered sectors, the emissions pathways for EITE industries, the emissions baselines for non-EITE industries, and treatment of newly covered entities and voluntary participants.

III.a. Alternative ERU generation activities

A prominent feature of this proposal that is unusual in the context of most cap-and-trade programs is the ability to generate ERUs through investments that would reduce emissions from other activities, from both sectors already covered under facility-level caps and elsewhere. Activities in cap-covered sectors include investments in energy efficiency, renewable electricity generation, and transportation efficiency programs. Emissions from the electric, natural gas, and transportation fuel sectors will incur additional costs stemming from the responsibilities to reduce emissions in these sectors. Absent additional incentives, these costs are normalized and directly comparable across sectors as a \$/ton of emissions costs, by virtue of the ability to trade ERUs. This normalization of emissions costs across sectors is one of the most important benefits provided by emissions trading programs. The combination of compliance flexibility and trading leads to a transparent price of carbon against which all industries can plan their abatement decisions. If one industry has access to lower cost abatement options than others, the ERU trading system would both reward that industry and ensure that these most efficient compliance options are pursued.

However, with the presence of the alternative ERU generation options, certain industries and activities could receive greater, possibly multiples, of value than others, even if they lead to equivalent GHG reductions. For example, within the ERU framework, a vertically integrated electricity utility would have an incentive to reduce emissions from fossil generation sources within the state in order to generate ERUs. By investing in, for example, energy efficiency, such a firm could earn the full value of an ERU, and should choose to pursue such investments if their costs to do so were less than or equal to the value of an ERU. However, with the provisions for investment in emissions reductions activities, the utility would generate ERUs first by reducing its fossil generation, and *again* through the investment provisions. In other words, the same investment could generate twice the ERUs, and the utility would be willing to pursue such activities *even if their cost exceeds the ERU price*. This means that other, lower cost sources of abatement (that would have supplied ERUs to the market) would be underutilized in favor of the types of investments benefiting from multiple valuation. This example highlights the case of an approved alternative ERU investment in a cap-covered sector. Other

investments identified on the list of approved activities for alternative ERU generation (outside capped sectors) would also benefit.

One of the great strengths of a cap-and-trade program is that it provides incentives to explore and innovate in new and unforeseen methods of emissions reductions. By allowing the trading of emissions reductions, the basic Washington program provides similar incentives. However, by pre-specifying the types of activities capable of generating ERUs (in sectors with industries under the cap or elsewhere), this program tilts strongly toward those specific activities. As a consequence, it could well stifle initiatives to pursue abatement options not on the list. At the extreme, this aspect of the program could dominate, which could lead to a situation much like a traditional regulatory approach that simply mandates pre-selected types of activities for extra bonuses, albeit with some market-based competition amongst those activities: effectively a variation on a more traditional command-and-control regulation implemented via a market-based system.

By stifling the incentive to innovate, Washington may also forgo the opportunity for its business community to develop unforeseen pathways for emissions reductions that could become models for abatement activities beyond its borders. Given the relatively small GHG footprint of Washington, this potential external leveraging constitutes an important and potentially more consequential factor in the long run than the specific reductions achieved through the activities identified through this investment program.

III.b. GHG Emission Reduction Pathways for Energy Intensive Trade Exposed Industries

Another important element to the rule is the system for supporting energy intensive and trade exposed (EITE) industries. The rule sets a separate reduction pathway formula for firms in EITE industries, with the aim of removing any incentives from the rule to move production outside the jurisdiction. These pathways are proposed as a function of the average production (of goods) of that firm over the previous compliance period, plus two measures based on production in the baseline period (see III.c., below on baseline-setting).⁶ In this way, higher production in one period is rewarded by a higher pathway (cap) in the subsequent period. This design is an innovative adaptation of the concept of allocation of cap-and-trade allowances through *output-based updating* that has been applied to EITE industries elsewhere, such as California. Output-based updating helps insulate local firms from emissions costs, and provides them with incentives to maintain local production rather than shift production to uncapped regions.

However, it is important to note that output-based updating also distorts the abatement and pricing decisions of the firms that have access to it. Indeed, these

⁶ The two measures, calculated for 2012-2016, are: i) an output-based baseline emissions per unit of production and ii) an “efficiency reduction rate” that varies depending upon the facility’s efficiency performance relative to its industry average.

distortions are an intended consequence of the allocation method. In theory, methods like these provide incentives to reduce emissions through changes in process (or efficiency improvements) but not through the reduction of production. However, when there are few options for reducing GHG emissions without reducing production, output-based updating essentially just dilutes the signal provided by the ERU price.⁷

Two specific elements stand out as departing from previous applications of output-based updating: the benchmarking of emissions to specific facilities and the amount of allowances to be awarded through this process. All systems that link allocation to production across several industries must benchmark the performance of firms in some way. A standard approach has been to apply an industry average emissions rate that would then be multiplied by a firm's production to derive the emissions baseline upon which allowances might be awarded.

The proposed rule would instead benchmark each facility to *its own* emissions rate, and benchmark required emissions reductions to the facility's position vis-à-vis an industry average efficiency rate. In this way dirtier, less efficient facilities will receive proportionately higher reduction pathways than more efficient firms in the same industry, even though they will also be required to improve efficiency more. This is not just an issue of fairness. Dirtier firms will be rewarded proportionately more per unit of *ongoing* production than cleaner ones. This greatly reduces, if not eliminates, the incentive to achieve sector level emissions reductions by shifting production from less efficient facilities to cleaner, more efficient ones. The efficiency reduction rate, which applies more aggressive reduction rates to dirtier firms, offsets this to some extent, but an empirical analysis would be necessary to fully understand the degree to which the reduction rates counter the effect of facility-level benchmarking of allowable emissions based on recent output. Since the reduction rates will be the same for all firms in a sector that fall within the 25th and 75th percentile of that sector's industry efficiency distribution, the reduction rates would not counter the effects of benchmarking to facility-level emissions rates at all. The degree to which this may matter will depend upon how wide the distribution of efficiency is for a sector, which will in turn reflect how different firms within the 25th to 75th percentile are.

The second issue relates to the identification of EITE industries and the benefits to them awarded through this process. We note that the traditional approach for identifying EITE industries based upon a threshold measure of energy or emissions intensity combined with a threshold of import or export activity has come under increasing scrutiny as overly simplistic. The California Air Resources Board is currently re-examining this EITE criterion as part of a review of its cap-and-trade program. The key measure of interest is some form of "leakage elasticity" that

⁷ In the extreme case where all firms are receiving allowances under output-based updating, the dilution of the incidence of allowance prices leads to an inflationary effect on the allowance price itself, as noted in Böhringer, Christoph, and Andreas Lange. "Economic implications of alternative allocation schemes for emission allowances." *The Scandinavian Journal of Economics* 107.3 (2005): 563-581.

would capture how much production would shift in response to an environmental charge, combined with the emissions intensity of production in the regions where production might be leaked to.⁸ Traditional metrics provide a snapshot of intensity and cross-border trade, but do not examine how sensitive trade actually is to domestic production costs. More recent research has been applying proxy measures for emission costs, such as natural gas or oil price fluctuations, to measure the sensitivity of local production and product prices to local costs.⁹ While results vary, they imply that industries are less sensitive to local costs than suggested by traditional EITE metrics, such as the one developed for the Waxman-Markey federal legislation.

In addition to the method for identifying the industries most at risk of leakage, programs such as California's cap-and-trade program moderate the magnitude of the reward given for local production through their EITE process. Only the most exposed industries qualify for awards that are roughly as generous as those proposed for all industries on the EITE list under the Washington proposed rule. Other industries in the medium to low leakage risk categories receive allocations that are tapered down to 75% or 50% of their ongoing benchmarked emissions level.¹⁰

To summarize, providing rewards that are proportional to local output is an established method for protecting energy-intensive trade exposed industries. However, more recent analysis has indicated that rewards limited to relatively small fractions of ongoing emissions are sufficient incentive to prevent emissions leakage. The combination of facility-level benchmarking and a reduction pathway benefit proportional to 95-100% of ongoing emissions can dilute the impact of the regulation on these industries and skew incentives for reductions even within a specific industry.

III.c. Baseline calculation for non-EITE industries

For non-EITE industries, the proposed regulation would use the average of 2012-2016 emissions as the going-forward baseline for facilities that have been monitored through that time span.¹¹ (Thus, the full allocation in the cap-and-trade equivalent would be based essentially on grandfathered output.) While the desire to apply the most recent and accurate information is understandable, the inclusion of 2016 complicates the incentives of firms during the course of 2016: it would allow firms to benefit from arbitrarily increasing their emissions during the current year

⁸ Fowlie, M., Reguant, M. and S. Ryan. "Measuring Leakage Risk." May 2016. Available at <http://www.arb.ca.gov/cc/capandtrade/meetings/20160518/ucb-intl-leakage.pdf>

⁹ Grey, W., Linn, J. and R. Morganstern. "Employment and Output Leakage Under California's Cap and Trade Program." Final Report to the California Air Resources Board. May 2016.

¹⁰ California Air Resources Board. "Proposed Regulation to Implement the California Cap-and-Trade Program Initial Statement of Reasons. Appendix J: Allowance Allocation."

<http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appj.pdf>

¹¹ For EITE industries, the baseline metric is average emissions per unit of production in 2012-2016.

as it will earn them higher facility-level emission targets in future years.¹² While the proposal does include some protections against this if it results in emissions that can be detected and omitted by Ecology under the rule, the Department may want to consider eliminating 2016 from its baseline calculations.

III.d. New and voluntary participants

Because participation in this regulation allows for the production of possibly valuable ERUs, firms and facilities with low cost abatement options may find early entry into this program attractive. In the same vein, however, firms whose plans may *already* involve a reduction in their GHG emissions could also find voluntary or early entry into the program attractive. Thus the program would reward emission reductions that were already planned. There was a similar experience in the U.S. SO₂ cap-and-trade program, where research has demonstrated that early participants in that program were likely to have reduced their emissions for other reasons.¹³ The incentive problem, a form of what economists call adverse selection, is very similar to that found in carbon offset programs.

Those who may act to become regulated have an information advantage in that they have a better expectation of their future emissions than does a regulator, who is in effect using historic emissions as a proxy for expected future emissions. If a firm expects its emissions to fall (because of planned fuel switching, efficiency improvements, or just downsizing) below its historic average, it can profit by joining this program. If it is planning on expanding business, it would likely prefer to stay out of the program. If half of all firms fall in the first group, and the other half in the second, then the population of facilities joining the program will be skewed toward those already planning to downsize.

Under a conventional cap-and-trade program, this is usually not a problem, as new firms would not be allocated their historic emissions. This was an issue for the U.S. SO₂ program, another program that primarily allocated allowances based upon historic emissions ("another," since, as described above, this program essentially replicates full grandfathered allocation).

IV. Considerations for operation and transparency of an ERU market

¹² Similarly, EITE industries could influence their 2016 efficiency levels to affect the calculation of their subsequent reduction pathways.

¹³ Montero describes the adverse selection experienced by the voluntary nature of aspects of the US SO₂ program (Montero, Juan - Pablo. "Voluntary Compliance with Market - Based Environmental Policy: Evidence from the US Acid Rain Program." *Journal of Political Economy* 107.5 (1999): 998-1033. Many of these features are analogous to the concern with non-additionality in emission offset programs (Bushnell, James B. "The economics of carbon offsets." *The Design and Implementation of US Climate Policy*. University of Chicago Press, 2011. 197-209.)

Since the State has no role in either the production or sale of Emission Reduction Units, it appears that the formation of market platforms for facilitating the sale of ERUs would be left to private market actors. This has been the case for other environmental regulatory instruments, such as the low carbon fuel credits under California's Low Carbon Fuel Standard (LCFS) and similar instruments under the Federal Renewable Fuel Standard. In all these cases, flexible compliance is implemented through the generation of credits by firms who overcomply.

IV.a. Liquidity and transparency

While there are distinct benefits that can be provided by private brokers, there are potential costs in transparency and liquidity from the absence of a publicly sponsored marketplace. One additional benefit provided by periodic allowance auctions is that, when sufficiently active, they provide a clear signal of the market value of the underlying emission instrument.

The proposed system would not require an auction (typically used to inject State-generated ERUs into the market), since there would be no ERUs created or held by the State. However, there could be a benefit to a publicly created and hosted market platform, run either as a double auction¹⁴ or simply a bulletin board. In the absence of such a platform, transaction costs for smaller entities would be higher, and compliance costs more uncertain. To the extent that such a platform attracts a large portion of overall ERU trade, it would also provide a valuable source of market data to the regulators, and potentially, through reporting, to the public, thus reinforcing market transparency.

IV.b. Three-year compliance windows

The regulation proposes a now near-standard three-year cycle for compliance. Firms would have up to three years to acquire and provide ERUs to match any emissions above their target levels. This raises two potential concerns.

Risks of Default

On the one hand, three years can be too long. A firm could build up an emission deficit for nearly 3 years and use bankruptcy protection to avoid having to acquire ERUs to cover its deficit. In recognition of this problem, California adopted a mechanism in which covered entities must surrender allowances equivalent to roughly one-third of their annual obligation each year. This doesn't eliminate the bankruptcy problem, but does reduce the potential magnitude of a shortfall.

Lack of Borrowing Options

¹⁴ A double auction is an auction in which both buyers and sellers submit bids and offers. Common examples include energy markets run by Independent System Operators.

Under the ERU paradigm, there is a lack of a mechanism for borrowing or the advance sale of future vintage ERUs. While it is relatively straightforward to allow banking of ERUs, it is more difficult to recreate a standard cap-and-trade's ability to borrow them under the cap-and-reduce paradigm, since ERUs are only created when a firm has emitted less than its target. Firms could trade financial derivatives of ERUs, essentially promises to acquire or produce them at a future date, but such derivatives would only be as secure as the financial condition of the counterparty issuing them.

The ability to buy or sell future vintage emissions instruments is valuable for preventing periodic spikes in prices around a transient shortfall of instruments. If there is a boom year in the economy or a shift in electricity generation due to weather, emissions could temporarily rise above target levels. If this happened in the last year of a compliance window, this could leave the market short for that compliance period, even if future emissions were widely expected to be far below targets.

The ability to sell future vintage emissions instruments in advance can also provide a market with an ability to physically hedge its future emissions costs by purchasing instruments in advance. When transparent, sales of future vintages also provide useful information about market expectations of future emissions costs.

As with many other features of the proposed regulation, concerns over the lack of borrowing are greatly mitigated by the ability to procure future vintage allowances from other established markets such as the California cap-and-trade, and apply them to Washington obligations.

IV.c. Concentration of ERU holdings

The relatively small number of firms and facilities initially participating in the Washington program could raise concerns that a small number of firms could control almost all of the available ERUs. If the market is insufficiently competitive, a firm may have an incentive to "withhold" ERUs from the market either by banking them or simply by not reducing its emissions as much as it otherwise would. A firm might find this profitable if, by reducing the supply of ERUs on the market, it can sufficiently raise the price of the remaining ERUs that it is selling. As with the cost containment issue, the proposed one-way linkage with broader carbon markets does much to alleviate the potential for exercise of market power.

V. Summary

The above comments highlight some potential issues with a regulation that, as designed and proposed, contains many of the most critical features of a successful cap-and-trade program. It establishes firm limits on emissions for existing facilities and provides a mechanism through which firms can flexibly comply by either direct reductions or the purchase of ERUs from firms that overcomply. In this way, the

basic ERU paradigm is an elegant design that provides many of the benefits of a cap-and-trade program, without actually being a traditional cap-and-trade design.

However, two elements of the proposed rule may considerably undermine the relatively neutral incentives provided by traditional cap-and-trade programs. The ability of firms to invest in emissions reduction activities not just in uncovered sectors, such as agriculture, but also in covered sectors related to transportation, industrial, and electricity, creates the opportunity to earn leveraged emissions reductions related to certain activities - all the more so if the emissions reduction credits earned due to an activity exceed emissions reductions, as can happen with investments in covered sectors. These activities will be rewarded more intensely than other actions that would produce the same emissions reductions. In this way, the emissions reductions activities aspect of the proposal overcompensates certain activities and can dilute the incentive to experiment with other forms of abatement.

The adjustment of the reduction pathways for EITE industries is motivated by an understandable concern over the potential for leakage (production moving to a non-covered jurisdiction) and associated economic impacts of regulatory costs on certain industries and state-level economic activity. However, the benchmarking of EITE pathways to specific facilities risks overcompensating the least efficient facilities and could largely eliminate the incentive to reduce emissions by shifting production between facilities - an important source of reductions in covered sectors that would thereby go untapped. Also the proportional reward made to EITE industries as a fraction of their ongoing emissions is larger than that seen in comparable programs such as California, which in turn may be larger than is actually necessary to effectively combat leakage.

While the ERU paradigm may be the best that can be achieved within the constraints of the regulatory process, we have highlighted several possible issues with this approach relative to a conventional cap-and-trade design. In general, conventional programs give the regulator and the regulatory system more of a buffer against unexpected outcomes through the centralized creation of emissions allowances that account for all emissions under a cap, rather than the decentralized creation of a more modest amount of emission reduction units. Allowances can be directed at public finance goals, be used to modulate allowance prices, and provide more flexibility to borrow and acquire future vintage emissions instruments. While the proposed ERU reserve may place some tradable credits under the control of the regulator for pre-specified purposes, cost containment does not appear to be one of those purposes. Under the proposed system, the reserve's ability to maintain the overall stringency of reductions is not certain (since legitimate uses could exceed the reserve size). The reserve appears to at least partially address some concerns over the quantity of ERUs available in the market (and of allowable emissions), however it does not appear to impact the incentive issues we have highlighted.

We have also noted the potential challenges facing a relatively small, and potentially illiquid carbon market that could be dominated by a modest number of firms. Both

the lack of liquidity and the potential for market power in emissions reduction units would be of concern if this market were isolated from others.

However, many of these potential concerns are greatly if not completely mitigated by the proposal to allow compliance through the purchase of emissions allowances from other markets. In this way, the regulation allows Washington to benefit from the cost containment, liquidity, and transparency provided by these other markets, without having to duplicate those features within the State. These comments highlight the importance of this element of the proposal, and note that the impact of limiting the use of some instruments moving forward (as a proportion of overall compliance and vintage of allowance generated) should be carefully monitored.

The other remaining major incentive concern is the risk of existing, new or voluntary participants entering the program with non-additional or manipulated baselines. Past experience with similar voluntary provisions in the SO₂ program provides a cautionary tale. The State should examine closely how much potential risk there is for this kind of behavior, and seriously consider options (such as pre-2016 baselines) that can mitigate the risks.



District 12

Robert LaVenture
District Director

Chris Youngmark
Assistant to the Director

Comments of United Steelworkers (USW) District 12
on the
Washington State Department of Ecology's Proposed Clean Air Rule

July 22, 2016

The United Steelworkers (USW) District 12 appreciates the opportunity to offer the following comments on the proposed Clean Air Rule of the Washington State Department of Ecology (DEC).

USW is the largest manufacturing union in North America, representing 850,000 members in the United States and Canada. USW District 12 represents the 11 western-most states on the US, including Washington State. In 2014, USW was an active member of Governor Jay Inslee's 21-member Carbon Emissions Reduction Taskforce (CERT). During that process, USW supported the state of Washington's effort to develop an approach to reducing carbon emissions that simultaneously maximized job creation and job security.

We are still analyzing the rule and the feedback being received by the Department of Ecology during this public comment period, and we do not yet have an official position. But we would like to make clear that today and going forward, we are committed to working with the Governor, with his staff, and with the Department of Ecology to make the Clean Air Rule a model for the rest of the country.

As we have stated in prior communications to Governor Inslee and state officials, USW support for carbon emission policies overall – including the proposed Clean Air Rule – is guided by the principle that Americans deserve both environmental sustainability and economic prosperity. We see that approach as consistent with the preamble of Governor's Executive Order 14-04, "Washington Carbon Pollution Reduction and Clean Energy Action," which states "it is critical to Washington's economic future that greenhouse gas reduction strategies be designed and implemented in a manner that minimizes cost impacts to Washington citizens and businesses." We believe USW's approach is also consistent with the Executive Order's aim to "be designed to maximize the benefits and minimize the implementation costs, considering our emissions and energy sources, and our businesses and jobs."

USW believes we do not have to choose between economic and environmental progress, but that we can and must implement solutions to ensure both. We must therefore chart a policy course that simultaneously achieves science-based carbon reduction targets while creating and securing jobs, including those in the state's existing energy-intensive and trade-exposed manufacturing sector.

Overall, as the Department of Ecology prepares a final rule, we believe the following underlying concepts should be built into any comprehensive policy designed to reduce carbon emissions:

- **Leakage Protection**

We should do everything we can to prevent leakage, the phenomenon whereby production of various goods moves out of state – along with jobs and carbon pollution – to areas with weaker environmental laws. Leakage poses a real threat to job security for USW members. The Clean Air Rule should address and combat leakage to ensure a level playing field between in-state and out-of-state companies and prevent jobs from leaving.

Additionally, Washington should try to harmonize its leakage policies with other states and regions. A regional approach will strengthen our ability to address leakage issues stemming from products imported from states or other countries that lack carbon reduction laws and/or regulations.

- **Complementary Policies that Promote Domestic Content**

As Washington implements the Clean Air Rule to address carbon reduction goals, the state should prioritize complementary policies that promote and maximize the use of domestic content. For example, complementary carbon-reducing policies may incentivize and/or regulate investments in new infrastructure development and/or retrofits including renewable or clean energy, building energy efficiency retrofits (residential, commercial and industrial) and public transportation. Where tax dollars are used, Washington should place a preference on low-carbon-content and domestically-sourced products such as steel and cement for the construction and modernization of infrastructure associated with meeting WA carbon mitigation goals.

In addition, *we urge funding for research to support the study of the carbon footprint of imported goods used for major infrastructure and building efficiency projects.* Research is needed to analyze the costs of those imports (e.g. the carbon emissions associated with imported steel made in highly energy intensive facilities) and the overall environmental benefits of domestically manufactured goods.

- **Compliance Flexibility**

The Clean Air Rule’s carbon reduction program for energy intensive industries should provide regulated parties with the ability to comply with requirements through various means throughout the production cycle of finished goods.

We believe the Department of Ecology has engaged in a good-faith effort to address these and other concerns raised by USW and many of our employers. We thank Ecology for this high degree of responsiveness and we look forward to continued work together to refine and implement the Clean Air Rule so that we achieve the emissions reductions we need and so that we create and maintain family-sustaining jobs.

Sincerely,



Robert LaVenture, District 12 Director
Director

United Steelworkers (USW), District 12



Chris Youngmark, Assistant to the District

- cc. Gaylan Prescott, Sub-director
Roxanne Brown, Assistant Legislative Director
Jim Frederick, Assistant Director, Department of Health, Safety and Environment
Jim Young, Principal, The Labor Institute
Chris Davis, Senior Advisor, Governor Jay Inslee
Steve Powers, Staff Representative
Ryan Meyhoff, Staff Representative

U.S. OIL & REFINING CO.

July 20, 2016

VIA U.S. MAIL & EMAIL

Sam Wilson
Department of Ecology
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Email Submittal: AQComments@ecy.wa.gov

Subject: U.S. Oil & Refining Co. Comments on Washington Department of Ecology Clean Air Rule
(Published as a Proposed Rule on June 1, 2016)

U.S. Oil & Refining Co. (USOR) would like to thank the Department of Ecology (Department) for the opportunity to comment on the newly proposed Chapter 173-442 WAC – Clean Air Rule and amendments to the existing Chapter 173-441 WAC – Reporting of Emissions of Greenhouse Gases rule. The Clean Air Rule, or CAR is a major rulemaking that will directly impact USOR, Washington's only independent domestic, single-state refiner.

For over five decades USOR has operated next to the deepwater Port of Tacoma and grown to become a consistent and important local supplier/producer of petroleum products in the Puget Sound Region. Though USOR is a small refiner¹ it has become an industry leader in the production and supply of high quality motor, aviation and marine fuels and asphalt with a refinery capacity of 42,000 bbls per stream day, and total storage capacity of 2.7 Million bbls. USOR is the State's only 'domestic' refiner with approximately 86% of light oil production being sold into the local south Puget Sound market, compared to the industry as a whole that exports in excess of 50% of production out of WA state. US Oil is the only manufacturer of Asphalt Cement in the state. US Oil has 195 fulltime employees, 67 of whom are represented by the USW. 93.2% of our employees reside in Tacoma, Pierce County, South King and the South Sound Region. In addition to our fulltime employees, the refinery supports over 100 nested contractor personnel, all who are represented by craft unions. During 2015 the refinery's pay roll was in excess of \$20 Million, with payments in excess of \$6.5 million to our local utility providers.

Summary of Comments

As proposed, the Clean Air Rule will have significant and disproportionately negative impacts on USOR. In any rulemaking, considerations must be taking into account for the regulated entities that do not fit neatly within the bands of average. USOR's facility is just such a place. As we will

¹ Small Business Administration definition of a small refiner. EPA small refiner definition under all of the EPA small refiner definitions

highlight below, the USOR facility is unique in a number of factors in the refining sector, including size, location, historic operations, complexity and corporate structure. The CAR's one size fits all approach does not present as proposed a workable solution and must be amended to account for the value an independent refiner brings to the state of Washington and its fuel marketplace. USOR believes the regulation proposed is fundamentally flawed as it favors certain regulated parties over others in ways that reduce the potential environmental benefits.

A prime example of this inherent disparate treatment of market participants is the provision that establishes a two-tier structure for fuel providers that segregates in-state and imported fuel providers in its initial phase. This is a fundamentally unfair market disruptor. In the longer term, the proposed rule regulates all fuel providers with the same broad requirements without taking into account important factors like facility size, ability to achieve on-site reductions, credit for early GHG reduction activities, the ability to export product, or the ability to shift compliance costs throughout its business.

The staff proposal and workshop presentation have outlined the program's features at a very high level. As this is a far-reaching regulation, USOR is still analyzing the full implications and potential compliance strategies of all that was proposed. The following comments focus on a few main issue areas before providing some recommended amendments/solutions:

1. Disproportionate Impact on Small Domestic Refiners
2. Total Program Costs
3. Delayed Entrance of Petroleum Product Importers
4. Local Economic Impacts of Regulation
5. Lack of Credit for Early Efficiency Efforts
6. Coverage of Non-Stationary Source Emissions
7. Regulatory Process Issues

Comment Details

Disproportionate Impact on Small Domestic Refiners

As noted above, independent refiners are disproportionately impacted by this regulation, in ways that are separate and distinct from the in-state and import issue. USOR is not only independent and in-state, but also a small refiner. USOR's facility is "small" in terms of both refining capacity and complexity of the refinery.

Because the complexity² of the refinery is lower than that of the state's other refiners, there are less opportunities for additional on-site GHG reductions, especially after the extensive reduction work already completed. Since the refinery itself produces less overall product, the fixed costs of compliance must be averaged over a smaller volume of products, thus raising the per gallon costs to

² Nelson Complexity Index of 5.2

USOR more than to others. Included as an enclosure to this letter is a bubble chart that compares USOR to other in-state refineries when comparing relative refinery complexity versus refinery GHG emissions.

Another inherent aspect of USOR's operation that the Department should understand is we are positioned and have developed and expanded over the past 5 decades to meet the local organic volume growth of the South Puget Sound. USOR's property size does not support increasing the complexity of the refinery nor does it support additional tankage assets necessary to expand and develop our export capability. Further, we do not have assets in other markets to take advantage of additional exports outside of WA. The export business is simply not an option from an economic and reality standpoint. This is in contrast to the other refiners in the state that are already set up to export as a regular part of their business, thus they have the option to reduce their compliance obligation through exports.

These issues are individually significant, but when taken together, the effect is even greater. None of these effects are addressed in the rule provisions, nor analyzed by the Department.

Total Program Costs

The costs of this proposal to USOR will be substantial and will come in several forms, including direct GHG reduction efforts, the economics related to imports not being regulated, potential costs associated with funding GHG reduction projects or obtaining emission allowances from other jurisdictions, and additional required professional services. These costs cannot all be passed along to the end customers, and therefore will impact USOR's viability as they are required to grow year over year.

Looking at just the direct cost of obtaining external emission allowances,³ the costs quickly rise to the millions of dollars a year and eventually grow to tens of millions annually. Even this estimate is considered to be on the low end of the published cost projections, and it is natural to believe prices will not stay at the low end indefinitely. These are significant dollars that cannot otherwise be spent on employees and other improvements to the USOR facility. These costs will not be absorbable.

As a small independent refiner, USOR does not have upstream or downstream assets to which a cost shift could take place. Because USOR is the only independent in-state refiner with its head office in Tacoma, Washington, it does not have the market power to set its price to include the complete range of costs imposed by this rule.

The Department should include provisions which acknowledge independent in-state refiners and reduces the compliance burden or provides additional compliance flexibility.

³ Dept. of Ecology's Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis Dated June 2016, Publication No. 16-02-008.

Delayed Entrance of Petroleum Product Importers

Even with the actual economic cost to comply not fully provided, it is known that the costs will be substantial—except for importers of fuel in the first three years of the program. USOR strenuously objects to the Department hardwiring into the law an economic playing field that disfavors Washington domestic fuel producers who are unable to take advantage of the manipulation invited by the proposed structure of the system.

The difference between having a carbon cost associated with your product and being temporarily exempt is not only material, but is also a legitimate business equity issue. Creating a wholesale cost differential will lead to a shift in market share. But more importantly within the program, an exemption for importers will lead to product shuffling (i.e. more fuel will be exported, only to be offset by other fuel imported back into Washington probably by the same parties that exported fuel to avoid the economic cost of compliance with the CAR).

USOR refers to this practice as the “Oregon Shuffle”. The Oregon Shuffle will not only have negative economic impacts on USOR but also undermine the programs goals.

If the Department needs extra time to fully understand the emissions profile of the State’s fuel importers, then the entire regulation should be delayed until an internally consistent set of rules can apply to all entities competing in the same marketplace. Even if it were assumed that 100% of the program costs will be passed on to consumers, which it can’t be, in-state single source producers without the ability (and/or existing infrastructure) to commence export easily and offset those exports will exacerbate an unbalanced marketing position (yet exporting simply moves the GHG’s associated with those fuels to other jurisdictions).

Local Economic Impacts of Regulation

It had been shown that Washington refineries provide a 12.88 times job multiplier in local economies and that the industry as a whole produces hundreds of millions of dollars in fees and taxes.⁴ These multiplier effects create a ripple effect which includes local payroll, contractors, and others who interact daily with USOR. For example, in 2014 U.S. Oil employed 115 full time equivalent contractor personnel at a cost of \$11.1 Million. During 2015, this number increased to 320 full time equivalent contractor personnel at a cost of \$30.7 Million. In addition, USOR paid a total of \$3.8 Million in B&O, Environmental, Property and sales taxes in 2014 and again in 2015.

Lack of Credit for Early Efficiency Efforts

The rule provides for an inflexible baseline calculation methodology that does not allow for credit to be earned for projects completed in the last few years. USOR recently spent a considerable amount of capital to improve the efficiency and reduce the GHG profile of the facility. Since 2015 we have completed onsite facility emission reduction projects that will achieve a 30% reduction in our annual GHG budget. This level of reduction is on par with the goals of the rule.

⁴ Washington Research Council--THE ECONOMIC CONTRIBUTION OF WASHINGTON STATE’S PETROLEUM REFINING INDUSTRY IN 2013

Without some flexibility to count early GHG reduction actions, the Department is penalizing early actors by not recognizing real, permanent additional and cost-effective emission reduction. USOR suggests that the final rule provide language incorporating some limited flexibility on this issue.

Coverage of Non-Stationary Source Emissions

A basic tenet of most environmental regulations is that the regulated party should have the ability to control or reduce the pollutant of concern that is being regulated. The CAR places the responsibility to reduce the emissions associated with market demand on USOR. USOR can only control its facility emissions, it cannot control the emissions associated with the end use of its products. The law of supply and demand is central to USOR's business model in that we only seek to serve the demand brought to us by our customers.

Reducing the amount of petroleum-based fuel in the state should not be the responsibility of fuel providers. If the state wants to achieve that policy goal, then either regulatory or incentive programs should be crafted to achieve that goal directly at the consumer level. The current rule places an obligation on the supply side of the equation, not the demand. As customer demand increases, the burden to comply grows in both severity and costs.

Regulatory Process Issues

The Department has publicly stated this rule will be adopted in September of this year, and that any material changes to the draft rule would cause an unacceptable delay. This is a very significant rule whose draft language is being proposed as final language. Washington law requires an open and transparent public process without a preordained outcome. Each comment above highlights the significant nature of this proposal and having only a three month public process in which suggested changes are not seriously considered creates a likelihood of rejection by the Courts. This regulation will impact regulated parties for the next two decades and getting it right is far more important than rushing it through a flawed process.

Having a start date of 1/1/2017 does not provide any time to make reduction adjustments especially considering the uncertainties associated with available out of state credits from California or elsewhere. The California Air Resources Board is currently deferring finalizing any policy decisions regarding the export of California credits to at least March 2017. Further, we will not know the full extent of our baseline (and associated GHG emissions) for 2016 until we submit our reports to EPA and the Department by March 31, 2017. From a business perspective, we need regulatory certainty in order to make critical business decisions.

The CAR should contain an economic hardship exemption, or other provision for review of a petition for relief. California's national leading program is based on Legislative authority under AB 32⁵ which specifically acknowledges the impact of GHG programs and provides for an off-ramp if the

⁵ Assembly Bill 32 (Nunez, Passed in 2006)

Sam Wilson
Washington Dept. of Ecology
July 22, 2016
Page 6

impacts to the economy are too great a burden. The Department should provide a mechanism for temporary relief, or at a minimum include cost-containment provisions, in this area.

USOR respectfully provides these comments within the public process in the hope that changes can be made prior to implementation. We look forward to continued dialogue on this matter. In the interim, if you wish to discuss these comments, please contact me at (253) 680-3243 or via email at Cameron.proudfoot@usor.com.

Respectfully submitted,

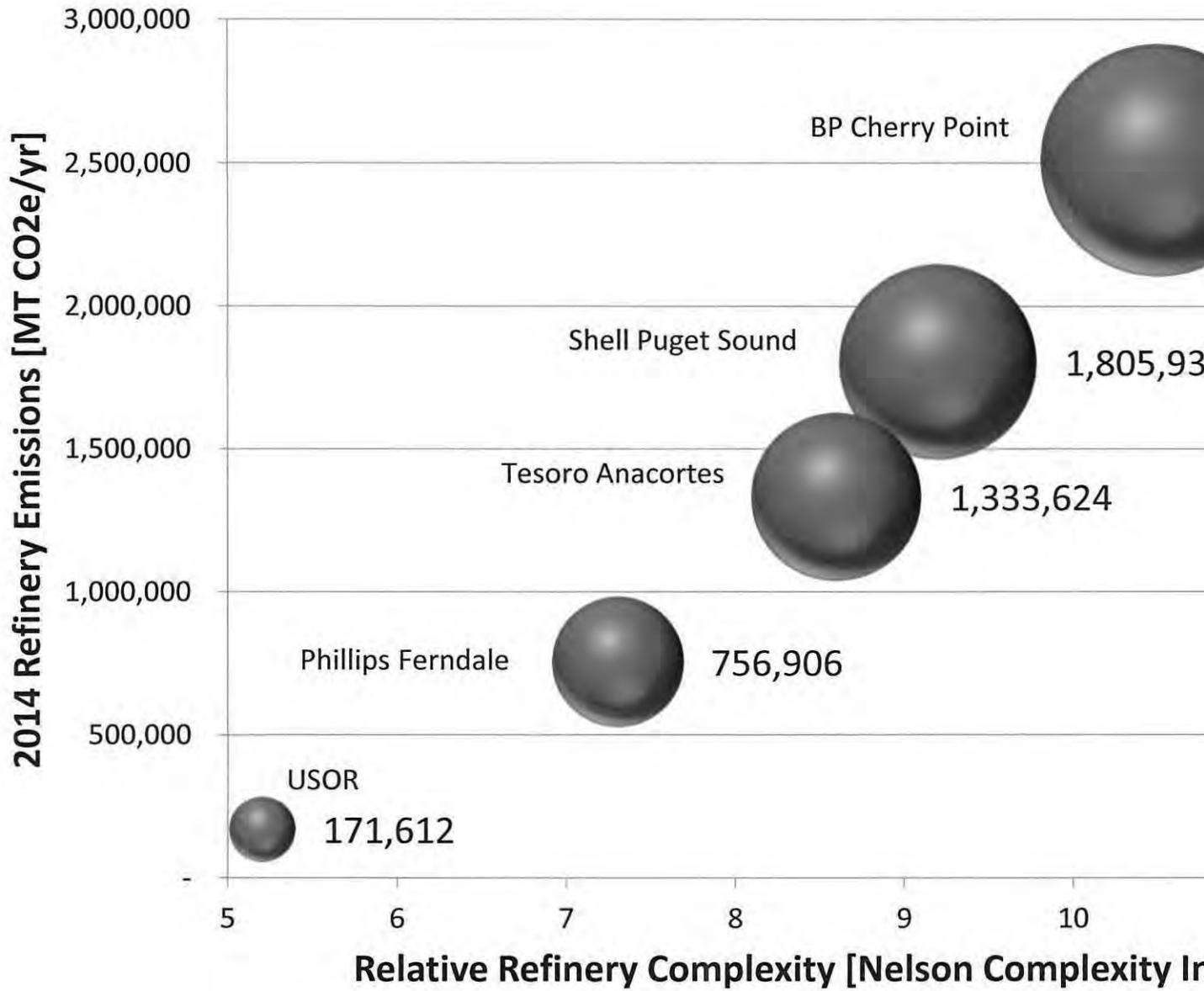
A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Cameron Proudfoot

Enclosure

F:/grp/eh&s/documents/tjg/tjg16016.doc

Comparison of WA Refiners



Hanford Site Comment on the proposed WAC 173-442 Clean Air Rule

The U.S. Department of Energy (USDOE) is responsible for environmental remediation of the Hanford Site, an approximately 560 square mile facility located in southeastern Washington State. The Hanford Site has an Air Operating Permit, issued by the Washington State Department of Ecology, pursuant to the Washington Clean Air Act (Chapter 70.94 of the Revised Code of Washington) and Operating Permit Regulation (WAC 173-401). The Hanford Site, pursuant to the Reporting of Emissions of Greenhouse Gases (WAC 173-441), reported that the total Greenhouse Gas emissions for the Hanford Site for Calendar Year 2014 was 15,792 metric tons of carbon dioxide-equivalent.

During the 1980's various events and decisions made Hanford subject to Environmental Regulations. The USDOE, the U. S. Environmental Protection Agency, and the State of Washington Department of Ecology signed a comprehensive cleanup and compliance agreement on May 15, 1989. The Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement (TPA), is an agreement for achieving compliance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) remedial action provisions and with the Resource Conservation and Recovery Act (RCRA) treatment, storage, and disposal unit regulations and corrective action provisions. More specifically, the TPA 1) defines and ranks CERCLA and RCRA cleanup commitments, 2) establishes responsibilities, 3) provides a basis for budgeting, and 4) reflects a concerted goal of achieving full regulatory compliance and remediation, with enforceable milestones in an aggressive manner.

The TPA is a legally binding agreement consisting of 2 main documents.

1. The "Legal Agreement" itself which describes the roles, responsibilities and authority of the three agencies, or "Parties", in the cleanup, compliance and permitting processes. It also sets up dispute resolution processes and describes how the agreement will be enforced.
2. The "Action Plan" to implement the cleanup and permitting efforts which includes milestones (in Appendix D) for initiating and completing specific work and procedures the three agencies will follow.

In 2007, it was clear USDOE could not meet some of the deadlines in the TPA. The Tri-Party agencies began negotiations for new milestones for:

- Building and running the Waste Treatment Plant.
- Retrieving waste from single-shell tanks.
- Cleaning up contaminated groundwater.
- Preparing a life-cycle scope, schedule, and cost report.

In the negotiations, the agencies reached alignment on many issues. After the consultations with tribes and stakeholders, the TPA agencies continued negotiations but were unable to reach final agreement. As a result, the state of Washington filed a lawsuit against USDOE in November 2008. Soon after that the TPA agencies restarted negotiations and successfully resolved the remaining issues. The result of their efforts was a Consent Decree issued by the United States District Court, Eastern District of Washington, and changes to the TPA. That Consent Decree was amended in early 2016 by the Court and establishes new deadlines for the construction, commissioning, and startup of the Waste Treatment Plant (WTP), as well as continued retrieval of waste from Hanford's single-shell tanks.

There are approximately 54 million gallons of mixed chemical and radioactive waste currently stored in Hanford Site single-shell and double-shell tanks. The WTP, with support facilities, will vitrify (turn to glass) the tank waste into a solid and stable form for permanent disposal. The WTP and support facilities, at full operational capacity, may emit over 150,000 metric tons of carbon dioxide equivalents (CO₂e) per year. Due to the size, complexity, and scope of this first of a kind multi-billion dollar mixed radioactive waste facility, it may not be possible from an engineering, design, and operational basis for the WTP and support facilities to reduce greenhouse gas emissions without reducing the WTP waste processing capacity. Reducing processing capacity would slow remediation of waste from tanks well past their design life, as well as jeopardizing the Hanford Site's ability to meet the important deadlines set in the Consent Decree and the TPA.

Offsetting emissions by obtaining emission reduction units or by sponsoring projects that permanently reduce carbon pollution may not be a viable option either unless the United State Congress appropriates additional funds. Seeking even higher appropriations would be a significant challenge and one beyond USDOE Hanford's ability to control.

- For these reasons, USDOE proposes that Ecology exempt from the proposed Clean Air Rule section WAC 173-442-030(2) (d) Emissions from the U.S. Department of Energy Hanford Site.

You may contact Bryan Trimmerger, U.S. Department of Energy – Office of River Protection at 509-376-2674 if you have any questions.

Wilson, Sam (ECY)

From: David M. Ogrodnik <dmo@uw.edu>
Sent: Thursday, July 21, 2016 3:54 PM
To: ECY RE AQComments
Subject: University of Washington Seattle Campus -- Comments to Proposed Chapter 173-442 WAC, Clean Air Rule (May 31, 2016)

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon.

The University of Washington Seattle Campus (UW) has reviewed Chapter 173-442 WAC, Clean Air Rule, Unofficial Proposed Rule, dated May 31, 2016; and has the following comments:

- The regulation uses the terms: “external emission markets”, “external registry program”, “external GHG emission reduction programs” and “external program”. Consider defining the term “external”.
- Consider defining the term “allowance”.
- The UW is likely to exceed compliance thresholds beginning compliance year period 2026-2028. The UW generally agrees with the concept that emission reduction units (ERUs) must originate from GHG emission reductions occurring within Washington, unless derived from allowances under WAC 173-442-170 [WAC 173-442-100(2)]. However, the UW proposes that all covered parties be exempt from the proposed limitations on the use of allowances [WAC 173-442-170] should the market rate cost for in-state ERUs exceed the national market rate cost for allowances by 10%. This proposed exemption would: 1) achieve equivalent environmental benefit, and 2) ensure that monies spent to reduce GHG emissions are actually reducing emissions in a cost effective manner.

Thank you.

DAVID M. OGRODNIK, P.E., LEED AP
Facilities Project Engineer - Environmental
Facilities Services, Campus Engineering

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W UNIVERSITY of WASHINGTON



July 22, 2016

Ms. Sarah Rees, Special Assistant Climate Policy
Mr. Stuart Clark, Air Quality Program Manager
Mr. Bill Drumheller, Climate & Energy Specialist

Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

RE: Comments on Clean Air Rule Language and Implementation

Dear Ms. Rees, Mr. Clark, and Mr. Drumheller:

We appreciate receiving feedback on June 13th from the Department of Ecology team regarding our initial inquiry on the treatment of sequestration, advanced wood products, and standards for Emission Reduction Unit (ERU) generating activities under the Draft Clean Air Rule. After careful review of this correspondence (Addendum 1), along with the draft rule language, we submit the following comments.

The Washington Business Alliance is a statewide business organization with a forward-leaning and issue-focused approach to solving our state's most critical problems. Our Low Carbon Prosperity project has brought together business and environmental stakeholders to propose balanced and effective policy solutions. Most recently, we led the discussion on an alternative to Initiative 732 during the 2016 Legislative Session. More information on our work is available online at planwashington.org.

Comments & Recommendations

1. Leverage forestry assets to generate ERUs. Washington State can leverage its substantial forestry assets to sequester carbon through enhanced forest management practices and advanced wood products. From the standpoint of both carbon reduction and economic vitality establishing a new carbon credit market that does not recognize this potential is a missed opportunity. This is particularly true for rural natural resource based economies. U.S. forestry activities that result in improved forest management are eligible to generate credits under the California Cap-and-Trade Compliance Offset Program.¹ A more robust approach designed to the specific conditions and realities of Washington State would recognize the benefit of maintaining working forests as a reasonable market driven approach to carbon mitigation. The previously introduced "Carbon Pollution Accountability Act" more closely aligned with these principles and strategies.² Sections 9 (Offset Credits) and 16 (Economic Opportunities for Washington Forestry and Rural Communities) are of particular relevance and are reproduced in full at the end of Addendum 2.

¹ <http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm>.

² SB 5283: <http://apps.leg.wa.gov/billinfor/summary.aspx?bill=5283&year=2015>.



2. Consistency across ERU compliance categories. The types of activities that are eligible to generate ERUs should be made as consistent as possible across the three compliance categories: allowances, in-state ERU generating activities, and on-site projects. For example, while out-of state sequestration projects recognized by California's AB32 can generate ERU credits as an allowance, in-state sequestration projects are not considered an ERU generating activity. Further, while on-site projects related to carbon-capture-and-storage (CCS) can generate ERU credit, based on our interpretation an off-site CCS project cannot generate the same ERU credit. If post-combustion removal is eligible under one of the three categories it should be extended to other categories as well.
3. Inclusion of upstream and downstream benefits. Reasonably ascertained and substantial upstream or downstream benefits should be accounted for. RCW 70-235-20 (3) states “Except for purposes of reporting, emissions of carbon dioxide from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals shall not be considered a greenhouse gas as long as the region's silvicultural sequestration capacity is maintained or increased.” In our view this assumption is based on an implicit and logical life-cycle basis that does not require a rigorous life-cycle analysis. Likewise other technologies can show similar upstream or downstream benefits. A corollary benefit of including enhanced forest management and advanced wood product use as an ERU is maintaining or increasing silvicultural sequestration capacity.
4. Inclusion of displacement benefits. Categorically ruling out upstream or downstream benefits (e.g., advanced wood products) is not consistent with the protocols referenced in the rule. Displacement benefits are allowed to generate ERUs in some circumstances. For example, the Improved Efficiency of Vehicle Fleets protocol from the American Carbon Registry³ listed in WAC 173-442-160 (3)(a)(i), calculates credit based on the displacement benefit of one type of technology (a more efficient vehicle) over another (less efficient vehicle that is no longer in use).
5. Establish a concrete, measurable, and defensible threshold for permanence. An arbitrary permanence standard of “irrevocable and nonreversible” as cited in WAC 173-442-150 is not a realistic measurement for compliance or enforcement. Adopting a standard shared among jurisdictions (i.e., 100 years in California) will better integrate Washington's system with the broader marketplace. Sustainable forestry practices create an ever increasing pool of wood products that store carbon for many decades, if not centuries, without limiting permanent forest carbon storage. These long-lived wood products also provide permanent and renewable displacement benefits of more fossil-intensive products.
6. Technology neutral credit marketplace that adapts. Ecology should establish a process to identify and certify new protocols as ERU generating activities. We recommend Ecology

³<http://americancarbonregistry.org/carbon-accounting/standards-methodologies/emissions-reductions-from-improved-efficiency-of-vehicle-fleets>.



articulate a more detailed criteria for “Ecology approved emission reductions” referenced in WAC 173-442-160. Additionally, we recommend Ecology define criteria for any “established multi-sector GHG emissions reduction program” that would qualify under WAC 173-442-170 to create allowances.

7. Treatment of Energy-Intensive Trade-Exposed Industries. We urge Ecology to ensure that the new benchmarking approach does not inadvertently create a more onerous compliance pathway for any individual EITE than is required for any non-EITE. The revised treatment of EITE entities is consistent with the PLAN Washington goal to become a top 5 performing state in carbon competitiveness — a measure of the carbon intensity of Washington’s economy. Focusing on carbon intensity helps ensure jobs and production do not shift out-of-state to regions that do not possess our clean electricity system.

Attached to this letter is a collection of issues, evidence and questions we’d like you to consider along with our above comments. We believe these changes can incentivize more robust investment in our communities, bolster struggling rural natural resource-based economies, and reduce costs by providing more compliance options. We look forward to continuing this discussion with the Department of Ecology.

Sincerely,

- Colleen McAleer, President, Washington Business Alliance
- Kevin Tempest, Low Carbon Prosperity Analyst, Washington Business Alliance
- Isaac Kastama, Director of Government Affairs, Washington Business Alliance
- Dr. Bruce Lippke, Professor Emeritus, University of Washington, and Past President of CORRIM (Consortium for Research on Renewable Industrial Materials)
- Jim Hargrove, Washington State Senator

CC:

- Mr. Chris Davis, Senior Advisor to the Governor's, Energy & Carbon Markets
- Mr. David Giuliani, Co-founder and Board Member, Washington Business Alliance
- Mr. Alan Crain, Board Chair, Washington Business Alliance



Addendum 1: Email correspondence (June 13, 2016)

Isaac,

You recently asked for some background on the Clean Air Rule that might assist you and your organization in preparing comments on the potential inclusion of carbon sequestration into the rule. We welcome your comments on this issue, and any other topics related to the rule. In response to your request you might want to keep the following in mind when preparing your comments:

- 1) The Clean Air Rule is being proposed under the authority of the Washington Clean Air Act (RCW 70.94). The Act is focused on direct emissions of pollutants into the atmosphere. By definition, sequestration is not an emission reduction. It is the temporary removal of a pollutant (CO₂) from the atmosphere. Given this, sequestration projects are not eligible to generate Emission Reduction Units under the current draft of the rule.
- 2) The proposed Clean Air Rule does not utilize a life-cycle emissions framework. It is focused on the direct emission of a pollutant, at the moment in time when that pollutant is emitted. Upstream and downstream emissions are not part of determining the direct emissions. Therefore, projects that would displace other products – e.g., advanced wood products displacing steel/concrete – would not be eligible to generate Emission Reduction Units.
- 3) Emission reductions under the Clean Air Rule must be permanent. That is, there must be a guarantee that under no conditions, for all of time, will the reduction in emissions be reversed (i.e., emitted to the atmosphere after all). This could potentially raise some issues for sequestration.

I hope these points about the proposed rule are helpful as you contemplate your comments. Again, this is a proposed rule and we welcome comments on these and other points. We appreciate your input into our process.

Thank you,

Bill

Bill Drumheller
Climate & Energy Specialist, Air Quality Program
Washington Department of Ecology
(360) 407-7657 (desk)
(360) 628-4939 (cell)
bdru461@ecy.wa.gov



Addendum 2: Additional Evidence & Questions

SEQUESTRATION

Issue: To establish a new carbon credit market that does not recognize sequestration is a missed opportunity and out of step with other jurisdictions and certain compliance options under the draft rule.

Evidence:

- A. WAC 173-442-110 (1) concerns the on-site reductions in GHG emissions for covered parties generating ERUs. It does not appear to disqualify on-site capture and storage of GHGs.
- B. WAC 173-442-110 (3) and 173-442-170 concerns allowances from external emission markets. It appears to allow for GHG removal focused offsets if they are recognized by an external “established multi-sector GHG emissions reduction programs.” Within these external markets it is typical for some form of sequestration to qualify. For example, U.S. Forestry activities that result in Improved Forest Management are eligible under the California Cap-and-Trade Compliance Offset Program to generate credits.⁴ Improved forest management is “designed to increase removals of CO₂ from the atmosphere”, which includes both the standing carbon stock in that stretch of forest and the carbon likely to be maintained for at least 100 years in products produced from forest stock on that sight (2015 Compliance Offset Protocol U.S. Forest Projects).⁵ We have highlighted the California approach and its’ corresponding protocol, but believe a stronger approach will be to design a system specific to the conditions and realities of our state.

Questions:

1. Will on-site capture and storage by a covered or voluntary party be eligible to produce ERUs? If so, why aren’t similar projects or programs off-site likewise eligible under WAC 173-442-160?
 - a. What are the criteria that will be considered for “ecology approved emissions reductions” under WAC 173-442-160 (1), and will there be language clearly defining this criteria?
2. If this type of carbon capture would be allowed to generate ERUs, why would other types, such as net GHG removal enhancements in forests and wood products be materially different?
3. If allowances from external markets can generate ERUs through GHG removal projects, why is it not also acceptable to generate ERUs from Washington projects and programs without the added step of offset compliance under an out of jurisdiction regime?
4. What are the criteria (or full list of) the “established multi-sector GHG emissions reduction program” offset categories?

LIFE CYCLE EMISSIONS

⁴ <http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm>.

⁵ <http://www.arb.ca.gov/cc/capandtrade/protocols/usforest/forestprotocol2015.pdf>.



Issue: While burning biomass justifiably counts as zero-carbon, other uses of biomass do not receive credit for its carbon reduction benefits. Enhanced forest management and advanced wood product use as an ERU on a lifecycle basis, can help to maintain or increase silvicultural sequestration capacity.

Evidence:

- A. The decision to count as zero-emissions “CO₂ from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals, as provided in RCW 70.235.020(3)” combines removals and releases of GHGs to arrive at a carbon-free benchmarked definition.
- B. The calculation in RCW 70.235.020 indicates that biomass will only qualify as zero-carbon “as long as the regions silvicultural sequestration capacity is maintained or increased.”
- C. Burning wood for fuel has only a fraction of the potential carbon emissions reduction as it does with targeted displacement of steel or concrete in buildings (CORRIM Fact Sheet).⁶

Questions:

1. Why not extend an exception beyond direct combustion emissions to other reasonable applications with high GHG reduction potential, using well-defined criteria to decide what can be included?
2. Is there a safeguard to ensure that the “silvicultural sequestration capacity” requirement is being met or, better yet, actively incentivized as an ERU generating activity?
3. Why choose to exclude the most optimal potential uses of biomass when other uses are already incentivized?

DISPLACEMENT OF HIGHER CARBON INTENSITY MATERIALS

Issue: Certain protocols necessarily incorporate the displacement of a baseline technology by a more efficient or fuel-switching technology. This precedent should be applied in other applications to allow opportunities for displacement of one building product by a lower carbon choice or other similar, proven GHG reducing displacement action.

Evidence:

- A. The concern is that the rules have the unintended impact of restricting opportunities for carbon reduction. To better understand these opportunities we use well researched examples from the forest and wood products sector demonstrating how some wood uses are far more efficient than others in reducing fossil emissions. The substitution of biofuel (e.g. woody biomass combustion) for fossil fuel can displace on average 0.4 (in the case of wood-derived ethanol) to 1.0 (in the extreme case for coal heating and power, less in the case of natural gas displacement) unit of

⁶ See Figure 9 from the Consortium for Research on Renewable Industrial Materials (CORRIM) fact sheet The Role of Forests, Management, and Forest Products on Carbon Mitigation (http://www.corrim.org/pubs/factsheets/fs_10.pdf).



carbon per unit of carbon in the wood used (CORRIM Fact Sheet).⁷ If the wood feedstock is processed into composite products, the displacement would likely be greater than 2 units of fossil carbon displaced for every unit in the wood use. Although the level of detail and range of different substitutional options and impacts carry uncertainty, even using average measures of many different substitution situations is a step better than not acknowledging the importance of substitution.

- B. Cited protocols for ERU generating activities, including the Improved Efficiency of Vehicle Fleets protocol from the American Carbon Registry⁸ listed in WAC 173-442-160 (3)(a)(i), calculate credit based on the displacement benefit of one type of technology. The emissions associated with a more efficient vehicle are compared to the baseline emissions of the less efficient vehicle that would no longer be in use. Displacement of one type of technology for another seems to be a core approach for calculating Emission Reduction Units.

Questions:

1. Given that displacement calculations are a standard component of determining emissions reductions, why not include the option for a basic life-cycle analysis treatment?

PERMANENCE

Issue: The current standard for permanence under the draft rule is boundless, making both compliance and enforcement highly uncertain and deviating from established precedent. A more realistic and concrete permanence standard would be a more realistic mechanism. Furthermore, ignoring GHG removals a priori due to permanence concerns is not a technology-neutral approach. Investments in more efficient equipment and technologies can simply shift consumption to another location or be reversed by the subsequent investment, raising potentially greater (yet resolvable) permanence issues than many carbon removal and displacement projects.

Evidence:

- A. Established protocols give a permanence benchmark that should inform the permanence standard of the Clean Air Rule. One example is the aforementioned protocol for U.S. Forests Offsets under the California Cap-and-Trade program: “For purposes of this protocol, 100 years is considered permanent.” A permanence standard as written (“irrevocable and nonreversible”) is not consistent with (and more onerous to comply with and enforce) that and other precedents from other programs.
- B. Avoided fossil fuel use, such as a more efficient vehicle or appliance, does not guarantee that the fossil fuel will not still be consumed either in some other location instead and/or by the subsequent vehicle or appliance purchase. In other words, this may represent a shift in location or

⁷ See Figure 9 from the Consortium for Research on Renewable Industrial Materials (CORRIM) fact sheet The Role of Forests, Management, and Forest Products on Carbon Mitigation (http://www.corrim.org/pubs/factsheets/fs_10.pdf).

⁸<http://americancarbonregistry.org/carbon-accounting/standards-methodologies/emissions-reductions-from-improved-efficiency-of-vehicle-fleets>.



time of that fossil fuel usage and those associated emissions. This is hardly permanent, or even more permanent, than other approaches to GHG reduction that are being excluded.

Questions

1. Why would a short-term investment decision in an efficient technology with a limited lifetime (e.g. 10-15 years for a vehicle) likely be more permanent than the removal of carbon from the atmosphere?
2. Given the precedence of a concrete and finite criteria for permanence, what grounds are there for establishing an “irrevocable and nonreversible” for all of time standard? In addition, how will the permanence standard, especially one as rigorous as currently written, be enforced?

CARBON POLLUTION ACCOUNTABILITY ACT

Issue: Certain key sections contained in the Carbon Pollution Accountability Act are not included in the draft Clean Air Rule.⁹ A more robust approach designed to the specific conditions and realities of Washington State would recognize the benefit of maintaining working forests as a reasonable market driven approach to carbon mitigation, in the spirit of Section 9 and Section 16 of the Carbon Pollution Accountability Act.¹⁰

Evidence:

A. Sec. 9. OFFSET CREDITS.

(1) The department shall adopt by rule the protocols for establishing offset projects and securing offset credits that can be used to meet a portion of a covered entity's or opt-in entity's compliance obligation under section 10 of this act.

...

(4) Until January 1, 2021, an offset credit may only be created for the following offset types and only if offset protocols have been adopted by rule by the department: (a) Projects that prevent greenhouse gas emissions through anaerobic digestion of organic wastes; (b) Projects that reduce emissions of ozone depleting substances; (c) Projects that capture methane from mining and other resource extraction and transmission projects; and (d) Projects that sequester biogenic or atmospheric carbon through forestry and agricultural practices.

B. Sec. 16. ECONOMIC OPPORTUNITIES FOR WASHINGTON FORESTRY AND RURAL COMMUNITIES.

(1) Recognizing that Washington's uniquely abundant forests are a significant factor in the state's carbon cycle, that they sequester carbon, and that forest management can be part of the solution to solving climate change, the department shall seek opportunities to further reduce and remove carbon emissions and to support the forestry sector through the management of forest carbon.

⁹ SB 5283: <http://apps.leg.wa.gov/billinfo/summary.aspx?bill=5283&year=2015>.

¹⁰ Language taken from SB 5283 Original Bill:
<http://lawfilesexternal.wa.gov/biennium/2015-16/Pdf/Bills/Senate%20Bills/5283.pdf>.



(2) The department of commerce, working with the departments of agriculture and natural resources, shall identify existing programs or develop new programs to: (a) Provide financial assistance to assist in creating or expanding new market opportunities for Washington forest products; (b) Help mitigate the impacts of the program on transporters of wood and food products due to potential increased fuel costs; and (c) Otherwise assist businesses in rural communities with any potential disproportionate economic impacts of the program.

(3) The department shall work with the department of natural resources in the development of offset protocols as called for in section 9 (1) and (2) of this act that consider opportunities including but not limited to: (a) Reducing emissions through the additional use of wood products in construction and expanded wood substitution opportunities; (b) Incentives for forest health treatments that reduce deforestation risks; (c) Programs to maintain or increase forest carbon stocks; (d) Improving technical understanding of sequestration; (e) Developing the requirements and exploring the opportunities to develop offset projects that are recognized in other external greenhouse gas emissions trading programs; (f) Expanding transfer of development rights programs to reduce conversion risk; and (g) Supporting ecosystem service payment programs.

Appendix A

A Report on the Health Impacts of Climate Change in Washington State

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Summary of Findings, Research, or Data

Heat Waves

Background and public health impact

- There will be a direct public health impact from increasing air temperatures due to climate change. Elevated air temperature is a risk factor for a number of heat-related illnesses including heat cramps, heat exhaustion, and heat stroke.
- Warm nighttime temperatures are more strongly associated with adverse health outcomes than are warm daytime temperatures (Gershunov et al. 2009; Kalkstein and Davis 1989). It has been proposed that elevated overnight lows hamper physiological recovery from daytime heat.

Observations

- Both maximum and minimum air temperatures are predicted to increase in response to climate change. Already, from 1951 to 2010, there was an average increase of 0.6 °C (1.08 °F) in global maximum daily temperatures. Global minimum daily temperatures increased even more - by 0.8 °C (1.44 °F), on average (Donat and Alexander 2012).
- In the Pacific NW the frequency of nighttime heat waves has increased over time (Bumbaco et al. 2013).
- A study by the Climate Impacts Group (CIG) found that, from 1980 - 2006 in Washington State, the risk of death from non-traumatic¹ and circulatory² causes was statistically significantly ($P < 0.05$) elevated for all ages on most days of a heat event (Jackson et al. 2010).

Projections

- The CIG projects that by 2085 there will be between 107 and 988 additional excess heat-related deaths per year in Seattle, and between 17 and 76 excess deaths in Eastern Washington (Spokane, Tri-Cities and Yakima) (Jackson et al. 2010).

Vulnerability

¹ ICD-9: 001-799; ICD-10: A00-R99

² ICD-9: 390-459; ICD-10: I00-I99, G45, G46

- Residents of the Pacific NW are particularly vulnerable to heat waves because of the rarity of this type of weather. Kalkstein and Davis (1989) determined that the “threshold” temperature for adverse health impacts for the Pacific Coast was only 30 °C (86 °F), compared to 43 °C (109.4 °F) for Phoenix and Las Vegas.
- General risk factors for heat-related mortality and morbidity include urban living, low socioeconomic standing, young or old age, and not practicing preventative behaviors. These risk factors are reviewed in depth in McGeehin and Mirabelli (2001).

Air Pollution

Background and public health impact

- Climate change is expected to worsen air quality in the U.S. mainly due to increases in ozone and particulate matter air pollution in some areas (Luber et al. 2014).
- Ozone is the main contributor to smog and is produced from the interaction of sunlight with nitrous oxides (NO_x) and volatile organic compounds (VOCs). Ozone air pollution mainly occurs in urban areas during warm summer months.
- Ozone has been associated with chest pain; aggravating bronchitis, emphysema and asthma; reduced lung function; inflammation of airways, and increased susceptibility to respiratory infections.
- Smoke contributes to particulate matter air pollution, especially fine particulate air pollution (less than 2.5 microns in diameter (PM_{2.5})).
- PM_{2.5} air pollution has been linked with a variety of health problems including decreased lung function, increased respiratory symptoms including asthma symptoms, nonfatal heart attacks, irregular heartbeat, and premature death in people with heart or lung disease.

Observations

- PM_{2.5} air concentrations (as 24 hr. averages) were ≥ 135.4 ug/m³ for 14 days in Wenatchee during the 2012 wildfires which are defined as hazardous to health under the Washington Air Quality Index (WAQI). The WAQI provides health-based warning levels associated with different levels of PM_{2.5} air concentrations (G. Palcisko, personal communication, October 14, 2015).
- A surveillance study by DOH, the Chelan-Douglas Health District and Kittitas County Public Health found a 2-fold increase in the number of children’s clinic and emergency department outpatient visits for asthma and respiratory and chest symptoms during 2012 wildfires in north central Washington compared to 2 weeks before the fires. A 60% increase in outpatient visits was also observed for chronic obstructive pulmonary diseases excluding asthma for all age groups for the same time period (DOH et al. 2015).
- All areas of Washington are currently in compliance with the U.S. EPA’s ozone standards and
- Washington State has relatively low levels of ozone compared to other parts of the country.

Projections

- Ground level ozone concentrations are expected to increase in parts of the U.S. due to increases in summer temperatures, mainly in the Northeast, South, Midwest and Southwest (Patz et al. 2014; Garcia-Menendez et al. 2015).
- However, one study estimated that elevated local ozone concentrations could increase the number of cardiopulmonary deaths in King and Spokane counties by 63 and 37 people per year, respectively (Jackson et al. 2010).
- PM2.5 air pollution is expected to increase with climate change due to increases in forest fires (see **Wildfires**).
- Climate change is also expected to lengthen the pollen producing season and increase pollen production (Rogers et al. 2006; Ziska and Caulfield 2000) which may result in prolonged and increased allergy and asthma symptoms (reviewed *in* Gamble et al. 2008).

Vulnerability

- Children, older adults and people with asthma and other lung and heart conditions are especially sensitive to impacts from PM2.5 and ozone air pollution. Washington residents may be especially sensitive to these air pollutants due to higher rates of asthma in the state compared to the U.S. average (DOH 2014).

Wildfires

Background and public health impact

- Wildfires produce smoke that can be distributed over a large geographic area, potentially affecting many people. Smoke from wildfires contains fine particulates and gases including carbon monoxide (Lipsett et al. 2012). Fine particulates, also referred to as particulate matter less than 2.5 microns in diameter (PM2.5), can be carried deep into the lung when breathed.
- Exposure to wildfire smoke has been most strongly associated with respiratory health outcomes including respiratory symptoms, asthmatic symptoms, ER visits and hospital admissions for respiratory conditions (Liu et al. 2015). Wildfire smoke has also been associated with cardiovascular effects including hospital admissions for cardiovascular symptoms.

Observations

- From the mid-1980s onward the incidence of large wildfires (>400 hectares) in western forests increased, as has the length of the wildfire season and the amount of area burned. Specifically, Westerling et al. (2006) compared 1970 - 1986 to 1986 - 2003 and found that average wildfire season length increased by 78 days and the acreage burned increased more than six and half times.
- These changes are accompanied by a shift toward unusually warm springs, longer summer dry seasons, and drier vegetation, all of which are due in part to reduced winter precipitation, early

melting of spring snowpack (Westerling et al. 2006), and drought influences (Westerling et al. 2003).

- In 2015, 2.5% of Washington lands were burned by wildfires, compared to 1%, 0.4% and 0.8% in 2014, 2013 and 2012, respectively (DOH 2015).

Projections

- Due to increased summer temperature and decreased summer precipitation, the area burned by fire in the Pacific NW is expected to double by the 2040s and quadruple by the 2080s, relative to the 1916 - 2006 average (Littell et al. 2010).

Vulnerability

- Some studies have reported higher risks of cardiorespiratory health outcomes among older adults, children, and lower socioeconomic status populations associated with wildfire smoke exposures (Liu et al., 2015).

Sea Level Rise and Tidal Flooding

Background and public health impact

- Globally, sea level is rising in response to thermal expansion of water and melting of land-based ice (IPCC 2013).
- Local sea level is influenced by global sea level, and by two additional forces: (1) local changes in wind pushing water towards or away from the coast, and (2) tectonic forces that locally raise or lower the land itself (Mote et al. 2008). Washington State is affected by this final driver because the subduction of the Juan de Fuca plate under the North American plate is uplifting coastal land at a rate of 1-3 mm per year (Verdonck 2006).
- In spite of the mitigating effect of tectonic forces, some parts of Washington will still be affected by local sea level rise (Mote et al. 2008; see *Projections*).
- Local sea level rise would likely impact public health by contributing to coastal erosion and tidal flooding, in addition to relatively minor impacts on coastal drinking water supplies (Huppert et al. 2009).

Observations

- Worldwide sea level rose an average of 3 mm ($\frac{1}{8}$ in.) per year from 1993 to 2012 (IPCC 2013).
- A review of the literature did not reveal any evidence of recent, past sea level rise in Washington.

Projections

- Global sea level is projected to rise an additional 4.4 – 11.2 mm per year through the end of the 21st century (IPCC 2013).
- According to the Intergovernmental Panel on Climate Change (IPCC), it is very likely that global mean sea level rise will contribute to upward trends in extremely high coastal water levels that can lead to tidal flooding (IPCC 2012).
- Due to the additive effects of tectonic forces and global sea level rise, some parts of Washington will experience local sea level rise in the next 100 years whereas others may not.
- The Climate Impacts Group estimates that the Olympic Coast will experience minimal sea level rise due to tectonic uplift, and that the central and southern coast will experience between 1 and 18 inches by 2050. However, Puget Sound will experience between 3 and 22 inches of sea level rise by 2050, and 6 to 50 inches by 2100 (Mote et al. 2008).
- Note, however, that the Mote et al. (2008) stresses that: (1) these calculations have not formally quantified the probabilities, (2) sea level rise cannot be estimated accurately at specific locations, and (3) these numbers are for advisory purposes and are not actual predictions.

Vulnerability

- Sea level rise is expected to increase flooding and erosion of beaches along Washington's coast. Homes and infrastructure near the coast will be threatened by changes in shorelines as a result of erosion. Several communities in southwest Washington and on Bainbridge Island have been identified as particularly susceptible to damage from beach erosion (Huppert et al., 2009).
- Many recognized tribal communities in Washington State have reservations near the coasts where sea level is expected to rise, and are at risk of being displaced from their land. Given that tribal cultural values are place-based, relocation due to environmental degradation is not an acceptable option (Grah and Beaulieu 2013). Sea level rise could also severely limit collection of important traditional food sources like shellfish (Lynn et al. 2013).

Heavy Precipitation and River Flooding

Background and public health impact

- Many studies have investigated the modelled impact of climate change upon weather extremes, including precipitation. There is strong agreement that the enhanced capacity of warm air to hold water vapor will increase the intensity of short-term precipitation (reviewed *in* Meehl et al. 2005).
- The potential public health impacts of heavy precipitation include river flooding and diminished water quality.
- Flooding damages housing and critical infrastructure like landfills and sewer systems. Flooding can contaminate drinking water supplies with bacteria, chemicals or saltwater and contributes to contamination of housing with chemicals or mold (these impacts reviewed *in* Alderman et al. 2012). However, there is still limited data about the health effects of floods in relation to morbidity (Ahern et al. 2005).

Observations

- Total yearly precipitation did not change for the 30° - 50° latitude (including the United States) during the 20th century (Zhang et al. 2007).
- Many studies have demonstrated at least a modest increase in heavy precipitation events in Washington over the last 60 - 100 years (reviewed in Mass et al. 2011).

Projections

- Annual mean precipitation in the Pacific NW is projected to remain steady throughout the 21st century (Mote and Salathé 2010).
- However, it is expected that precipitation in the Pacific NW will become more seasonally variable and erratic in the future.
- Most models forecast a decline in summertime precipitation and an increase in winter precipitation in the Pacific NW (Mote and Salathé 2010). Regional climate models also predict an increase in the number of extreme high precipitation days in the next fifty years, particularly around the Puget Sound and Olympic coast (Salathé et al. 2010).
- The impact of climate change on river flood risk in Washington varies by basin. In snow-dominant watersheds, flood risk is likely to decrease due to reductions in snowpack (Hamlet and Lettenmaier 2007). Mixed snow-rain watersheds flood risk depends upon a complex set of conditions and could either decrease or increase, but may experience heightened winter flooding (Mantua et al. 2010). Rain-dominant watersheds will likely experience little change (Hamlet and Lettenmaier 2007).

Vulnerability

- The largest increases in river flood frequency are predicted for catchments in Puget Sound, the west slopes of the Cascades in southwest Washington and in the lower elevations on the east side of the Cascades. Modeling predicts increasing flood magnitudes in western Washington and decreasing or unchanged flooding magnitudes in eastern Washington (Mantua et al. 2010).

Drought and Snowpack

Background and public health impact

- Drought is a hydrologic condition where local water supply (for any use) is notably less than the historical average. In Washington State a drought emergency may be officially declared when the water supply for a geographical area is below seventy-five percent of normal, and the water shortage is likely to create undue hardships for various water uses and users (RCW 43.83B.400).

- Impacts to public health from drought include reduced availability of drinking water, failure of infrastructure due to low flows, and changes to water quality. Drought is also a contributing factor to increased wildfire activity (Westerling et al. 2003; Hessl et al. 2004).
- Drought can be caused by a variety of factors aside from net reduction in precipitation (rain/snow). Changes in the timing or type of precipitation can cause drought if it creates a condition where not enough water is available when it is needed. For instance, Washington State depends heavily upon melting snow (snowpack) to sustain water supplies during the drier summer months. Low accumulation snowpack over the winter can lead to drought in the summer.
- The capacity for snowpack to form is closely linked to air temperatures. Mountainous regions with winter air temperatures < -6 °C (21.2 °F) favor precipitation falling as snow, whereas regions averaging > 5 °C (41 °F) in midwinter tend to be dominated by rain (Hamlet and Lettenmaier 2007).

Observations

- Since 2000, Washington has declared three statewide drought emergencies (in 2001, 2005, and 2015). In 2006 the State declared a localized drought emergency in two watersheds on the Olympic peninsula.
- Statewide drought emergencies are not common. However, in six of the last 15 years the water supply drought advisory committee has been convened to evaluate snowpack and water supply conditions because formation of the normal winter snowpack was late or low.
- Furthermore, from 1950 to 2000 snowpack in the Cascades was observed to decline by approximately 29%. This decline is largely attributable to rising air temperature (Mote 2003; Mote et al. 2005).

Projections

- Total snowpack is projected to decline an additional 38 - 46% by the 2040s, compared to the mean of the 1917 - 2006 water years. Low elevation snowpack is expected to be even more impacted: declines there will range between 49% and 58% by the 2040s, and will almost disappear by the 2080s (Elsner et al. 2010).
- Historically, the majority of basins that receive at least part of their precipitation as snow were centered along the Cascade Mountains and northern Washington. It is anticipated that by the 2080s none of these watersheds will be dominated by snow, and that the mixed snow/rain watersheds of the central/southern Cascades and northeastern Washington will have completely lost their snowpack (Mantua et al. 2010).
- These changes in the way water is stored could lead to increased incidence of drought in the future if resource managers fail to adjust their management strategies.

Vulnerability

- Agricultural interests are vulnerable to drought. The farmers most vulnerable to the impacts of drought are dryland farmers in the south central and east regions, berry farmers in the southwest/Olympic Peninsula region, and farmers with junior water rights in the south central region (Fontaine and Steinemann 2009).
- As with sea level rise (see **Sea Level Rise and Tidal Flooding**), some tribal communities are at risk of losing access to traditionally important food sources (i.e., salmon, lamprey) due to loss of snowpack and resulting streamflow (Dittmer 2013; Grah and Beaulieu 2013).

Vector-Borne and Zoonotic Diseases

Background and public health impact

- Several vector-borne and zoonotic diseases (VBZD) are present in Washington and human cases occur each year, although at lower numbers than are seen in much of the United States. The following are three high profile diseases that exist in Washington.
- **West Nile virus (WNV)** is a virus transmitted by mosquitos that first appeared in the United States in 1999 (Soverow et al. 2009). The virus first appeared in Washington in 2002, and in 2009 the state had the highest number of human infections (36 cases from in-state exposure) to date. In 2015 there were 22 human cases, and 14% of mosquito pools that were tested were found positive for the virus.
- Approximately 80% of people infected with WNV are asymptomatic, while around 20% develop WNV fever (fever, headache, rash) and less than 1% develops WNV neuroinvasive disease (meningitis, encephalitis, paralysis).
- **Sin Nombre virus** is a highly pathogenic Hantavirus that infects North American deer mice (*Peromyscus maniculatus*) and can cause Hantavirus Pulmonary Syndrome (HPS) in humans (Mills et al. 2010a). Each year there are 1 to 5 cases reported, with most exposures occurring in eastern Washington. About 30% of cases are fatal.
- **Lyme disease** is caused by a bacterium (*Borrelia burgdorferi*) which is transmitted in Washington by the western black-legged tick, *Ixodes pacificus* (Stanek et al. 2012). Each year there are 1-3 cases of Lyme disease from in-state tick exposure. Most of these cases come from exposure on the west side of the Cascade Mountains, which reflects the primary distribution of the Ixodes tick vectors.
- Along with flu-like symptoms and the classic bull's-eye rash, joint, nervous, and heart complications can also occur. Tick surveillance and testing since 2010 has shown that approximately 2% of black-legged ticks in Washington are infected with *B. burgdorferi*.

Observations

- VBZDs are influenced by climate through climate's direct effects on the pathogen, vector, and host and their interactions with one another. Environmental factors, such as temperature, relative humidity, and precipitation, also directly influence vector-borne and zoonotic disease cycles (Tabachnick 2010).

- Western black-legged ticks are found primarily in western Washington with adult population activity most prevalent from February through early summer.
- West Nile virus has become endemic in south central Washington. The virus has been detected in 0.3% to 25% of tested mosquito samples every year since 2008.
- Surveillance by DOH in the early 1990s demonstrated that Hantavirus was present in deer mouse populations across Washington.

Projections

- There is much that remains unknown about how climate change will impact VBZDs in Washington. However, any changes in VBZDs as a result of influence by climate change will likely be due to one (or a combination) of four primary mechanisms (Mills et al. 2010b):
 - Range shifts in host or vector distribution that brings these organisms into contact with new human populations (Moritz et al. 2008).
 - Changes in the population density of the host or vector that would change frequency of contact with humans;
 - Changes in the prevalence of infection in the host or vector population that would change the frequency of human contact with an infected host or vector; and
 - Changes in pathogen load in hosts or vectors that would affect the likelihood that human contact would result in pathogen transmission. Pathogen loading could be brought about by changes in rates of pathogen reproduction, replication, or development.

Vulnerability

- All populations are at risk of vector-borne and zoonotic diseases, in one form or another.
- Those who work or recreate outside in parks or other undeveloped areas are at a greater risk for tick-borne diseases.
- Those who spend time outside in the late afternoon and evening during mosquito season are at the greatest risk for exposure to West Nile virus, particularly in south central Washington.

Harmful Algal Blooms

Background and public health impact

- Harmful algal blooms (HABs) are blooms of naturally occurring marine or freshwater algae that can produce potent toxins with harmful physiological effects (including illness or death) in wildlife and humans. People can be exposed to these toxins either through inhalation, ingestion of contaminated shellfish or fish or through direct skin contact, depending on the situation and species of algae. People can be exposed to freshwater biotoxins through drinking water and incidental ingestion of water during recreational activities.

- Bloom formation is favored by conditions of adequate light availability, warm water, stratification and high nutrient levels. Marine HABs typically bloom in Washington during the summer or in shoulder seasons when water temperatures are warmer than usual. Freshwater HABs can occur throughout the year but are highest in late summer and fall in state lakes.

Observations

- Researchers have noted an apparent increase in the global frequency, duration and geographic scope of harmful algal blooms in the last several decades of the 20th century (Hallegraeff 1993; Van Dolah 2000; Glibert et al. 2005).
- This increase has been attributed to various causes, including anthropogenic nutrient enrichment, ballast water discharge, and climate change (reviewed in Moore et al. 2011).
- The linkages between these factors and algal abundance, distribution, and bloom characteristics are complicated, and uncertainty currently hampers our ability to determine the exact cause of observed changes. Therefore we present the following observations as suggestive of changes in the ecosystem without necessarily limiting the causal explanation to climate change exclusively:
 - Trainer et al. (2003) noted that since the 1980s the dinoflagellate responsible for paralytic shellfish poisoning (PST; *Alexandrium catenella*) has slowly expanded its range from northern Puget Sound to the south. PSTs are now regularly found in all basins except Hood Canal (Moore et al. 2011).
 - Preliminary data analysis indicates that marine HAB closures in Puget Sound now occur earlier in the year than what was typical in the past (J. Borchert, personal communication, October 20, 2015).
 - Limited information on Puget Sound lowland lakes suggest that years with higher temperatures result in higher concentrations of microcystins and a greater number of lakes with toxins above state recreational guidance values (Hardy et al. 2015).
 - Warm water temperatures in lakes that drain into Puget Sound have been associated with the discharge of freshwater toxic blooms that bioaccumulate in marine shellfish (Preece et al. 2015a, Preece et al. 2015b).

Projections

- Based on analysis of past events, Moore et al. (2009) identified a suite of weather and environmental conditions that precede the development of toxic events due to *A. catenella* in Puget Sound. These conditions are warm air and water temperatures, weak winds, low stream flow, and small tidal height variability.
- Applying this model to future estimates of climate variability indicates that the environmental conditions that favor toxic *A. catenella* blooms may increase by nearly 2 weeks per year by the end of the 21st century. Furthermore, blooms are predicted to begin earlier in the year and persist for longer (Moore et al. 2011).

- Extreme rainfall events (Anderson et al. 2012) and ocean acidification combined with nutrient limitation or temperature changes (Fu et al. 2012) also are hypothesized to have future impacts upon bloom development and toxicity levels, respectively.

Vulnerability

- People who eat raw or cooked shellfish are most at risk for exposure to marine harmful algal blooms.
- People and animals that drink water from lakes with toxic blooms or ingest water during recreational activities are most at risk from freshwater HABs.

Vibrio

Background and public health impact

- *Vibrio parahaemolyticus* is a bacterium indigenous to marine and estuarine waters around the world. *Vibrio parahaemolyticus* is a common causative agent of food-borne gastroenteritis (food poisoning) and can present a serious health burden, especially to regions with high levels of raw or undercooked seafood consumption.
- *Vibrio vulnificus* is a related bacterium that typically causes more severe systemic illnesses, including necrotizing wound infections and septicemia. *Vibrio vulnificus* does not tolerate low temperatures or high salinity well (Kelly 1982) and has not been common in Washington.
- Temperature is the primary environmental predictor of vibrio abundance and distribution, and these organisms multiply rapidly when exposed to either warm water or warm ambient air temperatures (Johnson et al. 2012).
- In Washington, vibrio control is of special concern to the oyster industry. *Vibrio parahaemolyticus* can increase by four to eight times in oysters during intertidal exposure (Nordstrom et al. 2004) and by 50 to almost 800 times within 24 hours of oyster harvest, if exposed to a ≥ 26 °C (82.4 °F) environment (Gooch et al. 2002).

Observations

- Anomalies in sea surface temperature, such as those associated with the El-Niño Southern Oscillation (ENSO), have occurred concurrent with vibrio outbreaks in Chile (González-Escalona et al. 2005), Peru (Martinez-Urtaza et al. 2008), Alaska (McLaughlin et al. 2005), and the Pacific NW (CDC 1998).
- Martinez-Urtaza et al. (2010) reviewed these cases and concluded that sea surface temperature intrusion can temporarily extend the geographic range and elevate the abundance of *both V. parahaemolyticus* and *V. vulnificus*.
- There is no definitive evidence of either an increase or decrease over time in vibrio abundance or illnesses due to vibrio (vibriosis) in Washington State.

- *Vibrio vulnificus* is currently present at very low, but detectable levels in Washington (Johnson et al. 2012). While this bacterium has not yet caused any confirmed illnesses or deaths in Washington, *V. vulnificus* is considered a potential emerging threat.

Projections

- Elevated air and sea surface temperatures are both anticipated outcomes of climate change (IPCC 2013). Therefore, the observation that vibrios respond positively to warm ENSO conditions is suggestive of future vibrio range expansions and an increase in total abundance.
- However, a review of the literature found no formal projections of vibrio range or abundance, or future illnesses based upon climate change.

Vulnerability

- Residents of the Pacific NW are vulnerable to *Vibrio parahaemolyticus*-associated gastroenteritis because of the prevalence of raw oyster consumption in this region. The Pacific NW is currently at lower risk of exposure to *V. vulnificus* than other parts of the United States (e.g., the Gulf Coast states) because this bacterium prefers water > 20 °C (68 °F) (Kelly 1982).
- Immunocompromised individuals, especially those with impaired liver function, appear to be at the greatest risk of severe infection leading to septicemia by either *V. parahaemolyticus* or *V. vulnificus* (Hlady and Klontz 1996).

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STATE OF WASHINGTON

DEPARTMENT OF HEALTH

DIVISION OF ENVIRONMENTAL PUBLIC HEALTH

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July 22, 2016

Sam Wilson
Department of Ecology
Post Office Box 47600
Olympia, Washington 98504-7600

Re: Draft Clean Air Rule

Dear Mr. Wilson:

The Department of Health appreciates the opportunity to comment on the proposed Clean Air Rule, released by the Washington State Department of Ecology on June 1, 2016.

The Department of Health supports Ecology in taking action to lead Washington toward a low carbon future. Reducing greenhouse gas emissions today is the best way to avoid the worst impacts to future generations. We recognize that the Washington Clean Air Rule is an important step toward capping and reducing greenhouse gas emissions, though it represents just a part of what is needed to achieve the legislature's aim to cut emissions to 25 percent below the 1990 level by 2035. In order to prevent the worst health impacts of climate change, more dramatic reductions in greenhouse gasses will be needed.

We appreciate that in addition to reducing carbon emissions, the rule will likely reduce emissions of other air pollutants, including reduction of gas-burning automotive emissions where regulated entities choose to comply by earning or purchasing Emission Reduction Units (ERUs) via transportation activities (per draft WAC 173-442-160). Reduction of pollutants like particulate matter and air toxics can have benefits for people's health in the near term.

Under the rule, regulated entities may choose to invest in projects within Washington State that could have co-benefits for people's health and wellbeing. For example, investments in commute trip reduction programs that increase participation in alternative commuting practices (e.g., active transportation options, high occupancy vehicle incentives, mass transit) may have benefits for the health and safety of those commuters.

We recommend that review and approval of these projects include a process for considering populations affected by and benefitting from projects and programs, and incorporate a preference for projects that support health equity rather than further exacerbate economic and health disparities. To that end, the Department of Health applauds the establishment of an Environment Justice Advisory Committee to award Emission Reduction Units (ERUs), per WAC-173-442-240 (3).

There is broad scientific consensus that climate change is underway, and that excessive and increasing levels of greenhouse gases are driving climate change.^{1,2}

The effects of climate change—such as more extreme weather, reduced snowpack, more frequent and severe flooding, drought and wildfire—pose serious threats to the public’s health and wellbeing.^{2,3,4,5,6} This last April, the U.S. Global Change Research Program released a pivotal report, *The Impacts of Climate Change on Human Health: A Scientific Assessment* (<https://health2016.globalchange.gov>), articulating the wide range of direct and indirect risks posed by climate change. Even here in Washington, climate change threatens the air we breathe, the water we drink, the food we eat, and the places we live. For example:

- More severe wildfires not only threaten the safety of nearby communities, but also worsen air quality, increasing more widespread risk of respiratory and cardiovascular illnesses among the elderly, children, and other sensitive populations.
- Increased droughts, flooding, and sea level rise could damage drinking water infrastructure, putting Washington’s drinking water supplies and water quality at risk.
- Ocean acidification, warmer temperatures, and changes in the harmful algal bloom patterns and seasonality threaten the supply and safety of shellfish and other marine life that many people depend on for food and income, and that are a vital part of our state’s economy.
- Heavier rainfall events, sea level rise, stronger storm surges, and more severe storms will threaten both coastal and inland homes, and jeopardize culturally important lands.

A more complete description of vulnerabilities and risks for health impacts in Washington State is provided in a report from the Washington State Department of Health in **Appendix A**.

Climate change also threatens to exacerbate existing health inequities. Many of the populations that already bear a disproportionate burden of poor health outcomes are at greatest risk for experiencing health impacts from a changing climate, including people with low income, some communities of color, Indigenous peoples, immigrants and groups with limited English proficiency, children, pregnant women, older adults, vulnerable occupational groups, persons with disabilities, and persons with preexisting or chronic medical conditions.⁷

Sam Wilson
July 22, 2016
Page 3

We can prevent the worst health consequences of climate change by dramatically reducing carbon and other greenhouse gases. Dr. John Holdren, Director of the White House Office of Science and Technology has observed that, while harms from climate change will continue to grow in the coming decades, future harms due to climate change, “will be much smaller if we take prompt, strong evasive action...”⁸

Limiting greenhouse gas emissions is one of the most powerful prevention strategies available to us for protecting the health of current and future generations from climate change. Clearly, achieving dramatic reductions will require changes across sectors and at the international, national, state, and local scale. The Clean Air Rule is a key step for Washington to do its part in reducing emissions.

In summary, society must take decisive action now to prevent the worst consequences of climate change. Dramatically reducing greenhouse gas emissions is one of the most powerful prevention strategies available for protecting the health of current and future generations from the worst impacts of climate change. The Department of Ecology’s Clean Air Rule represents critical action on the part of Washington State toward reducing greenhouse gas emissions. It is a key step in Washington State’s broader efforts to make responsible and protective choices that will lead to a livable, more equitable, and healthy, low-carbon future.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clark Halvorson', with a long horizontal line extending to the right.

Clark Halvorson
Assistant Secretary

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July 22, 2016

Mr. Sam Wilson
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Please accept these comments about the proposed Clean Air Rule being considered by the Department of Ecology. We will focus on just two areas of contention related to the proposed rule.

The Regulatory Approach

The choice of a regulatory approach itself is a mistake and is likely to fail to meet carbon reduction targets. The proposed rule assumes state regulators can judge the energy efficiency of facilities on an individual basis and compare it effectively to competitors in the same category, taking into account the risk of international competition and other non-energy factors. Business owners themselves, who have the best knowledge and incentives, cannot predict or correctly ascertain that combination of factors.

Building regulation based on the notion that regulators can make occasional visits and correctly balance emissions reduction while reducing the risk that emitters will simply leave the state is a recipe for failure.

The rules as proposed use a similar theory about rating efficiency as used in the U.K. to protect trade-exposed industries. The poster child for the success of that approach was Tata Steel, which argued it was meeting energy efficiency standards while competing internationally. Then they announced bankruptcy earlier this year. Ultimately, that is the problem. The failure of any complex regulatory scheme to adjust to dynamic international trends is only apparent when the damage has already been done.

Rather than ignoring the obvious difficulties of writing a rule that is economically and environmentally effective, the Department of Ecology should honestly highlight the large gap between available information and the information necessary to make the rule work and suggest an approach that is more simple and transparent.

Carbon Offsets/Allowances

The one area of policy we will address is the inclusion of carbon offsets, called “allowances” in the rule. The rule sets arbitrary limits for the number of allowances that can be used for compliance, ramping down to five percent in 2035¹. There is simply no justification for these limits.

The concern about allowances is that they must prove additionality, permanency and other attributes. As the rule notes, there are methodologies to ensure compliance with these goals.² As long as carbon reduction efforts meet those standards there is no reason to count the reduction of a metric ton of carbon in 2022 differently than 2023.

1 Proposed WAC 173-442-170 (2)(a)
2 Proposed WAC 173-442-160 (2)

Imagine the following two projects:

- Capture of agricultural methane by a covered emitter.
- Capture of agricultural methane by a non-covered emitter across the border in Idaho.

According to the current rule, the reductions in the first instance would always count toward meeting reduction targets. The second, however, may or may not be counted after 2022. There is no difference in the environmental benefit provided by the two equivalent actions

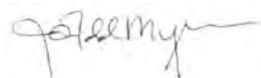
Elsewhere, the Department understands this. For example, it requires the proposed export terminals to consider induced carbon emissions in China and elsewhere in its environmental impact. However tenuous that calculation may be, it recognizes that emissions anywhere are equivalent. For some reason, however, in this rule, the Department takes the opposite position, arguing that carbon emissions reductions are location dependent.

The only difference comes from a political slogan, claiming “we can’t offset our way out of the problem.” There is no more logical basis for requiring covered entities to meet an arbitrary percentage of reductions on site than there would be to require people grow a certain percentage of their own food, write their own software or any other activity.

Either our focus is on reducing carbon or it is on requiring symbolic acts of environmental penitence, regardless of effectiveness. The current rule is, simply, at odds with a science-based approach.

I am happy to answer any questions about these comments and provide additional information if needed.

Sincerely,



Todd Myers
Washington Policy Center



WASHINGTON TRUCKING ASSOCIATIONS

EXECUTIVE VICE PRESIDENT
Sheri Call

PRESIDENT
Thomas E. Walrath, Jr.

July 22, 2016

VIA DOE Website

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

RE: WTA Comments on the proposed Clean Air Rule

I'm writing on behalf of the members of the Washington Trucking Associations in regards to the proposed Clean Air Rule. Our members operate tens of thousands of trucks, and consume millions of gallons of diesel fuel each year hauling freight within and outside the State of Washington. We in the trucking industry want to live and work in a clean environment. However, our concern has been, and remains cost. As we suspected, even though we are not directly impacted by the Clean Air Rule, included in the Department of Ecology's list of covered entities are petroleum suppliers who are directly impacted. As costs of doing business will increase for these entities, so will costs to the trucking industry.

To give you an idea of the fiscal impact on the trucking industry; at least a third of a truckload carriers operating cost is fuel. Truckload carriers have enough onboard fuel to run between 1600 and 1800 miles before refueling. That means if diesel fuel is more expensive in Washington State than it is elsewhere, carriers coming in from outside the State will not purchase fuel here. This places carriers based in the State at a competitive disadvantage compared to carriers who purchase fuel elsewhere.

In addition to an expensive proposed Clean Air Rule, we also have Initiative 732 on the ballot this November. Borrowing a phrase from a colleague, "motion and purpose are a trucks greatest attribute," unlike average drivers, we are non-discretionary users of the roads; the trucking industry is one of mobility. Carriers based in Washington are in every State of the Union, every day. It is therefore logical that any mandate placed on the trucking industry needs to be done at the Federal level so there is an even playing field,

and carriers don't inadvertently gain a competitive advantage simply by which State they are based in.

We appreciate the opportunity to provide comments on the proposed Clean Air Rule. Should you have any questions or if we can be of further assistance please feel free to contact me.

Sincerely,

WASHINGTON TRUCKING ASSOCIATIONS

A handwritten signature in black ink that reads "Sheri Call". The signature is written in a cursive, flowing style.

Sheri Call
Executive Vice President



July 22, 2016

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
Email: AQComments@ecy.wa.gov

RE: Comments on Proposed Clean Air Rule

Dear Mr. Wilson:

Thank you for reviewing our comments about Washington Department of Ecology's proposed Clean Air Rule.

As you may know, WaferTech is a semiconductor manufacturer based in Camas, WA. We are a wholly owned subsidiary of Taiwan Semiconductor Manufacturing Corporation (TSMC). As the leading for-hire semiconductor manufacturer, TSMC takes its corporate social responsibility seriously. This past year it has been named Semiconductors and Semiconductor Equipment Industry Group Leader by the Dow Jones Sustainability Indices (DJSI) for a third consecutive year, reaffirming our dedication to social responsibility. We voluntarily participate in the best practices as defined by the World Semiconductor Council for PFC Emission Reduction. We have been certified to ISO 14001 since 2001 and have been validated to ISO 14064 since 2011.

We believe that climate change is an important issue and are willing to do our part. However, we do have the following comments regarding the proposed Clean Air Rule (CAR).

- 1) **WAC 173-442-070: Set a maximum emissions reduction requirement for lower performing EITE facilities.** Currently, Washington Department of Ecology has the discretion to determine the reduction pathway percentage for the lower performing "75th or greater percentile" facilities. We recommend a maximum or upper limit to Ecology's discretion to allow for reasonable worst case business planning for affected organizations. We recommend considering a single-digit upper limit of 9% over 3 years.
- 2) **WAC 173-442-140: Exchanging emission reduction units.** Please add a statement that a facility which has had ERUs transferred to them from another facility's bank, will not be penalized or considered in violation by Ecology, if it is later determined that the facility generating the ERUs had errors in calculations or

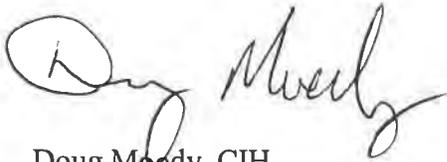
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www.wafertech.com*

later needed to correct a prior year's report, which resulted in removal of the ERUs from the bank.

- 3) **WAC 173-442-220 (6)(iii): Eligible third party verifiers.** Please add 'Accredited ISO 14064 registrars' to this list of recognized GHG programs.
- 4) **WAC 173-442-240 (4): Priority of reserve uses.** Please clarify that there is a mechanism to adjust the reserve pool to support additional and sustainable economic growth in the region. What happens if there are not enough ERUs in reserve to cover economic expansion? Could Ecology raise the 2% requirement?

Thank you for addressing our comments. Please contact me if there are any follow-up questions.

Sincerely,



Doug Moody, CIH
Manager, Environmental Health and Safety
360-817-3308
dmoody@wafertech.com



Washington Association of Wheat Growers

109 E. First Ave. • Ritzville, WA • 99169 • Phone (509) 659-0610 • Fax (509) 659-4302

July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
AQComments@ecy.wa.gov

RE: Comments to Revised Clean Air Rule

Dear Mr. Wilson,

The Washington Association of Wheat Growers (WAWG) submits the following comments in response to the revised Clean Air Rule that was published on June 1, 2016.

WAWG is a nonprofit trade association that is comprised of 1,700 members which includes wheat farming families and industry supporters. WAWG works for solutions to problems of the farm, the farm home and rural community using united, organized action to represent, protect and advance the social, economic and educational interests of wheat farmers of Washington State. We fight every day to ensure that life on the family farm continues to prosper and grow.

At the outset, we want to express our appreciation that the proposed rule does not directly regulate agricultural practices. Although WAWG members will not be required to comply directly with the rule, we are concerned about the indirect costs of the rule that will be passed on by industries that are required to cap their emissions. These compliance costs would hit both consumers and farmers.

Many of these companies that are required to comply with the proposed rule are in the energy industry and must pass the additional costs on to their customers in the form of higher prices. We are concerned that consumers will be hit by higher food prices due to increased fuel, transportation and processing costs. Because agriculture is heavily dependent on energy, we are concerned that higher energy prices will impact agriculture's cost of production. Fuel is a major input at nearly every step of the agricultural process and the costs are a larger share of the bottom line. This makes our state products less competitive in the global markets where we sell them. As commodity price takers, producers have no way to pass the costs of this new regulation on to consumers and must personally absorb these costs.

While Ecology's cost benefit analysis of the rule acknowledges the high likelihood that pass-through costs will be passed on to consumers and other purchasers of fuels and energy, it acknowledges it does not have data on what the pass-through costs will be for food production. We believe this data should be collected and analyzed before moving forward with this rule.

WAWG appreciates the opportunity to comment on this draft regulation and your consideration of the comments above.

Sincerely,

A handwritten signature in black ink, reading "Michelle Hennings". The signature is written in a cursive, flowing style with a large loop at the end of the last name.

Michelle Hennings
Executive Director



975 Carpenter Rd NE, Suite 301, Lacey, WA 98516

VIA EMAIL

July 22, 2015

Attn: Mr. Sam Wilson
Washington Department of Ecology Air Quality Program
P.O. Box 47600, Olympia, WA 98504-7600
AQComments@ecy.wa.gov

Re: Washington Farm Bureau Comments on Ecology's Clean Air/Carbon Rule

Washington Farm Bureau (WFB) is Washington's largest statewide agricultural association, representing more than 47,000 member families and producers of every agricultural commodity in Washington State. WFB appreciates this opportunity to comment on the Washington Department of Ecology's proposed Clean Air Rule, published as a proposed rule on May 31, 2016, and to explain why Washington Farm Bureau opposes Ecology's carbon rule proposal.

WFB believes such regulation would be unlawful (*ultra vires*) and beyond the authority given to the DOE by the state legislature. In a representative democracy like ours, only the legislative branch (and not the executive branch) has the constitutional authority to change state law.

WFB finds the rule's impacts especially troubling when coupled with the carbon tax initiative that will be on the ballot this November. If enacted by Washington voters, Initiative 732 would impose a \$15 per ton fee on all carbon emissions in the state. In year two, the fee would jump to \$25 and would jump 3.5 percent every successive year until it hits \$100 per ton. This alone will create serious negative impacts to agriculture and the state economy.

Like I-732, which was supposed to be revenue neutral to the state (though it may actually cost the state budget up to \$1 billion due to drafting errors) this proposal is clearly not revenue neutral for individual energy-intensive business sectors like agriculture. Like I-732, this proposed rule will trigger increases in the price of gasoline, natural gas, and electricity.

These higher fuel, fertilizer, transportation and processing costs will be passed on to Washington farmers and ranchers who (as commodity price takers) generally have no way to pass the costs on to consumers. So the new costs will cut into farm profits, or make farm losses worse. Low income families will be hit hardest where the costs can be passed to consumers, as that will decrease the affordability of locally produced food. Ecology's Small Business Impact, Cost Benefit and Least Burdensome analyses do not adequately capture such impacts.

These are just a few of the reasons the governor's carbon cap and tax legislation (HB 1314) failed to pass even the democratically controlled House of Representatives in recent legislative

sessions. Similarly, both I-732 and Ecology's proposed rule will create compounding problems for Washington farmers and local food production. Neither proposal, for instance, contains anything like the adaptive agricultural viability protections British Columbia included in its program to reduce unintended burdens on farmers and promote local food security.

The money lost to Washington carbon regulations will also make it harder for Washington producers to invest in new equipment, precision farming technologies, or renewable fuels that cut carbon emissions. It will also cut into on-farm resources available for adoption of water and energy conservation and carbon sequestration practices. Such efforts, which reduce carbon while also reducing energy costs, creating jobs, and helping the farmer's bottom line, should be incentivized and promoted, not punished. At the very least, this rule making should be sent back to the drawing board until the outcome of I-732 is determined.

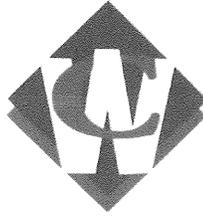
Thank you for your consideration of these comments.

Sincerely,

Evan

Evan Sheffels





RECEIVED

JUL 22 2016

Dept of Ecology

WASTE CONNECTIONS INC.
Connect with the FutureSM

July 18, 2016

Mr. Sam Wilson
Air Quality
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Subject: Proposed Clean Air Rule (WAC 173-442) Comments

Dear Mr. Wilson:

This letter is being submitted on behalf of Waste Connections, Inc., owner and operator of the LRI Landfill located in Pierce County, Washington. We thank you for the opportunity to submit comments on this important matter. This letter provides comments regarding the Washington Department of Ecology's (Ecology's) proposed new Clean Air Rule expected to be promulgated under Chapter 173-442 of the Washington Administrative Code (WAC).

The proposed Clean Air Rule is aimed at capping and reducing carbon pollution in Washington. Based on Ecology's work to complete the Governor's vision in developing a regulatory cap on carbon emissions under existing state laws, we believe that the proposed rule will have significant and substantial unintended impacts to the solid waste industry and landfills in Washington State. For reasons stated below, we believe solid waste landfills should be exempt from the proposed Clean Air Rule.

By way of background, the LRI Landfill is located south of the City of Graham in Pierce County, Washington and serves as an essential public facility for citizens throughout Pierce County, including the City of Tacoma. The LRI Landfill is one of the largest solid waste landfills in the Pacific Northwest, receiving approximately 3,000 tons of refuse each day.

The solid waste industry is unique, especially when viewed through a carbon life cycle lens, and landfills themselves face stringent regulatory challenges, which should be considered within the context of the proposed Clean Air Rule. The existing federal and state regulations imposed on the solid waste industry, and landfills specifically, have already had a major impact on curbing and reducing harmful air emissions from landfills including greenhouse gases (GHG's). Even

after significant emission reduction strides by the solid waste industry, the U.S. Environmental Protection Agency (EPA) issued a new Emission Guideline (EG) rule under 40 Code of Federal Regulations (CFR) Part 60, Subpart Cf and a supplemental New Source Performance Standards (NSPS) rule under 40 CFR Part 60 Subpart XXX for landfills on July 15, 2016. These new regulations further lower the applicability threshold for installation of landfill gas collection systems and provides for more aggressive compliance monitoring of emissions at landfill facilities. The new NSPS/EG rules are specifically aimed at further reducing methane emissions from landfills, which is the primary GHG emission from the source category. We believe the new federal NSPS/EG rules adequately regulate landfills to protect human health and the environment, and that the performance-based standards employed by the NSPS/EG are a better way to achieve emission reductions for landfills and that, therefore, they eliminate the need for the state to regulate landfills under the proposed Clean Air Rule.

Command and Control with Cap and Trade

The landfill NSPS/EG is a command and control regulation, meaning that it establishes regulations that require landfills to reduce emissions. The initial landfill NSPS (Subpart WWW) and EG (Subpart Cc and state rules) targeted non-methane organic compound (NMOC) emission reductions, but ultimately resulted in significant methane reductions as a result of the NMOC control. The proposed NSPS (Subpart XXX) and EG (Subpart Cf) specifically target methane reductions at landfills and requires specific measures to control methane emissions.

It is not appropriate to combine previously implemented command and control regulations with a market-based cap and trade mechanism. The command and control regulation has required landfills to reduce methane emissions, regardless of cost. Therefore, it is not appropriate to implement a market based approach such as cap and trade on top of the existing regulation.

Other Carbon Reduction and Cap and Trade Programs

Landfills are essential public facilities necessary for protection of public health through the proper disposal of waste. Other cap and trade and similar carbon reduction programs have recognized this fact and have exempted landfills entirely from their corresponding programs. In California, landfills are exempt from the state's robust AB 32 cap and trade program. California's program excludes the biogenic emissions from biomass (including biogas) as well as fugitive emissions from municipal solid waste landfills, which are regulated under a separate rule. On the East Coast, landfills are excluded from the Regional Greenhouse Gas Initiative (RGGI), a mandatory cap and trade program inclusive of nine states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont).

Landfills are also exempt from the European Union's (EU) cap and trade program. Landfill emissions reductions are achieved through the separate EU Landfill Directive, which provides solutions tailored to landfills and their unique public necessity. Similarly, carbon emissions from

biogenic sources are not included in the Clean Development Mechanism (CDM) of the Kyoto Protocol. Washington's Clean Air Rule should follow the precedent set by the most prominent currently functioning carbon reduction and cap and trade programs. As such, Washington should follow the global trend of exempting landfills within the Clean Air Rule.

Early Action Credits

The LRI Landfill has shown its commitment to reducing GHG emissions from the landfill through its partnership with BioFuels Washington, LLC and the development and startup of a landfill gas to energy (LFGTE) facility in 2013. Since the end of 2013, a significant portion (approximately one-half) of the landfill gas generated by the LRI Landfill has been used in a beneficial manner by producing renewable energy that has been placed onto the power grid, which also produces recognized GHG reductions.

Although the proposed Clean Air Rule identifies activities and programs recognized as generating emission reduction units (ERU), the rule is not clear on how early actions completed by the solid waste industry and landfills will be taken into account or qualify as an emission reduction. The solid waste industry and landfills should be allowed to get credit for early actions that are considered going above and beyond what is required by existing regulations. Specifically, waste to energy and LFGTE are prime examples of going above and beyond existing regulatory requirements to reduce emissions, and offset emissions from the energy sector at the same time, and should be accounted for within the Clean Air Rule.

Landfills Should Generate Emission Reduction Units from Methane Capture Programs

Under the proposed Clean Air Rule, biogenic emissions from combustion of landfill gas are included in the baseline emissions, which apparently precludes the generation of ERUs from landfill methane capture and reduction programs. Landfill emissions, particularly landfill gas methane, can be collected by high efficiency systems and eliminated through combustion and other methods, producing electricity, fuel, or used for other industrial purposes. These uses of landfill emissions routinely generate "credits" or reductions under other emission reduction programs, even when landfills are exempt from the program itself.

Every major emission reduction program in the United States allows for emission credits to be generated from methane capture programs. Landfills are not regulated under California's AB 32 or the RGGI, yet landfills can generate credits under these programs through methane capture and reduction. The same trend holds true abroad in both longstanding and newly established programs. The EU cap-and-trade programs have operated for 11 years (since 2005), and allow landfills to generate credits for methane reduction. Again, landfills notably are exempt from the EU program, but are still rewarded for emission reducing efforts. Under Australia's recently established Safeguard Mechanism carbon cap, which went into effect on July 1, 2016, landfills may generate reduction credits through methane capture and combustion. Landfill methane reductions have also created GHG credits under the Climate Action Reserve, CDM, and other voluntary programs.

Contrary to other national and international leading carbon reduction programs, the proposed Clean Air rule precludes a number of excellent carbon neutral, green, and innovative energy and fuels projects which use landfill gas as a feedstock from generating ERU. In this respect, the proposed Clean Air Rule is at direct odds with other leading carbon reduction programs, many of which exclude landfills from emissions caps altogether. In light of this, we are asking Ecology to reconsider landfill methane capture and reduction projects in the rule and how they apply to ERUs.

Essential Public Facility

Landfills are essential public facilities that are handling other people's wastes. This is true whether the landfill is a public or private facility, as both types are responsible for managing wastes from citizens of the state. Landfills are contracted to accept the waste provided to them by municipalities across the state. Unlike other industrial facilities, landfills cannot simply curtail waste acceptance to meet an arbitrary emission limit or cap placed on them. As long as the population a landfill serves grows, landfills are likely to grow along with their emissions. These essential facilities and associated and vital public service should not fall under a cap and trade system as is being proposed under the Clean Air Rule. The waste placed into landfill is generated by others, yet the landfills are being forced to comply with stricter and stricter requirements for reducing emissions. A cap and trade system for carbon emissions places an unjust burden on landfills on behalf of the population it is meant to serve. Moreover, it would put landfills in an impossible position of having to reduce emissions when they cannot control the waste input.

The LRI Landfill is committed to protecting human health and the environment and continues to work toward improving operating efficiencies to reduce GHG emissions even further. When the operational costs of a landfill increase, landfills will increase the cost for disposal of waste as they are not subsidized entities. As such, if landfills are required to purchase ERU's from internal or external markets, the cost of doing business for the regulated facilities increases. These costs will be directly passed on to the public through increases in disposal costs.

This effect will directly transfer the costs for complying with the Clean Air Rule to the public that the landfill serves. Indirectly speaking, increases in disposal and/or collection costs may cause diversion of waste from the larger landfills (that are highly regulated and have comprehensive landfill gas collection systems and beneficial use projects in place) to smaller landfills or out of state landfills that are not subject to the Clean Air Rule. This could, in turn, cause an overall increase in global GHG emissions through the potentially reduced capture rates at smaller landfills and the increase in emissions generated by transporting waste longer distances. For the reasons stated above, California elected not to include landfills in its cap and trade program under AB32.

Landfill Industry Emissions

Landfills and the solid waste industry represent a very small portion of the overall GHG emissions generated in Washington and across the nation. According to Chapter 7 of the “Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990 - 2014” (EPA, April 15, 2016) waste related activities in 2014 generated emissions equivalent to approximately 2.5 percent of total U.S. GHG emissions. The 2.5 percent includes landfilling, wastewater treatment and composting sources. As such, the waste industry accounts for a few percent of the total GHG emissions within the country.

According to the EPA inventory, disposing of solid waste in modern, managed landfills is the most commonly used waste management technique in the U.S. EPA estimates that the annual quantity of waste placed in municipal solid waste landfills increased approximately 39 percent from 1990 to 2000 and then decreased by approximately 11 percent at the end of 2014. During this time, emissions from landfill have typically decreased. In 1990, EPA estimates emissions from the landfills were approximately 179.6 million metric tons of carbon dioxide equivalent (MMTCO_{2e}), while in 2014 EPA estimates the emissions from landfills were approximately 148.0 MMTCO_{2e}. This equates to a reduction of approximately 17.6 percent below 1990 emission levels. Landfills are one of the only source categories that are showing substantial decreases in GHG’s over time.

Even though landfills only account for a small fraction of total GHG emissions, they have already reduced emissions considerably across the industry as a whole. This reduction demonstrates the achievements already recognized by the industry and does not appear to be taken into consideration within the proposed Clean Air Rule.

Emission Calculation Methodology

Ecology’s proposed Clean Air Rule utilizes the annual GHG emission inventories reported to Ecology through the Washington State GHG reporting program promulgated under WAC 173-441. This rule adopts industry specific emission calculation methodologies promulgated by the EPA under 40 CFR 98, known as the Mandatory Reporting Rule (MRR). The Subpart HH (Landfill) methodology does not allow for enough flexibility in determining actual site-specific emissions through analysis of individual landfills that can potentially lead to a better estimate of a site’s GHG emission, and the subsequent GHG emission reductions that may be required for a landfill. It is critical that any GHG regulatory program be based on the most accurate and facility-specific emission estimates as possible. Use of EPA’s MRR protocols does not allow this since they were created for industry-wide studies and are not accurate down to the facility level.

There are a myriad of protocols for calculating GHG emissions from landfills. Although the EPA MRR methodology is widely accepted throughout the industry for estimating GHG emissions, it still has inherent limitations, which may not accurately reflect the emissions at a particular landfill. For instance, the MRR gas collection efficiency values only represent the mid-range values of the collection efficiency percentages for each cover type from the Solid Waste Industry

Emissions must be Measurable and Quantifiable

Key elements of GHG emission and offset quantification are that emissions must be quantifiable, verifiable, and enforceable. Those requirements to provide certainty to the carbon market that the emissions being traded are real and demonstrable. Most GHG emissions from landfills occur as fugitive emissions of methane through the landfill surface. By definition, these fugitive emissions cannot be captured and cannot be practically measured. This unmeasurable nature also means that regulators or third parties cannot confirm that reported emissions are accurate. Finally, it is not possible for regulatory agencies to enforce emissions caps against landfills because reductions or exceedances cannot be measured. Landfill emissions are not quantifiable, verifiable, or enforceable and are not appropriate for inclusion in a cap and trade program.

Closing

Modern, managed landfills are highly-engineered facilities that are located, designed, operated, and monitored in compliance with federal, state, and local regulations. The proper and safe disposal of waste is an essential public service to the citizens of Washington state that is vital to protecting human health and the environment. These wastes are not generated by the solid waste industry itself. Rather, the industry is responsible for safely and proactively managing wastes generated by other industrial, residential, and commercial sources in Washington.

Landfills generally do not lend themselves to regulation under cap and trade programs based on the public service landfills provide and the difficulty in accurately measuring the direct landfill emissions. As such, the national and international trend has been to exclude landfills from programs like the Clean Air Rule because, simply put, landfills are different and necessary. The solid waste industry has already made great strides in achieving emissions reduction, including methane capture, sequestration, and renewable energy projects employed across the industry. Waste Connections, Inc. requests Ecology consider these comments and adjust the Clean Air Rule accordingly, to exempt solid waste landfills.

Sincerely,



Eddie Westmoreland,
Western Region Vice President of Governmental Affairs
Waste Connections, Inc.
4822 70th Ave E
Fife, WA 98424
(206) 915-3133



July 20th, 2016

Submitted on behalf of WBCA by Sarah Severn, Strategic Advisor

sarah@sarahsevern.com

Comments on the Draft Clean Air Rule – WAC 173-442

General Comments

- Washington Business for Climate Action (WBCA) was formed around the belief that there is a clear and present need for action on climate change to protect our region's natural assets, its vibrant communities, and its growing economy. WBCA has more than 250 Washington business supporters representing over 200,000 employees.
- WBCA includes companies from a diverse range of sectors that are key to the state's economy including healthcare, fisheries, marine and road transportation, fuel and energy providers, building and construction, outdoor recreation and food and beverage.
- We deeply appreciate the Governor's leadership in advancing the Clean Air Rule and commend his decision to proceed based on his existing authority to protect current and future generations in Washington from the impacts of climate change and air pollution.
- We also believe that protection of, and investment in our natural capital (forests, water and marine eco systems) is critical to the economy of the region. Climate change, caused primarily by the burning of fossil fuels is having devastating effects
 - Forest fires are destroying our communities and costing our state millions as they continue to increase in frequency and intensity.
 - Salmon and other fish are dying off as water temperatures rise in our rivers and snowpack disappears.
 - Our fisheries and shellfish industry are suffering more than ever from increasing ocean acidification.
- We also believe, based on evidence from other jurisdictions, that the state can and should accelerate investments in clean energy and energy efficiency and speed up the transition away from fossil fuel based energy. Ultimately the health of our air, water, land and communities depends on us collectively taking action now.

Recommendations

- State emission reductions and the collective cap should be informed by the best available science. The state's existing targets require updating. Ecology should submit to the legislature new emissions reductions goals for the state that meet science based limits.

- The new draft rule contains a number of improvements. In particular we note the development of a collective cap, and more flexibility for energy intensive trade exposed businesses.
- While there have been improvements made to address the issue of double counting it will still be important to ensure that all loopholes are eliminated and real emission reductions are made.
- The proposed rule does not include biofuels under the list of exempted sources of GHG emissions. We believe provisions for biofuels should be changed to reflect their lower carbon emissions when compared to petroleum fuels, which reflects current science and better aligns with policies elsewhere in the U.S. and internationally. The use of biofuels will be an important abatement tool and we would recommend adopting the same approach as California's AB32, where biomass emissions from facilities and mobile sources are exempted.
- The regulation should be written to avoid ruling out sequestration (especially natural sequestration in terrestrial and saltwater systems) as a method of generating Emissions Reduction Units in the future. The objective of reducing emissions is to reduce atmospheric concentration of GHG. Significant contributions toward this objective can be achieved through scientifically validated sequestration protocols that use natural processes to pull excess carbon out of the air and water and put it back where it came from: either in the ground or in long-term storage in organic matter and derived products.

Conclusion

- Washington Business for Climate Action (WBCA) encourages steps to move the state towards a low carbon economy. Agreements made during the Paris Climate Talks and the Clean Energy Ministerial illustrate that cities, states and countries are ready to step up to the challenge. Washington State has a proven history of clean energy innovation, and should continue to be at the vanguard of the clean energy transition.
- This updated Clean Air Rule is an important step forward in maintaining Washington's position as an innovative environment and incubator for forward-thinking businesses dedicated to the idea of a world that works for all. We applaud the Department of Ecology's decision to withdraw the initial draft and reissue today's version, which reflects important input from stakeholders to strengthen the approach. While further action and complimentary policies are needed, a well-crafted Clean Air Rule can meet state greenhouse gas emission reduction targets, and send a clear signal to businesses and investors that Washington is ready to accelerate the development of a low carbon future.



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Western Environmental Law Center

July 22, 2016

Via Electronic & U.S. Mail

Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia, WA 98504-7600
Email: AQComments@ecy.wa.gov

Re: Comments on Ecology's Proposed Clean Air Rule

Dear Mr. Wilson,

These comments are being submitted on behalf of our clients, Aji and Adonis Piper, Wren Wagenbach, Lara and Athena Fain, and Gabriel Mandell, the youth who took the Washington Department of Ecology ("Ecology") to court for failing to protect their fundamental constitutional rights in response to climate change in *Foster, et al. v. Ecology*. These young people secured a court order directing Ecology to promulgate a rule limiting greenhouse gas emissions in Washington by the end of 2016. These comments are also submitted on behalf of the people and organizations who believe these children have a constitutional right to a livable future, a list of whom is included as Exhibit A to these comments. Finally, these comments are submitted on behalf of all future generations and the rights and natural resources we are working hard to pass down to them, and to whom you owe a profound obligation as their fiduciary trustee.

Thank you for the opportunity to comment on Ecology's Proposed Clean Air Rule. We truly hope that you take this opportunity to promulgate a rule that is based on science, as time is running out. Our comments are supported by declarations by some of the world's most foremost climate scientists and policy experts. As we rapidly approach climate tipping points, only the current Ecology policymakers are capable of protecting the rights of these young people. They, and the world's children, are depending on you.

I. INTRODUCTION

Ecology has clear constitutional and statutory responsibilities to cap and regulate carbon dioxide emissions based upon best available science. The best way to do that is through the direct regulation of known emission sources to force polluters to implement the pollution-prevention technology that is needed to eliminate the need for the pollution in

the first place. Technology-forcing serves as a bedrock principle of the federal Clean Air Act and has been described as follows:

The idea, briefly put, is that the government can order into being technological achievements not now enjoyed by a particular industry. A policy of technology-forcing assumes that existing market forces fail to produce an appropriate level of pollution control, either because of explicit collusion among the manufacturers¹ or because of the inability of spillover victims to communicate and enforce their needs within the market. A policy of technology-forcing presupposes also that intervention by law will bring a response, either from the manufacturers themselves or equipment suppliers, and that these new forces can be loosed to create a technology that is “superior” to the ones it replaces. The metaphors of this movement are of reluctance overcome, of fires being lit, of perceived limits quickly surpassed, of wills and ways.²

Ecology’s proposed Clean Air Rule, as it is currently structured, serves to undercut technological solutions to climate change. A cap and trade system, if it is to be used at all, should be the cherry on top of a powerful regulatory scheme mandating the reduction, and ultimate elimination, of carbon dioxide emissions. Cap and trade can potentially be one tool to make a scientifically-targeted regulatory program more palatable for those corporations who put profits before the health and wellbeing of their children and future generations. However, it should not be used as the centerpiece of a regulatory plan that exempts, excuses and makes allowances for not reducing emissions that can technically, economically and feasibly be reduced to protect life, liberty, and all of the fundamental rights of citizens, especially Washington youth and future generations.

These comments set forth both a specific critique of the proposed Clean Air Rule and identifies alternative regulatory mechanisms that Ecology has the existing authority to promulgate and implement. As you know, in June 2014, youth submitted a Petition for Rulemaking with the Department of Ecology asking the agency to use its existing authority to cap and regulate GHG emissions based upon best available science. Two years later, we are saddened and frustrated that Ecology continues to ignore the scientific consensus on what needs to be done to stem the tide of climate change. Ecology, as the legislatively designated trustee of the natural resources of Washington, must adopt a rule to achieve science-based emission reductions necessary to do Washington’s part to stabilize the climate and protect our oceans.

II. THE PROPOSED RULE DOES NOT COMPLY WITH THE COURT ORDER IN *FOSTER, ET AL. v. ECOLOGY*

On June 24, 2014, eight young Washingtonians filed a petition for rulemaking with Ecology, asking that the agency use its existing legal authority to (1) promulgate a

¹ Indeed, the Clean Air Act was largely passed in response to the “smog conspiracy,” whereby automobile manufacturers conspired to retard the development of pollution prevention control technology.

² Rodgers, 1 Environmental Law at § 3.25(A).

rule mandating reductions of greenhouse gases (“GHGs”) based upon the most current climate science; and (2) and make its statutorily-required recommendation to the legislature on adjusting GHG emission limits (RCW 70.235.040) based on current science through rulemaking.³ On August 14, 2014, Ecology denied Youth Petitioners’ Petition for Rulemaking.⁴ Without addressing the scientific basis for the proposed rule, or its legal responsibility to manage essential natural resources such as air and water, the agency summarily denied the petition for three reasons: (1) nothing in RCW 70.235 requires Ecology to adopt different emissions reductions, develop a plan to ensure those reductions, or implement the monitoring requirements in the proposed rule; (2) Washington “is working to achieve the reductions” set forth in RCW 70.235 and “the measures it is taking are an alternative approach to your proposed rule;” and (3) none of the additional cited sources in the petition require Ecology to adopt the proposed rule.⁵ After over a year of litigation, on November 19, 2015 the Court issued a landmark decision outlining Ecology’s legal responsibilities to take immediate action to address climate change.⁶ At that time, the Court did not order Ecology to undertake rulemaking as Governor Inslee had directed Ecology to do so in July 2015, shortly after meeting with the youth petitioners to discuss the case.

After Ecology withdrew the proposed Clean Air Rule in February 2016, the youth went back to Court, this time securing a court order directing Ecology to do two things: “(1) Ecology shall proceed with the rulemaking procedure to adopt a rule to limit greenhouse gas emissions in Washington state as directed by Governor Inslee in July 2015, and shall issue the rule by the end of calendar year 2016; (2) Ecology shall provide a recommendation to the 2017 legislature on greenhouse gas limits for the state of Washington as provided in RCW 70.235.040.”⁷ When exercising its authority to promulgate a rule regulating carbon dioxide emissions as mandated by Court order, Ecology has a responsibility to fulfill its legal obligations as interpreted by Judge Hill in the *Foster* case.

a. Ecology’s Existing Efforts Are Inadequate

Importantly, in the *Foster* case, the Court found that Ecology’s “alternative approach” to dealing with climate change was legally insufficient. Specifically:

the emission standards currently adopted by Ecology do not fulfill the mandate to ‘[p]reserve, protect and enhance the air quality for current and future generations.’ The regulations currently in place specify technological controls of a small number of air pollution sources while not even addressing transportation which as of 2010 was responsible for 44% of annual total GHG emissions in Washington State. *One need*

³ Petition for Rulemaking (June 17, 2014) (Exhibit B).

⁴ Ecology’s Denial (August 14, 2014) (Exhibit C).

⁵ *Id.* at 1.

⁶ *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order Affirming the Department of Ecology’s Denial of Petition for Rulemaking) (Nov. 19, 2015) (Exhibit D).

⁷ *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order on Petitioners’ Motion for Relief Under CR 60(b)) (May 16, 2016) (Exhibit E).

*only go back to Ecology's pronouncement in the December 2014 report to appreciate the inadequacy of its current efforts to preserve, protect and enhance the air quality for current and future generations.*⁸

In rendering her decision, the Court made it clear that Ecology needed to undertake additional actions to protect the fundamental rights of the youth petitioners:

In fact, as Petitioners assert and this court finds, their very survival depends upon the will of their elders to act now, decisively and unequivocally, to stem the tide of global warming by accelerating the reduction of emission of GHG's before doing so becomes first too costly and then too late. The scientific evidence is clear that the current rates of reduction mandated by Washington law cannot achieve the GHG reductions necessary to protect our environment and to ensure the survival of an environment in which Petitioners can grow to adulthood safely. In fact, in its 2014 report to the legislature, the Department stated, "Washington's existing statutory limits should be adjusted to better reflect the current science. The limits need to be more aggressive in order for Washington to do its part to address climate risks"⁹

The Court's findings regarding the inadequacy of Ecology's current approach to climate change is pertinent as it highlights where Ecology must focus its efforts when regulating carbon dioxide emissions.

b. Ecology Has A Mandatory, Statutory Duty To Protect Air Quality for Current & Future Generations Under the WA Clean Air Act

The Court found that Ecology "does have the mandatory duty under the Clean Air Act to '[a]dopt rules establishing air quality standards' for GHG emissions, including carbon dioxide that 'shall constitute minimum emissions standards throughout the state.' RCW 70.94.331(2)(a)(b). *This obligation must be implemented in a manner that '[p]reserves, protect[s] and enhance[s] the air quality for the current and future generations.'* RCW 70.94.011."¹⁰ The draft Clean Air Rule violates the plain language of the Clean Air Act as it will not "preserve, protect, and enhance the air quality for current and future generations."¹¹ Furthermore, the draft Clean Air Rule violates the Legislature's express purpose for adopting the Clean Air Act. The Legislature has found that:

Air is an essential resource that must be protected from harmful levels of pollution. Improving air quality is a matter of statewide concern and is in

⁸ *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order Affirming the Department of Ecology's Denial of Petition for Rulemaking) (Nov. 19, 2015) at 6 (emphasis added) (Exhibit D).

⁹ *Id.* at 5.

¹⁰ *Id.* at 6 (emphasis added).

¹¹ RCW 70.94.011.

the public interest. It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.

It is further the intent of this chapter to protect the public welfare, to preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions.¹²

These are not merely words on paper. When Ecology implements its delegated authority to “adopt rules establishing air quality objectives and air quality standards” and “adopt emission standards which shall constitute minimum emission standards throughout the state,”¹³ it must do so in a manner that fulfills the legislative intent as expressed in RCW 70.94.011. The draft Clean Air Rule fails to do so.

c. Ecology Has A Constitutional Duty to Protect Public Trust Resources

The Court held that “Washington courts have found that this provision [WA Const. Art. XVII, Sec. 1] requires the State through its various administrative agencies, to protect trust resources under their administrative jurisdiction.”¹⁴ “Therefore, the State has a constitutional obligation to protect the public’s interest in natural resources held in trust for the common benefit of the people of the State.”¹⁵ The Court recognized the scientific reality that “[t]he navigable waters and the atmosphere are intertwined and to argue a separation of the two, or to argue that GHG emissions do not affect navigable waters is nonsensical. Therefore, the Public Trust Doctrine mandates that the State act through its designated agency to protect what it holds in trust. The Department of Ecology is the agency authorized both to recommend changes in statutory emission standards and to establish limits that are responsible.”¹⁶

Ecology continues to ignore the fact that it has a constitutional duty to protect Public Trust Resources in the state. The draft Clean Air Rule will not protect public trust resources within Ecology’s jurisdiction such as air, tidelands, shorelands, and water.

¹² RCW 70.94.011.

¹³ RCW 70.94.331(1), (2).

¹⁴ *Id.* at 7.

¹⁵ *Id.* at 8.

¹⁶ *Id.*

d. The Youth Have Fundamental & Inalienable Rights to Live in a Healthful & Pleasant Environment

Most significantly, the Court acknowledged that “Ecology’s enabling statute states, “[I]t is a fundamental and alienable right of the people of the State of Washington to live in a healthful and pleasant environment.” RCW 43.21A.010. Although courts have stated that a statutory duty cannot be created merely from the words of the enabling statute, this language [in RCW 43.21A.010] does evidence the legislature’s view as to rights retained under Article I, Section 30” of the Washington Constitution.¹⁷ In light of those fundamental legal rights,

If ever there were a time to recognize through action this right to preservation of a healthful and pleasant atmosphere, the time is now as: ‘Climate change is not a far off risk. It is happening now globally and the impacts are worse then previously predicted, and are forecast to worsen . . . If we delay action by even a few years, the rate of reduction needed to stabilize the global climate would be beyond anything achieved historically and would be more costly.’¹⁸

Ecology is legally obligated to promulgate a rule that complies with the Court’s prior interpretations of the law in the *Foster* case, as that is the controlling precedent. Unfortunately, for the reasons set forth below, Ecology’s proposed Clean Air Rule does not come close to satisfying the law as specified in Judge Hill’s order, including Ecology’s statutory, constitutional and public trust obligations. Ecology is legally and morally obligated to create a statewide Climate Action Plan that protects the fundamental constitutional rights of young people in this state.

III. ECOLOGY HAS THE LEGAL AUTHORITY & DUTY TO PROMULGATE SCIENCE-BASED EMISSION LIMITS

As described above, Judge Hill clearly laid out the constitutional and statutory framework for Ecology to promulgate a rule that fulfills its legal obligations while protecting the rights of young people and future generations. In addition, Ecology has other sources of authority that can and should be invoked in developing a true Climate Action Plan based upon science. Climate change is an “all hands on deck” issue that requires Ecology to implement the full panoply of their legal authority.

a. Ecology Must Do Its Part To Reach Global Climate Stabilization Levels

RCW 70.235.020 sets the following *floor* for GHG emission reductions:

- (i) By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels.

¹⁷ *Id.* at 9.

¹⁸ *Id.* (quoting Ecology, Washington Greenhouse Gas Emissions Reduction Limits, Prepared Under RCW 70.235.040 (Dec. 2014) (Exhibit G)).

- (ii) By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;
- (iii) By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year.

Ecology has correctly noted that this statute reflects “the Legislature’s intent to reduce GHG emissions,” but improperly views the statutory emission limits as a constraint on its authority to establish science-based GHG emissions limits.¹⁹ The AG has interpreted this statute as suggesting that “the legislature intended the reductions goals to be taken seriously”²⁰ *RCW 70.235 does not in any way limit Ecology’s authority to promulgate a science-based rule; indeed, the statute only sets a floor for GHG emission limits and does not preclude Ecology from recommending more stringent limits pursuant to its existing statutory authority and constitutional obligations.*²¹ It would be illogical to interpret RCW 70.235 as the most stringent emission limits that Ecology can adopt. For example, would Ecology be in violation of the statute if it were to achieve emissions reductions of 26% below 1990 levels by 2035, instead of 25%? This would be an absurd result.²² What is clear from the plain language of RCW 70.235.020 is the legislature’s intent that Washington base its efforts on the best available climate science and “do its part to reach global climate stabilization levels,” which the current scientific evidence demonstrates is global atmospheric concentrations of 350 ppm by the end of the century, a standard never disputed by Ecology.

When the statute is read in its entirety, it is clear that Ecology is not constrained by the emission targets based in RCW 70.235.020. Indeed, the State’s GHG reduction statute imposes the following mandatory duty on Ecology:

Within eighteen months of the next and each successive global or national assessment of climate change science, the department shall consult with the climate impacts group at the University of Washington regarding the science on human-caused climate change and provide a report to the legislature summarizing that science and make recommendations regarding whether the greenhouse gas emissions reductions required under RCW 70.235.020 need

¹⁹ Ecology, SEPA Environmental Checklist – Clean Air Rule, Appendix A, Staff Report – SEPA Non-Project Review Form, Proposed Clean Air Rule (May 2016) at 5.

²⁰ Attorney General Opinion to Senator Doug Ericksen (Sept. 1, 2015) at 2.

²¹ While we do not necessarily agree with the interpretation of RCW 70.235 by the Attorney General’s Office, it has taken the position that RCW 70.235 is not enforceable, nor binding on the State. Thus, whether our legal interpretation is correct or Ecology follows the advice of the Attorney General, the statute does not pose any barrier to Ecology’s ability to fully implement its statutory, constitutional, and public trust mandate. *Id.* at 1 (finding that the emission “reductions are not a ministerial duty of any specific state official.”).

²² See *Tingley v. Haisch*, 159 Wn.2d 652, 664, 152 P.3d 1020 (2007) (quoting *State v. J.P.*, 149 Wn.2d 444, 450, 69 P.3d 318 (2003) (“A reading [of a statute] that produces absurd results must be avoided because ‘it will not be presumed that the legislature intended absurd results.’”) (internal quotations omitted)).

to be updated.²³

This language makes it clear that the legislature intended the limits be based upon the most current climate science. After Governor Inslee directed Ecology to make this recommendation to the legislature by July 15, 2014,²⁴ the Youth Petitioners asked Ecology to make its recommendations to the Legislature through the rulemaking process because “Ecology’s legislative recommendations implicate youth petitioners’ and future generations’ rights to essential public trust resources”²⁵ It has been over eight years since RCW 70.235 was enacted, and Ecology has still not made a recommendation to the legislature to update the reductions in RCW 70.235.020, despite several advances in the climate science. This failure is fatal to the development of the Clean Air Rule as it is impossible for Ecology to target its reductions in a fashion that protects the rights of young people and future generations, if it continues to refuse to tell the public what those targets should be.

Ecology’s independent decision to target the Clean Air Rule to the emissions limits in RCW 70.235, rather than the best science, is arbitrary in light of the fact that Ecology has concluded that “Washington State’s existing statutory limits should be adjusted to better reflect the current science” and that “[t]he limits need to be more aggressive in order for Washington to do its part to address climate risks and to align our limits with other jurisdictions that are taking responsibility to address these risks.”²⁶ Ecology’s continued failure to make a substantive “recommendation” to the Legislature to update RCW 70.235.020 based upon current climate science serves to exacerbate, prolong, and potentially ensure perpetually the impairment of Youth Petitioners’ fundamental and inherent rights to a healthful and pleasant environment.²⁷ Not only is Ecology failing to take legally required action,²⁸ but the agency is affirmatively advocating, by virtue of its silence, that the Washington Legislature “impos[e] risks on future generations (causing intergenerational inequities) and liability for the harm that will be caused by climate change that we are unable or unwilling to avoid.”²⁹ In light of the clear threats to Youth Petitioners’ inalienable rights to a healthful and pleasant environment, Ecology’s decision to target the Clean Air Rule to RCW 70.235.020 is irrational and will not be upheld by a

²³ RCW 70.235.040.

²⁴ Washington Executive Order 14-04 (April 29, 2014) (Exhibit F).

²⁵ Youth Petition for Rulemaking (June 17, 2014) (Exhibit B) at 53.

²⁶ Ecology December 2014 Report (Exhibit G) at 18. Ecology’s action essentially asks the Legislature to violate the Public Trust Doctrine which “prohibits the State from disposing of its interest in the waters of the state in such a way that the public’s right of access is substantially impaired, unless the action promotes the overall interests of the public.” *Rettkowski*, 122 Wn.2d at 232.

²⁷ Ecology December 2014 Report (Exhibit G) at 15 (“Globally, 2013 was the fourth warmest year on record. Globally averaged temperature has increased by 1.5° or 0.85°C between 1880 and 2012. The [IPCC] confirmed continuing the current pattern of greenhouse gas emissions would likely lead to a rise in temperature which will pose unprecedented risks to people’s lives and wellbeing.”).

²⁸ Ecology is now court ordered to make the recommendation to the legislature in advance of the 2017 legislative session. *Foster et al. v. Ecology*, No. 14-2-25295-1, King County Superior Court (Order on Petitioners’ Motion for Relief Under CR 60(b)) (May 16, 2016) (Exhibit E) at 3 (“Ecology shall provide a recommendation to the 2017 legislature on greenhouse gas limits for the state of Washington as provided in RCW 70.235.040.”).

²⁹ *Id.* at 18.

court of law.

Furthermore, Ecology's claims that "[t]he proposed rule is intended to at a minimum achieve the statutory reductions in Chapter 70.235 RCW," is contradicted by information in the rulemaking record.³⁰

It makes no sense for Ecology to promulgate a Clean Air Rule in advance of making its recommendation to the Legislature to revise the emission reductions in RCW 70.235.020. The science is clear as to what those reductions need to be, but Ecology continues to abdicate its moral and legal responsibility to tell Washingtonians how we collectively must reduce our GHG emissions to "do [our] part to reach global climate stabilization levels."³¹ Because Ecology is now court-ordered to make this legislative recommendation, it is imperative that Ecology target its Clean Air Rule towards achieving the science-based emission reductions contained in its recommendation, not the reductions set forth in RCW 70.235.020, which the agency acknowledge would lead to dangerous levels of warming and would jeopardize the rights of young people.

b. Ecology Must Use Its Authority To Protect Public Health

Ecology's proposed rule permits GHG emissions beyond levels that are safe for humanity. By legalizing emissions at dangerous levels, Ecology places the public's health at serious risk. As discussed above, Ecology is bound by law to "preserve, protect, and enhance the air quality for current and future generations."³² Ecology's authority under the Washington Clean Air Act is quite broad. Under the law, the Legislature directs Ecology to "secure and maintain levels of air quality that protect human health and safety."³³ Furthermore, this protection is extended to plants, animals, and property.³⁴ Recognizing the serious consequences of air pollution in Washington, the Legislature called for immediate action to return air quality levels to "protect health and the environment" and to "prevent any areas of the state with acceptable air quality from reaching air contaminant levels that are not protective of human health and the environment."³⁵

Human-caused fossil fuel burning and the resulting climate change are already contributing to an increase in asthma, cancer, cardiovascular disease, stroke, heat-related morbidity and mortality, food-borne diseases, and neurological diseases and disorders.³⁶ Climate change has been called "the most serious threat to the public health of the 21st

³⁰ Ecology, Cost Benefit Analysis at 51.

³¹ RCW 70.235.020(1)(a)(iii).

³² RCW § 70.94.011.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ See The Center for Health and the Global Environment, Harvard Medical School, *Climate Change Futures: Health, Ecological, and Economic Dimensions* (Nov. 2005), http://coralreef.noaa.gov/aboutcrcep/strategy/reprioritization/wgroups/resources/climate/resources/cc_future_s.pdf; USGCRP, *Climate Change Impacts*, *supra* note 102, at 221-28.

century.”³⁷ Droughts, floods, heat waves and other extreme weather events linked to climate change also lead to a myriad of health issues.³⁸ The World Health Organization has stated that “[l]ong-term climate change threatens to exacerbate today’s problems while undermining tomorrow’s health systems, infrastructure, social protection systems, and supplies of food, water, and other ecosystem products and services that are vital for human health.”³⁹ Climate change is not only expected to affect the basic requirements for maintaining health (clean air and water, sufficient food, and adequate shelter) but is likely to present new challenges for controlling infectious disease and even “halt or reverse the progress that the global public health community is now making against many of these diseases.”⁴⁰ Children are especially vulnerable to adverse health impacts due to climate change.

Recent studies have highlighted the adverse mental health effects that result from climate change. One study noted that as many as 200 million Americans are expected to have mental health problems as a result of climate change impacts and added that mental health disorders are likely to be one of the most dangerous indirect health effects of climate change. The mental health effects can include elevated levels of anxiety, depression, PTSD, and a distressing sense of loss. The impacts of these mental health effects include chronic depression, increased incidences of suicide, substance abuse, and greater social disruptions like increased violence.⁴¹

In Washington, most health effects associated with climate change are expected to be negative and will include increased respiratory diseases, including asthma, heart attacks, and cancer.⁴² Moreover, as GHG emissions stay the same and continue to rise, Washingtonians can expect increased water shortages due to decreased snowpack and early snowmelt.⁴³ Water shortages affect the viability of native salmon species, which jeopardizes the mental health and welfare of the state’s tribal communities, who have relied upon these natural resources for time immemorial.

By authorizing the State’s top polluters to continue unsafe levels of GHG emissions that exceed both scientific and end existing statutory limits, Ecology actively puts Washingtonians’ health at risk, in violation of Ecology’s mandate under the Clean Air Act. The People entrusted Ecology to protect them from the harmful effects of air pollution and climate change. By allowing industry to continue to pollute beyond safe limits, the department breaches this trust.

³⁷ Casey Crandell, *Climate Action Holds Potential for Massive Improvements in Public Health*, Physicians for Social Responsibility (June 22, 2015), <http://www.psr.org/blog/climate-action-holds-potential-improvements-public-health.html>.

³⁸ *Id.*

³⁹ World Health Organization, *Atlas of Health and Climate* 4 (Oct. 2012), <http://www.who.int/globalchange/publications/atlas/report/en/>.

⁴⁰ World Health Organization, *Protecting Health from Climate Change: Connecting Science, Policy, and People* 2 (2009), <http://www.who.int/globalchange/publications/reports/9789241598880/en/index.html>.

⁴¹ Nick Watts et al., *Health and Climate Change: Policy Responses to Protect Public Health*, *The Lancet* (June 23, 2015), <http://www.thelancet.com/commissions/climate-change-2015>.

⁴² See Devra R. Cohen, *Forever Evergreen: Amending the Washington State Constitution for a Healthy Environment*, 90 Wash. L. Rev. (2015) 349, 391.

⁴³ *Id.*

c. The Clean Air Rule Must Protect the Waters of the State

By not developing a rule that is based on science and targeted to put Washington on a path to reaching global climate stabilization levels, Ecology is abdicating its responsibility as trustee of the waters of the state. The legislature has delegated a significant amount of authority to Ecology to act to protect the natural resources in the state, including air and water. In passing the Clean Air Act, the legislature explicitly recognized “air pollution control projects may affect other environmental media. In selecting air pollution control strategies state and local agencies shall support those strategies that lessen the negative environmental impact of the project on all environmental media, including air, water, and land.”⁴⁴ Ecology can and should implement this authority to fulfill its statutory mandate to protect both the air and waters of the state:

it is the purpose of this chapter to establish a single state agency with the authority *to manage and develop our air and water resources in an orderly, efficient, and effective manner and to carry out a coordinated program of pollution control involving these and related land resources.* To this end a department of ecology is created by this chapter to undertake, in an integrated manner, the various water regulation, management, planning and development programs now authorized to be performed by the department of water resources and the water pollution control commission, the air regulation and management program now performed by the state air pollution control board, the solid waste regulation and management program authorized to be performed by state government as provided by chapter 70.95 RCW, and such other environmental, management protection and development programs as may be authorized by the legislature.⁴⁵

“The legislature further recognizes that as the population of our state grows, the need to provide for our increasing industrial, agricultural, residential, social, recreational, economic and other needs will place an increasing responsibility on all segments of our society to plan, coordinate, restore and regulate the utilization of our natural resources in a manner that will protect and conserve our clean air, *our pure and abundant waters*, and the natural beauty of the state.”⁴⁶

Ecology is specifically charged with “the supervision of public waters within the state.”⁴⁷ “[A]ll waters within the state belong to the public” and “[t]he power of the state to regulate and control the waters within the state shall be exercised” in accordance with

⁴⁴ RCW 70.94.011.

⁴⁵ RCW 43.21A.020 (emphasis added).

⁴⁶ RCW 43.21A.010 (emphasis added).

⁴⁷ RCW 43.21A.064(1).

RCW 90.03.⁴⁸ Only Ecology has the authority to establish and protect minimum flows or levels.⁴⁹ Only Ecology has “the jurisdiction to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, salt waters, water courses, and other surface and underground waters of the state of Washington.”⁵⁰ As part of that authority, Ecology has a mandatory duty to promulgate “rules and regulations relating to standards of quality for waters of the state and for substances discharged therein in order to maintain the highest possible standards of all waters of the state in accordance with the public policy as declared in RCW 90.48.010.”⁵¹ Given the devastating impacts our waters are, and will be, facing due to climate change, it is imperative that Ecology invoke its statutory authority as trustee of our state’s water resources and promulgate a Clean Air Rule that is based on science.

d. The Clean Air Rule Must Mitigate Against Ocean Acidification

Ecology has recognized that global warming is occurring and adversely impacting Earth’s climate.⁵² At the same time, ocean acidification “has been observed,” due to the ocean absorbing approximately “30 percent of the emitted anthropogenic carbon dioxide,” thereby threatening Earth’s ocean life.⁵³ If immediate action is not taken to draw down carbon dioxide emissions, the costs of climate change and ocean acidification impacts to Washington are projected at \$10 billion per year by 2020.⁵⁴

As discussed above, Ecology is the agency with the authority to adopt “rules and regulations relating to standards of quality for waters of the state and for substances discharged therein in order to maintain the highest possible standards of all waters of the state in accordance with the public policy as declared in RCW 90.48.010.”⁵⁵ The State has previously acknowledged, “acidification near the coasts, and particularly in highly populated and developed areas, is often exacerbated by local sources of pollutants, such as nutrients and organic material, that generate additional carbon dioxide in marine waters.”⁵⁶ In spite of long-standing efforts by the Center for Biological Diversity,⁵⁷ Ecology still has not amended its water quality standards or taken other regulatory action

⁴⁸ RCW 90.03.010.

⁴⁹ RCW 90.03.247; RCW 90.22.010 (“The department of ecology may establish minimum water flows or levels for streams, lakes or other public waters for the purposes of protecting fish, game, birds or other wildlife resources, or recreational or aesthetic values of said public waters whenever it appears to be in the public interest to establish the same.”).

⁵⁰ RCW 90.48.030.

⁵¹ RCW 90.48.035.

⁵² *Foster, et al. v. Ecology*, King County Superior Court No. 14-2-25295-1 SEA (Ecology’s Answer) (filed October 6, 2014) at 3:3-5.

⁵³ *Id.* at 3:4, 14-16.

⁵⁴ Washington Executive Order 14-04 (April 29, 2014).

⁵⁵ RCW 90.48.035.

⁵⁶ Washington Executive Order 12-07 (November 27, 2012).

⁵⁷ The legal authority and obligation to use existing authority to address ocean acidification is set forth in the attached petitions, both of which are hereby incorporated by reference. Center for Biological Diversity, Petition to EPA for Additional Water Quality Criteria & Guidance Under Section 304 of the Clean Water Act, 33 U.S.C. § 1314, to Address Ocean Acidification (April 17, 2013) (Exhibit H); Center for Biological Diversity Petition to EPA for Revised State Water Quality Standards for Marine pH Under the Clean Water Act, 33 U.S.C. § 1313(c)(4) (October 18, 2012) (Exhibit I).

to address ocean acidification. This should be done forthwith and is an integral component of any attempt by Ecology to address climate change.

IV. THE PROPOSED CLEAN AIR RULE VIOLATES ECOLOGY'S STATUTORY & CONSTITUTIONAL OBLIGATIONS BECAUSE IT LEGALIZES DANGEROUS LEVELS OF GHG EMISSIONS & FAILS TO UTILIZE CURRENT CLIMATE SCIENCE

The draft Clean Air Rule violates Ecology's constitutional and statutory responsibilities as outlined above because it legalizes dangerous levels of carbon dioxide emissions. No person or corporation has the legal right to emit unlimited amounts of carbon dioxide in a manner that abridges the constitutional rights of young people and violates the existing statutory laws. Ecology's historic inability to regulate emissions of carbon dioxide does not somehow confer upon an entity the right to continue to pollute, because that right never existed. By promulgating a Clean Air Rule that regulates only a very small segment of entities that emit GHG gases over a certain threshold (beginning at 100,000 metric tons of CO₂e starting in 2017, and leading to 70,000 metric tons of CO₂e in 2035), Ecology has implicitly authorized continued emission of GHGs by all entities that fall under those thresholds, including non-covered entities. Ecology is without authority to do so because the science is clear that action violates the constitutional rights of young people.

- a. Ecology Must Base Its Rule On The Best Available Climate Science to Protect Young People & Future Generations
 - i. The Best Available Climate Science Provides a Prescription for Restoring the Atmosphere, Stabilizing the Climate System & Protecting the Waters of the State: Atmospheric CO₂ Levels Must Be Reduced to Below 350 ppm By 2100

In order to protect our planet's climate system and vital natural resources on which human survival and welfare depends, and to ensure that young people's and future generations' fundamental and inalienable human rights are protected, the Clean Air Rule *must* be based on the best available climate science. There are numerous scientific bases for setting 350 parts per million ("ppm") as the uppermost safe limit for atmospheric CO₂ concentrations. Ecology continues to shirk its responsibility to inform the public what GHG emissions are necessary to fulfill its constitutional and statutory obligations. Notably, the agency has presented no science that contradicts this scientific prescription first presented by youth in Washington State in 2011.⁵⁸

There are three main reasons why Ecology must adopt the scientific prescription described in these comments. First, returning CO₂ concentrations to 350 ppm would restore the energy balance of Earth and allow as much heat to escape into

⁵⁸ *Svitak, et al. v. State*, King County Superior Court No. 11-2-16008-4 SEA (Amended Complaint) (filed May 18, 2011) (Exhibit J).

space as Earth retains, which has kept our planet in the “sweet spot” for humans and other species to thrive.

Second, CO₂ levels exceeding 350 ppm are creating a planet warmer than humans have ever lived in and are disrupting the physical and biological systems in which human civilization has evolved. The consequences of even 1 degree Celsius of warming will be significant for humanity, but scientists believe we can preserve our ice sheets and for the most part our shorelines and ecosystems, if we limit long-term warming to 1 degree Celsius (short-term warming will inevitably exceed 1 degree Celsius but must exceed 1 degree Celsius for a minimal amount of time). If we allow sustained global average temperature increases of more than 1 degree Celsius we will suffer irreversible climate destabilization and a planet largely inhospitable to human civilization.

Third, marine animals, including coral reefs, cannot tolerate the acidifying and warming of our ocean waters that results from increased CO₂ levels, 30% of which is absorbed by the oceans. At 400 ppm CO₂, the coral reefs of the world and shellfish are rapidly declining and will be irreversibly compromised if we do not quickly reverse course. The economic and cultural consequences of the loss of marine resources, including salmon and shellfish, are exponential and cannot be quantified.

All government policies, including the Clean Air Rule promulgated by Ecology, regarding greenhouse gas/CO₂ pollution and de/reforestation worldwide should be aimed at 350 ppm by 2100. Fortunately, it is still not only technically and economically feasible to get there, but transitioning to renewable energy sources will provide significant economic and public health benefits and improve the quality of lives. But time is running out. We cannot continue to base life and death policies on politics rather than science.

1. Restoration of the Earth’s Energy Balance

To protect Earth’s climate for present and future generations, we must restore Earth’s energy balance. By burning fossil fuels and deforesting the planet,⁵⁹ which results in an increase in greenhouse gases in the atmosphere, especially CO₂, humans have altered Earth’s energy balance.⁶⁰ The best climate science shows that if the planet once again sends as much energy into space as it absorbs from the sun, this will restore the planet’s climate equilibrium.⁶¹ Scientists have accurately calculated how Earth’s energy balance will change if we reduce long-lived greenhouse gases

⁵⁹ Intergovernmental Panel on Climate Change, *Summary for Policymakers, Climate Change 2014: Impacts, Adaptation, and Vulnerability* 5 (2014).

⁶⁰ James Hansen et al., *Assessing “Dangerous Climate Change”: Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, PLOS ONE 8:12, 3763 (2013) (“Assessing Dangerous Climate Change”).

⁶¹ John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts, in Climate Change: What It Means for Us, Our Children, and Our Grandchildren* 11, 15-22 (Joseph F. C. DiMento & Pamela Doughman eds., 2007).

such as CO₂.⁶² We would need to reduce atmospheric CO₂ concentrations by at least 50 ppm, from their 2015 level of 400 ppm in order to increase Earth's heat radiation to space, if other long-lived gases do not continue to increase.⁶³

2. Stop Global Surface Warming that Will Disrupt the Physical and Biological Systems on Which Humans Depend

In order to protect the physical and biological systems on which humans rely for their basic needs and the stability of their communities, we must reduce atmospheric CO₂ concentration to no more than 350 ppm and stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.⁶⁴

Current science shows that while global surface heating may rise as much as 1.5 °C above pre-industrial temperatures because of warming already locked into the pipeline from existing CO₂ pollution, to protect Earth's natural systems, long-term average global surface heating should not exceed 1°C this century. In other words, even 1.5 °C of heating is unsafe, and we must stabilize at no more than 1°C of heating over pre-industrial temperatures. *According to current climate science, to prevent global heating greater than 1°C, concentrations of atmospheric CO₂ must decline to 350 ppm or less by the end of this century.*⁶⁵ However, today's atmospheric CO₂ levels are over 400 ppm and rising.⁶⁶

3. Targeting Reductions to Allow More than 2° Warming is Unlawful

A target of keeping global surface heating to 2°C above pre-industrial temperatures, which approximately equates to an atmospheric CO₂ concentration of 450 ppm, cannot be considered a safe target for present or future generations, and is not supported by current science of climate stabilization or ocean protection, nor is it accepted by the IPCC.⁶⁷ Notably, Ecology has admitted that “the Washington state

⁶² James Hansen, *Storms of My Grandchildren* 166 (2009) (“Also our best current estimate for the planet’s mean energy imbalance over the past decade, thus averaged over the solar cycle, is about +0.5 watt per square meter. Reducing carbon dioxide to 350 ppm would increase emission to space 0.5 watt per square meter, restoring the planet’s energy balance, to first approximation.”).

⁶³ James Hansen, *Storms of My Grandchildren* 166 (2009); *see also* James E. Hansen et al., *Target Atmospheric CO₂: Where Should Humanity Aim?* 2 *The Open Atmospheric Science Journal* 217, 217-31 (2008), http://www.columbia.edu/~jeh1/2008/TargetCO2_20080407.pdf [hereinafter *Where Should Humanity Aim?*].

⁶⁴ *See* Hansen, *Where Should Humanity Aim?*, 217 (2008) (“If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, Paleoclimate evidence and ongoing climate change suggest that CO₂ will need to be reduced from its current 385 ppm to at most 350 ppm.”).

⁶⁵ *See id.*; James Hansen, *Storms of My Grandchildren* (2009).

⁶⁶ NASA, Facts, Carbon Dioxide, <http://climate.nasa.gov/vital-signs/carbon-dioxide/> (last visited May 2, 2016).

⁶⁷ United Nations, Framework Convention on Climate Change, Conference of the Parties, Paris Agreement, Article 2 (“1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average

emission reductions currently required by RCW 70.235.020 are not sufficient to keep the rise in surface temperature below 2°C.”⁶⁸ Earth’s paleoclimate history demonstrates that climate impacts accompanying global warming of 2°C or more would be irreversible and catastrophic for humanity. For example, the paleoclimate record shows that warming consistent with CO₂ concentrations as low as 450 ppm may have been enough to melt almost all of Antarctica.⁶⁹ The warming of the past few decades has brought global temperature close to if not slightly above the prior maximum of the Holocene epoch. Human society must keep global temperature at a level within or close to the Holocene range to prevent dangerous climate change. Global warming of 2°C would be well above Holocene levels and far into the dangerous range and has been described as “an unacceptably high risk of global catastrophe.”⁷⁰

The widely used models that allow for 2°C temperature increase, and therefore advocate for a global CO₂ emission reduction target aimed at a 450 ppm CO₂ standard, do not take into account significant factors that will compound climate impacts. Most importantly, they do not include the slow feedbacks that will be triggered by a temperature increase of 2°C.⁷¹ Slow feedbacks include the melting of ice sheets and the release of potent greenhouse gases, particularly methane, from the thawing of the tundra.⁷² These feedbacks might show little change in the short-term, but can hit a point of no return, even at a 2°C temperature increase, that will trigger further warming and sudden catastrophic impacts. For example, the Greenland and Antarctic ice sheets “required millennia to grow to their present sizes. If ice sheet disintegration reaches a point such that the dynamics and momentum of the process take over, reducing greenhouse gases may be futile to prevent major ice sheet mass loss, sea level rise of many meters, and worldwide loss of coastal cities—a consequence that is irreversible for practical purposes.”⁷³

These slow feedbacks are part of the inertia of the climate system, where “[t]he inertia causes climate to appear to respond slowly to this human-made forcing, but further long-lasting responses can be locked in.”⁷⁴ Thermal inertia is primarily a result of the global ocean, which stores 90% of the energy surplus, and therefore perpetuates increased global temperature even after climate forcings, or emissions, have declined.⁷⁵ Thus, the longer we wait to reduce global CO₂ concentrations, the

temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5° above pre-industrial, recognizing that this would significantly reduce the risks and impacts of climate change.”).

⁶⁸ *Foster, et al. v. Ecology*, King County Superior Court No. 14-2-25295-1 (Department of Ecology’s Response to June 23, 2015 Court Order) (filed August 7, 2015) (Exhibit K) at 4.

⁶⁹ Dec. of Dr. James E. Hansen, *Juliana et al., v. United States et al.*, No. 6:15-cv-01517-TC, 14 (D. Or. Aug. 12, 2015).

⁷⁰ *Id.* at 17.

⁷¹ Hansen, *Assessing “Dangerous Climate Change,”* 15.

⁷² *Id.*

⁷³ *Id.* at 13.

⁷⁴ *Id.* at 1.

⁷⁵ *Id.* at 4-5, 13.

more thermal inertia will already be in play and climate impacts will continue to escalate.

Furthermore, 2°C targets would lead to an increase in the use of fossil fuels that are more difficult to extract, and thus are compounded with the expenditure of greenhouse gases due to the transport and intensive mining process resulting in “more CO₂ [emissions] per unit useable energy.”⁷⁶ The 2°C target also reduces the likelihood that the biosphere will be able to sequester CO₂ due to carbon cycle feedbacks and shifting climate zones.⁷⁷ Under the allowable emissions with this target, other greenhouse gases, such as methane and nitrous oxide would continue to increase, further exacerbating climate change impacts.⁷⁸ These factors are missing from the 2°C scenarios, which have been widely accepted and used in the creation of climate policies and plans.

A temperature rise of 2°C will not only lock in a further temperature increase due to thermal inertia, but it will also trigger irreversible impacts, including rapid, nonlinear sea level rise and species loss described above.⁷⁹ Most models look at sea level rise as a gradual linear response to melting ice sheets. However, “it has been argued that continued business-as-usual CO₂ emissions are likely to spur a nonlinear response with multi-meter sea level rise this century.”⁸⁰ This sea level rise would occur at a pace that would not allow human communities or ecosystems to respond.

An emission reduction target aimed at 2°C would “yield a larger eventual warming because of slow feedbacks, probably at least 3°C.”⁸¹ Once a temperature increase of 2°C is reached, there will already be “additional climate change “in the pipeline” even without further change of atmospheric composition.”⁸² Dr. James Hansen warns that “distinctions between pathways aimed at 1°C and 2°C warming are much greater and more fundamental than the numbers 1°C and 2°C themselves might suggest. These fundamental distinctions make scenarios with 2°C or more global warming far more dangerous; so dangerous, we [James Hansen et al.] suggest, that aiming for the 2°C pathway would be foolhardy.”⁸³ This target is at best the equivalent of “flip[ping] a coin in the hopes that future generations are not left with few choices beyond mere survival. This is not risk management, it is recklessness and we must do better.”⁸⁴ Thus, a global average atmospheric concentration of CO₂ of 450 ppm, or a concentration of CO₂e between 450 and 550 ppm, would result in dangerous anthropogenic interference with the climate system and would threaten all

⁷⁶ *Id.* at 15.

⁷⁷ *Id.* at 15, 20.

⁷⁸ *Id.* at 20.

⁷⁹ *Id.* at 6.

⁸⁰ *Id.*

⁸¹ *Id.* at 15.

⁸² *Id.* at 19.

⁸³ *Id.* at 15.

⁸⁴ Matt Vespa, *Why 350? Climate Policy Must Aim to Stabilize Greenhouse Gases at the Level Necessary to Minimize the Risk of Catastrophic Outcomes*, 36 *Ecology Law Currents* 185, 186 (2009), http://www.biologicaldiversity.org/publications/papers/Why_350.pdf.

public natural resources around the world and the health and well-being of all Earth's inhabitants.

*Importantly, the Intergovernmental Panel on Climate Change (“IPCC”) has not established nor endorsed a target of 2°C warming above the preindustrial period as a limit below which the climate system will be stable.⁸⁵ The 2°C figure was reached as a compromise between the emission reduction scenarios and associated risks summarized by Working Group I of the 2007 IPCC Fourth Assessment Report,⁸⁶ and because policy makers felt that it was politically achievable.⁸⁷ As the IPCC makes clear, “each major IPCC assessment has examined the impacts of [a] multiplicity of temperature changes but has left [it to the] political processes to make decisions on which thresholds may be appropriate.”⁸⁸ *Two degrees Celsius warming above pre-industrial levels has never been universally considered “safe” from either a political or scientific point of view.* As the United Nations Framework Convention on Climate Change (“UNFCCC”) stated: “The ‘guardrail’ concept, in which up to 2°C of warming is considered safe, is inadequate and would therefore be better seen as an upper limit, a defense line that needs to be stringently defended, while less warming would be preferable.”⁸⁹ And according to a Coordinating Lead Author of the IPCC’s 5th Assessment Report, the 2°C “danger level” seemed:*

utterly inadequate given the already observed impacts on ecosystems, food, livelihoods, and sustainable development, and the progressively higher risks and lower adaptation potential with rising temperatures, combined with disproportionate vulnerability.⁹⁰

The most recent IPCC synthesis of climate science confirms that additional warming of 1°C (we already have 0.9°C warming above the preindustrial average) jeopardizes unique and threatened systems, including ecosystems and cultures.⁹¹ The IPCC also warns of risks of extreme events, such as heat waves, extreme precipitation, and coastal flooding, and “irreversible regime shifts” with additional warming.⁹²

⁸⁵ See Dec. of Dr. James E. Hansen, *Juliana et al., v. United States et al.*, No. 6:15-cv-01517-TC, 5 (D. Or. Aug. 12, 2015).

⁸⁶ See IPCC, *Summary for Policymakers*, Climate Change 2007: The Physical Science Basis (Solomon, S., D. Qin,

M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)) (2007) (Table SPM.3).

⁸⁷ See Dec. of Dr. Richard H. Gammon, *Foster v. Wash. Dep’t of Ecology*, No. 14-2-25295-1 SEA 1 (Wash. Super. Ct. Aug. 24, 2015).

⁸⁸ IPCC, *Climate Change 2014: Mitigation of Climate Change, Contribution of Working Group III to the Fifth Assessment Report*, 125 (2014), http://report.mitigation2014.org/report/ipcc_wg3_ar5_chapter1.pdf.

⁸⁹ UNFCCC, *Report on the structured expert dialogue on the 2013–2015 review*, 18 (2015), <http://unfccc.int/resource/docs/2015/sb/eng/inf01.pdf>.

⁹⁰ Petra Tschakert, *1.5 °C or 2 °C: a conduit’s view from the science-policy interface at COP20 in Lima, Peru*, Climate Change Responses 8 (2015), <http://www.climatechangeresponses.com/content/2/1/3>.

⁹¹ IPCC, Summary for policymakers at 13-14, Climate Change 2014: Impacts, Adaptation, and Vulnerability (2014), http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf.

⁹² *Id.*

4. Protect Waters of the State & Marine Life From Deadly Acidification and Warming of Ocean Waters

Conveniently, oceans have the same scientific standard of protection as the atmosphere and climate system. Marine organisms and ecosystems are already harmed and will increasingly continue to be harmed by the effects of ocean acidification. Critically important ocean ecosystems, such as coral reefs, are severely threatened by present day CO₂ concentrations of approximately 400 ppm and it is vitally important that atmospheric CO₂ levels are reduced to below 350 ppm in order to protect ocean ecosystems.⁹³ The IPCC never concluded that 2°C warming or 450 ppm would be safe for ocean life.⁹⁴ According to Dr. Ove Hoegh-Guldberg, one of the world's leading experts on ocean acidification and the Coordinating Lead Author of the oceans chapter of the 5th Assessment Report of the IPCC:

Allowing a temperature rise of up to 2°C would seriously jeopardize ocean life, and the income and livelihoods of those who depend on healthy marine ecosystems. Indeed, the best science available suggests that coral dominated reefs will completely disappear if carbon dioxide concentrations exceed much more than today's concentrations. Failing to restrict further increases in atmospheric carbon dioxide will eliminate coral reefs as we know them and will deny future generations of children from enjoying these wonderful ecosystems.⁹⁵

Even the 2015 Paris Agreement backed off of making any assumptions that 2°C is a safe level of warming though it did not state a maximum safe level of long-term warming, instead committing to pursue efforts to limit the temperature increase to 1.5°C.⁹⁶ To prevent further degradation or the eventual depletion of the oceanic resources, it is imperative that atmospheric CO₂ concentrations be returned to below 350 ppm by the end of this century.

5. The Clean Air Rule Must Be Aimed at 350 ppm and Mandate Annual Reductions of 8% Per Year

It is imperative that all states and governments around the world, including the Washington Department of Ecology, set GHG emission limits targeted at 1°C temperature change, or a maximum of 350 ppm in global CO₂ levels, in order to avoid the cascading impacts that will occur with a 2°C or 450 ppm default policy based on political feasibility rather than scientific necessity. *To reduce global atmospheric CO₂ to 350 ppm by the end of this century, this target would require that if global CO₂ emissions had flatlined with a peak in 2016, Washington emissions be reduced by 8% per year beginning in 2017, alongside Washington's share in*

⁹³ See Dec. of Dr. Ove Hoegh-Guldberg, *Foster v. Wash. Dep't of Ecology*, No. 14-2-25295-1 SEA, 1 (Wash. Super. Ct. Aug. 24, 2015) (Exhibit M).

⁹⁴ *Id.* at 2.

⁹⁵ *Id.*

⁹⁶ Paris Agreement, Article 2, Section 1(a).

*achieving 100 GtC of global CO₂ sequestration through reforestation and soil protection.*⁹⁷ Continued delay makes it harder and harder for youth and future generations to protect a livable world. It is imperative to establish emission limits to put states and sovereigns around the world on a trajectory aimed for 350 ppm.

Atmospheric CO₂ levels are currently on a path to reach a climatic tipping point.⁹⁸ Absent immediate action to reduce CO₂ emissions, atmospheric CO₂ may reach levels so high that life on Earth as we know it is unsustainable at these levels. Governments have the present ability to curtail the environmental harms detailed above. Atmospheric CO₂ concentrations will decrease if states stop (or greatly reduce) their burning of fossil fuels.⁹⁹ The environmental harms and threat to human health and safety as described above can only be avoided if atmospheric CO₂ concentrations are immediately reduced. Any more delay risks irreversible and catastrophic consequences for youth and future generations.

Fossil fuel emissions must decrease rapidly if atmospheric CO₂ is to be returned to a safe level in this century.¹⁰⁰ Improved forestry and agricultural practices can provide a net drawdown of atmospheric CO₂, primarily via reforestation of degraded lands that are of little or no value for agricultural purposes, returning us to 350 ppm somewhat sooner.¹⁰¹ However, the potential of these measures is limited. Immediate and substantial reductions in CO₂ emissions are required in order to ensure that the youth and future generations inherit a planet that is inhabitable.

6. An Additional 100 gtC Must Be Sequestered Through Reforestation & Soil Protection Measures¹⁰²

The scientific prescription for climate recovery requires both emission reductions *and* sequestration of 100 gigatons of carbon through reforestation and soil protection.^{103,}
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⁹⁷ Hansen Decl. (Exhibit O).

⁹⁸ James Hansen, *Storms of My Grandchildren* 224-30, 260 (2009).

⁹⁹ Harvey Blatt, *America's Environmental Report Card* xiii (2005) ("How can we stop this change in our climate? The answer is clear. Stop burning coal and oil, the sources of nearly all the carbon dioxide increase.").

¹⁰⁰ Hansen, *Where Should Humanity Aim?*, 217 (discussing the need to reduce the atmospheric CO₂ concentration to 350 ppm).

¹⁰¹ *Id.* at 227.

¹⁰² For an overview of the carbon cycle and sequestration potential of forests and soil, see Expert Declaration of Thomas Crowther, Ph.D., in support of Western Environmental Law Center and Our Children's Trust's comments on proposed Clean Air Rule, WASH. ADMIN. CODE § 173-442 (July 22, 2016) ("Crowther Decl.").

¹⁰³ Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, PLOS ONE, Dec. 2013, at 1, 1, <http://journals.plos.org/plosone/article/asset?id=10.1371%2Fjournal.pone.0081648.PDF>.

¹⁰⁴ It is important to note that reforestation and sequestration efforts are not a replacement for emission reductions of at least 8% per year (2016 baseline); they are in addition to emission reductions.

We cannot halt the rise in global surface temperatures without addressing forest and vegetation loss and degradation of soil. Furthermore, since the concentration of CO₂ in the atmosphere is currently over 400 parts per million (ppm) and the safe level is no more than 350 ppm, we need to draw down this excess CO₂ out of the atmosphere.¹⁰⁵

Specifically, Washington must sequester at least 9,393,160 metric tons of CO₂ per year between 2012 and 2050 in order to proportionally contribute to the global prescription of 350 ppm.¹⁰⁶ In actuality, since Washington's forests have above average potential for carbon sequestration, Ecology should aim to sequester even more CO₂ than its average share. To comply with the scientific prescription for climate recovery, Ecology must promulgate regulations and policies that mandate sequestration *in addition* to reducing emissions.¹⁰⁷ Ecology's Rule fails to properly analyze sequestration in a number of ways: 1) it does not address deforestation or reforestation; 2) it does not provide for sustainable forest management practices to improve sequestration and reduce wildfires; and 3) it fails to properly consider soil carbon sequestration.

(a) Forest Carbon Sequestration is an Integral Component of Climate Recovery that Ecology Failed to Consider.

The Rule fails to properly consider possibilities for reforestation or for slowing deforestation. Washington is home to 20-21 million acres of forestland – half of its total land area.¹⁰⁸ State-conducted inventories report that Washington forests are net sinks of CO₂.¹⁰⁹ About 29 MMtCO₂e are sequestered by Washington forest biomass every year.¹¹⁰ Consequently, forest management is integral to any effective and enduring climate change mitigation strategy in Washington.

Washington forests are exceptional carbon sinks but deforestation poses a serious risk to their carbon storage capacity. Pacific Northwest (PNW) forests have the highest

¹⁰⁵ Crowther Decl. ¶ 5.

¹⁰⁶ This number is calculated by multiplying the annual carbon sequestration requirement per capita for 2012-2050 by the population of Washington. Based on a global annual carbon sequestration requirement of 1.31 Metric Tons CO₂ per person, EUGENE SUSTAINABILITY OFFICE, METHODOLOGY FOR ESTABLISHING A COMMUNITY CARBON BUDGET 6, at <https://www.eugene-or.gov/DocumentCenter/View/26229>, and Washington population estimates of 7,170,351 in 2015, *Washington*, UNITED STATES CENSUS BUREAU: QUICKFACTS, at <https://www.census.gov/quickfacts/table/PST045215/53,00> (last visited July 20, 2016).

¹⁰⁷ Crowther Decl..

¹⁰⁸ GORDON BRADLEY ET AL., THE RURAL TECHNOLOGY INSTITUTE, FOREST LAND CONVERSION IN WASHINGTON STATE, *in* FUTURE OF WASHINGTON'S FOREST AND FOREST INDUSTRIES STUDY 260 (2007), http://www.ruraltech.org/projects/fwaf/final_report/index.asp.

¹⁰⁹ CENTER FOR CLIMATE STRATEGIES, WASHINGTON STATE GREENHOUSE GAS INVENTORY AND REFERENCE CASE PROJECTIONS, 1990-2020 I-1 (2007), http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf; *See also* UNITED STATES GEOLOGICAL SURVEY, PROFESSIONAL PAPER 1797, BASELINE AND PROJECTED FUTURE CARBON STORAGE AND GREENHOUSE-GAS FLUXES IN ECOSYSTEMS OF THE WESTERN UNITED STATES 2 (Zhiliang Zhu and Bradley C. Reed, eds., 2012), http://pubs.usgs.gov/pp/1797/pdf/PP1797_WholeDocument.pdf.

¹¹⁰ CENTER FOR CLIMATE STRATEGIES, *supra* note 7, at ES-4.

carbon stocks in the United States.¹¹¹ Forests in the western PNW are particularly effective carbon sinks due to the large presence of coniferous and old growth trees and historically infrequent fires.¹¹² All of these factors allow significant amounts of carbon to accumulate in PNW forests.¹¹³ However, between 1988 and 2004, 17% of western Washington's forestland was converted to other uses.¹¹⁴ Every year, an additional 0.37% to 1.04% of Washington's forestland is converted into residential or commercial development.¹¹⁵ Such land use change reduces Washington's overall carbon storage capacity and thus impairs capacity for climate recovery.

Mandating carbon storage in Washington forests is vital to restoring a safe atmospheric balance of CO₂. In a report commissioned by Ecology in response to an executive order from Governor Gregoire, the 2010 Forest Carbon Workgroup expressed its belief that "conversion of forestland to non-forest uses represents one of the greatest sources of loss of forest carbon sequestration and storage, and therefore avoiding such conversion where feasible is a high priority means of reducing those losses and accompanying GHG emissions."¹¹⁶ Similarly, the United Nations has stated, "combating climate change without slowing deforestation is a lost cause."¹¹⁷ These conclusions are based on the scientific consensus that deforestation is "one of the largest anthropogenic sources of emissions to the atmosphere globally."¹¹⁸ Net deforestation is responsible for 20% of the increase of atmospheric CO₂ globally since the preindustrial era.¹¹⁹ This amounts to an additional 100 gigatons of carbon in the atmosphere.¹²⁰

To adequately heed current science, Ecology must include regulations aimed at increasing carbon sequestration by preventing any net forest loss immediately, then promoting reforestation and more sustainable forestry practices aimed at achieving the required 9,393,159 metric tons of CO₂ sequestration per year. These measures must be *in addition* to reducing overall emissions from other sectors.

¹¹¹ Crystal L. Raymond & Donald McKenzie, *Carbon Dynamics of Forests in Washington, USA: 21st Century Projections Based on Climate-driven Changes in Fire Regimes*, 22 *ECOLOGICAL APPLICATIONS* 1589, 1589 (2012).

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ BRADLEY ET AL., *supra* note 6, at 269.

¹¹⁵ *Id.* at 260.

¹¹⁶ 2010 FOREST CARBON WORKGROUP, WASHINGTON STATE DEPARTMENT OF ECOLOGY, PUB. NO. 11-10-006, FINAL REPORT 6 (2010), <https://fortress.wa.gov/ecy/publications/publications/1110006.pdf>.

¹¹⁷ Department of Economic and Social Affairs, *Reforestation: the easiest way to combat climate change*, UNITED NATIONS (2010), <http://www.un.org/en/development/desa/news/forest/reforestation-the-easiest.html>.

¹¹⁸ Environmental Protection Agency, *Land Use, Land-Use Change, and Forestry*, in *INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2014* 6-54 (2016), <https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Chapter-6-Land-Use-Land-Use-Change-and-Forestry.pdf>.

¹¹⁹ Hansen et al., *supra* note 2, at 10.

¹²⁰ *Id.*

(b) Ecology Failed to Properly Analyze Forest Health Management and Wildfire Alleviation as Methods to Improve Forest Carbon Sequestration.

Ecology has failed to properly consider forest health management or analyze the impacts of increasing intensity and frequency of forest fires on sequestration potential. Unhealthy forests increase the risk of extreme wild fires, which in turn reduce forest sequestration potential. With wildfires increasing in frequency and intensity across Washington State, managing forest health will be essential to protecting carbon storage processes.

The dangers of increased fire risk with regards to sequestration have been noted by numerous state-sponsored efforts in Washington.¹²¹ Forest fires release carbon sequestered in forests and reduce the carbon storage capacity across the state.¹²² Forest fires reduce sequestration potential by “affect[ing] the land-atmosphere exchange of [carbon] directly by releasing CO₂ to the atmosphere . . . and indirectly by shifting forest age class distributions toward a greater proportion of young forests.”¹²³

As climate change worsens, “Washington’s forests are likely to experience significant changes in the establishment, growth, and distribution of tree species as a result of increasing temperatures, declining snowpack, and changes in soil moisture.”¹²⁴ Forests also face increased threats of fire, insect outbreaks, and diseases.¹²⁵ All of these factors result in hazardous amounts of excess fuel in forests,¹²⁶ which will result in an increased frequency and intensity of wildfires in Washington.¹²⁷ In fact, Washington is already experiencing its worst fire seasons in recorded history – more than 1,000,000 acres burned in 2015 and 400,000 acres in 2014.¹²⁸ Around 13.3 million acres – greater than half – of Washington forests are at moderate to high risk for fire.¹²⁹

Despite the huge importance of forest carbon sequestration in climate recovery, Ecology’s Rule fails to consider or recommend any methods for restoring and maintaining the health of Washington’s forests to avoid the detrimental impacts of severe wildfires on Washington’s sequestration potential. While Ecology does not directly

¹²¹ 2010 FOREST CARBON WORKGROUP, *supra* note 14, at 11.

¹²² *Id.*

¹²³ Raymond & McKenzie, *supra* note 9, at 1589-90.

¹²⁴ WASHINGTON STATE DEPARTMENT OF ECOLOGY, PUB. NO. 14-01-006, WASHINGTON GREENHOUSE GAS EMISSION REDUCTION LIMITS 12 (2014), <https://fortress.wa.gov/ecy/publications/documents/1401006.pdf>.

¹²⁵ *Id.*

¹²⁶ 2010 FOREST CARBON WORKGROUP, *supra* note 14, at 11.

¹²⁷ CENTER FOR CLIMATE STRATEGIES, *supra* note 7, at I-5.

¹²⁸ WASHINGTON FOREST PROTECTION ASSOCIATION, ANNUAL REPORT 2015 (2015), <http://www.wfpa.org/workspace/resource/document/wfpa-2015-annual-report.pdf>.

¹²⁹ DUSHKU ET AL., WINROCK INTERNATIONAL, CARBON SEQUESTRATION THROUGH CHANGES IN LAND USE IN WASHINGTON: COSTS AND OPPORTUNITIES 4 (2005), <http://www.ecy.wa.gov/climatechange/twgdocs/agr/051707agrwestcarb2.pdf>.

manage state and private forest lands,¹³⁰ Ecology is the agency established “to manage and develop our air and water resources in an orderly, efficient, and effective manner.”¹³¹

(c) Ecology Failed to Mandate Soil Protection and Enhancement as a Means to Increase Washington’s Carbon Sequestration Potential.

Finally, the proposed Rule fails to require measures to increase and protect soil carbon sequestration. Through both organic matter and inorganic compounds, “soil is a large reservoir of carbon.”¹³² Soil organic matter stores about three times more carbon than forests and other vegetation.¹³³ Every 1% increase in average soil organic carbon content has the potential to reduce CO₂ in the atmosphere by up to 2%.¹³⁴ Methods for improving soil carbon sequestration include the application of compost,¹³⁵ diversifying planting practices on farms, and adding biochar to soils.¹³⁶

In addition, agricultural soils in Washington store an estimated 1.4 MMtCO₂e per year¹³⁷ but have the potential to store much more with management aimed at improving sequestration.¹³⁸ The agricultural sector could improve soil carbon storage capacity through sustainable farming practices such as efficient fertilizer use and solid manure management.¹³⁹ Ecology must produce soil protection guidelines and encourage and incorporate such methods into the Rule to comply with the scientific prescription. Ecology is in the process of developing a general discharge permit for Concentrated Animal Feeding Operations on the state.¹⁴⁰ As part of this permit, Ecology is able to mandate manure management practices that are designed to enhance the state’s sequestration potential. In its current form, the draft permit does nothing to do that, but measures can and should be incorporated into the final version of the permit. By failing to mandate soil carbon sequestration and sustainable agriculture practices, Ecology ignores processes pivotal to climate recovery in Washington.

Ecology has failed to properly consider the sequestration potential of forests and soil in the proposed Rule. To comply with the current scientific consensus that effective

¹³⁰ The Washington Department of Natural Resources manages state trust lands, including forests, on behalf of the people of Washington.

¹³¹ RCW 43.21A.020.

¹³² WASHINGTON STATE DEPARTMENT OF ECOLOGY, FOCUS ON SOIL CARBON SEQUESTRATION 1 (2013), <https://fortress.wa.gov/ecy/publications/publications/1307031.pdf>.

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ *What is Carbon Farming?*, MARIN CARBON PROJECT, <http://www.marincarbonproject.org/what-is-carbon-farming> (last visited July 15, 2016).

¹³⁶ WASHINGTON STATE DEPARTMENT OF ECOLOGY, at 2-3; Crowther Decl. at 5.

¹³⁷ CENTER FOR CLIMATE STRATEGIES, at ES-4.

¹³⁸ WASHINGTON STATE DEPARTMENT OF ECOLOGY, PUB. NO. 15-07-005, SOIL ORGANIC CARBON STORAGE (SEQUESTRATION) PRINCIPLES AND MANAGEMENT vii (2015), <https://fortress.wa.gov/ecy/publications/publications/1507005.pdf>.

¹³⁹ *Sources of Greenhouse Gas Emissions*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, <https://www3.epa.gov/climatechange/ghgemissions/sources/agriculture.html> (last visited July 18, 2016).

¹⁴⁰ Ecology, Concentrated Animal Feeding Operation General Permit, at <http://www.ecy.wa.gov/programs/wq/permits/cafo/index.html> (last visited July 22, 2016).

climate recovery initiatives must include sequestration improvements, Ecology must address factors such as reforestation, forest management, soil carbon sequestration, and sustainable agricultural practices in its Rule.¹⁴¹ These sequestration initiatives must be *in addition* direct reductions in Washington’s GHG emissions.¹⁴² Forest and soil management are not an alternative to reducing emissions but rather a discrete, pivotal component of any effective climate recovery plan.

b. The Proposed Clean Air Rule is Not Targeted To Achieve 350 ppm By the End of the Century

i. Ecology’s Proposed Rule is Designed to Reduce Washington Emissions by Roughly 1% Per Year, Which Is Illegal

Ecology must fully analyze and disclose annual emission reduction rates relative to statewide emissions in order to understand the full impact of the rule on all of the emissions for which Washington must control and reduce. Because that analysis does not exist, our calculations show that for the first 3 years the rate of reduction relative to statewide emissions is only ~0.92% per year, gradually increasing through 2036, but still at rates far beneath the 8% required if emission reductions began in 2017 based on a 2016 flatline peak. However because Ecology’s rule delays actual emission reductions until 2018, and far later for many sectors, Ecology’s proposed emission reductions are even further off track from the best science, which by 2018 would require at least 8.5 percent annual reductions, coupled with carbon sequestration in soils and forests.¹⁴³

ii. The Proposed Rule Regulates An Insufficient Number of Sources

In the proposed Clean Air Rule, Ecology fails to regulate a sufficient number of greenhouse gas emissions sources. The proposed rule claims to cover only 66% of overall state greenhouse gas emissions.¹⁴⁴ By establishing an excessively high compliance threshold (starting at 100,000 MT of CO₂e dropping to 70,000 MT of CO₂e) and failing to regulate some of the state’s most significant emission sectors, the agency proposes a severely inadequate emissions reduction scheme. In *Foster v. Ecology*, the court found that Ecology’s current climate change policies did not “preserve, protect and enhance the air quality for current and future generations.”¹⁴⁵ Under the current proposed rule, Ecology continues to narrow the scope of the rule, to exclude some of the largest state emissions sources, including transportation, industrial forestry, agriculture, and corporations that emit less than 70,000 MT of CO₂e. *Ecology has the authority, and legal obligation, to create a comprehensive and more stringent rule and set standards for all*

¹⁴¹ See Crowther Decl., *supra* note 1, at 3.

¹⁴² Hansen et al., *supra* note 2, at 1.

¹⁴³ See Hansen Decl. (Exhibit O), ¶¶ 70, 82, 84.

¹⁴⁴ See Department of Ecology, *SEPA Environmental Checklist - Clean Air Rule at 5*, available at <http://www.ecy.wa.gov/programs/air/rules/docs/173442sepacheck-2.pdf>. As discussed above, Ecology’s claim that it actually regulates 66% of emissions is dubious.

¹⁴⁵ *Foster v. Wash. Dep’t of Ecology*, No. 14-2- 25295-1 SEA, 6 (Wash. Super. Ct. Nov. 19, 2015) (Exhibit D).

*emissions sources.*¹⁴⁶ In order to ensure the protection of current and future generations, Ecology must expand the rule to cover all major sources of GHG emissions in the state of Washington.

1. Ecology Must Regulate Transportation Emissions

In the proposed Clean Air Rule, Ecology does very little to require actual reductions of state transportation emissions. Washington’s transportation sector accounts for the largest percentage of greenhouse gas emissions, approximately 44%, and thus must be regulated in the proposed Clean Air Rule.¹⁴⁷ The state has recognized that “addressing [transportation] emissions is key to achieving Washington’s statutory greenhouse gas reduction goals (RCW 70.235.020).”¹⁴⁸ The *Foster* court noted that Ecology has not adequately addressed transportation emissions in existing policies and thus suggested that Ecology is obligated to address transportation emissions in the Clean Air Rule in order to protect the rights of young people.¹⁴⁹

The proposed rule provides an option for covered parties to obtain ERUs through existing commute trip reduction programs. However, this provision is of little value. Commute trip reduction program emission reductions are separate from the proposed rule, and are presumed to occur even without the rule. As a result, any ERUs generated under commute programs are non-additional to overall emissions reductions. It is illogical for emission reductions from the commute trip reduction generated ERUs to be counted in determining transportation sector emission reductions.

Ecology’s delayed regulation of petroleum fuel producers and importers does not suffice to address the state’s tremendous amount of GHG emissions from transportation. Ecology has essentially ignored the back end of the problem, i.e. the emissions from combustion of fossil fuels by vehicles. Within the transportation sector, “the consumption of gasoline in vehicles is the largest single source of emissions in Washington . . . accounting for over 23% of total emissions in 2010.”¹⁵⁰ The bottom line is that Ecology does not explicitly set emissions standards for or regulate transportation sector emissions in the rule, leaving to our children the challenge of emission reductions in this significant sector. There is no question that Ecology has the existing legal authority to regulate emissions resulting from the sale of petrochemical products (gasoline, diesel, propane, etc.), or vehicle emissions specifically, as illustrated by its

¹⁴⁶ RCW § 70.94.331.

¹⁴⁷ “In Washington, the transportation sector is the largest source of emissions, accounting for over 44% of total emissions in 2011.” See Department of Ecology, *Washington Greenhouse Gas Emission Reduction Limits: Report prepared under RCW 70.235.040*, at 8 available at <https://fortress.wa.gov/ecy/publications/documents/1401006.pdf>.

¹⁴⁸ Life Cycle Associates, LLC for WA Office of Financial Management, A Clean Fuel Standard in Washington State, Revised Analysis With Updated Assumptions DRAFT (September 29, 2014), at http://www.ofm.wa.gov/initiatives/cleanfuelstandards/Documents/Carbon_Fuel_Standard_evaluation_2014_draft.pdf (last visited July 22, 2016) at 8.

¹⁴⁹ *Foster v. Wash. Dep’t of Ecology*, No. 14-2- 25295-1 SEA, 6-7 (Wash. Super. Ct. Nov. 19, 2015) (Exhibit D).

¹⁵⁰ Leidos, Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State – Final Report (October 14, 2013) at 7.

development of a draft Clean Fuel Standard. The Legislature has not taken that authority away and it must be implemented as part of the Clean Air Rule. For example, all distributors of gasoline, diesel, or propane could be required to reduce the emissions resulting from the sale of those products by 8 percent per year.

4. Ecology Must Regulate Emissions from New and Retrofitted Buildings

Residential, commercial, and industrial greenhouse gas emissions represent 22-30% of Washington's GHG emissions.¹⁵¹ To address these emissions, Ecology must establish emissions standards for new or retrofitted buildings to ensure that new buildings are not locking in old energy-inefficient infrastructure and that the emissions for which they are responsible meet the limits set by Ecology, consistent with science-based standards. The new emission standards for buildings must put Washington on track to achieve a rate of reductions for this sector, which when combined with other sectors, will equal the total annual emission reductions required by the best science. We are not asking Ecology to change existing state law regarding energy-related building standards,¹⁵² but rather that Ecology acknowledge the reality that buildings are sources of GHG emissions and should be regulated as such.

3. Ecology Must Regulate Industrial Forestry

Ecology must do more to limit industrial logging emissions by regulating the industrial forestry sector under the Clean Air Rule. At present, Ecology fails to properly disclose or analyze GHG emissions from the forestry sector, even though those emissions trigger reporting requirements under existing state law.¹⁵³ A recent study critiques the global accounting practice used in assessing forest sector GHG emissions, which lumps timber industry emissions with carbon sequestered on forest conservation land.¹⁵⁴ Ecology cannot fall into the same trap and assume that all GHG emissions from the forestry sector are counteracted by forest sequestration. Instead, Ecology must include GHG emissions from the forestry sector in its GHG inventory and regulate the forestry sector as part of its emission reduction regime.

4. Ecology Must Regulate Emissions from Agriculture

Ecology's proposed rule also fails to regulate agricultural activities (including manure management and fertilizer use), which are responsible for a sizeable amount of GHG emissions in the state.¹⁵⁵ The failure to regulate agriculture makes no sense,

¹⁵¹ See Department of Ecology, Climate Change, Frequently asked questions about the Washington Clean Air Rule (July 21, 2016), at <http://www.ecy.wa.gov/climatechange/CarbonRuleFAQ.html>; RCW § 19.27A.130.

¹⁵² RCW 19.27A.

¹⁵³ RCW 70.94.151(5)(a).

¹⁵⁴ JOHN TALBERTH ET AL., CENTER FOR SUSTAINABLE ECONOMY, CLEARCUTTING OUT CARBON ACCOUNTS 1 (2015), <http://sustainable-economy.org/wp-content/uploads/2015/11/Clearcutting-our-Carbon-Accounts-Final-11-16.pdf>.

¹⁵⁵ *Sources of Greenhouse Gas Emissions*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, <https://www3.epa.gov/climatechange/ghgemissions/sources/agriculture.html> (last visited July 18, 2016).

especially in light of the fact that the agricultural sector seeks to benefit substantially from Ecology’s proposal to count agricultural activities as recognized as generating emission reduction units.¹⁵⁶ In 2012, agricultural soils in Washington emitted 1.7 MMTCO₂e and manure management was responsible for another 1.2 MMTCO₂e.¹⁵⁷ Together with emissions from livestock through enteric fermentation, the agricultural sector was responsible for around 5.4% of Washington’s total emissions in 2012.¹⁵⁸

Concentrated Animal Feeding Operations (CAFOs) are major contributors of greenhouse gas emissions (“GHG”) in the state of Washington. “Agricultural activities such as manure management, fertilizer use, and livestock (enteric fermentation) result in methane and nitrous oxide emissions that account for 6% of State GHG emissions in 2005.”¹⁵⁹ Worldwide, the livestock sector generates more GHG emissions as measured in CO₂ equivalent (18%) than the transportation sector.¹⁶⁰ Livestock generates 65% of human-related nitrous oxide which has 296 times the global warming potential of CO₂, accounts for 37% of all human-induced methane¹⁶¹ and is responsible for 64% of ammonia emissions: devastating health effects. *Id.* Global greenhouse gas emissions from the agricultural sector totaled 4.69 billion tons of carbon dioxide (CO₂) equivalent in 2010 (the most recent year for which data are available), an increase of 13 percent over 1990 emissions. By comparison, global CO₂ emissions from transport totaled 6.76 billion tons that year, and emissions from electricity and heat production reached 12.48 billion tons, according to Worldwatch Institute’s Vital Signs Online service (www.worldwatch.org).¹⁶² Manure management activities have been identified as a major contributing factor to increased GHG emissions:

Manure that is deposited and left on pastures contributes to global nitrous oxide emissions because of its high nitrogen content. When more nitrogen is added to soil than is needed, soil bacteria convert the extra nitrogen into nitrous oxide and emit it into the atmosphere—a process called nitrification. Emissions from manure on pasture were highest in Asia, Africa, and South America, accounting for a combined 81 percent of global emissions from this source.¹⁶³

¹⁵⁶ WAC 173-442-160(6).

¹⁵⁷ WASHINGTON STATE DEPARTMENT OF ECOLOGY, 2010 WASHINGTON STATE GREENHOUSE GAS EMISSIONS INVENTORY (2012), <http://www.ecy.wa.gov/climatechange/docs/2012GHGtable.pdf>.

¹⁵⁸ *Id.*

¹⁵⁹ WA Department of Community, Trade & Economic Development, Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2010 (December 2007), *available at* http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf (last visited March 31, 2014).

¹⁶⁰ Livestock’s Long Shadow – Environmental Issues and Options, United Nations Food & Agriculture Organization (Nov. 29, 2006).

¹⁶¹ This assumes that methane causes 23 times as warming as CO₂, but as discussed below, this measure of warming is outdated. Methane is now estimated to cause 34 times the amount of warming of CO₂.

¹⁶² Worldwatch Institute, “Agriculture and Livestock Remain Major Sources of Greenhouse Gas Emissions,” *available at* <http://www.worldwatch.org/agriculture-and-livestock-remain-major-sources-greenhouse-gas-emissions-1> (last visited March 31, 2014).

¹⁶³ *Id.*

In Washington, “[t]he manure management category [of emissions], which shows the highest rate of growth relative to the other categories, accounted for 11% [] of total agricultural emissions in 1990 and is estimated to account for about 25% [] of total agricultural emissions in 2020.”¹⁶⁴ The science is clear that livestock population is a critical component of any emissions calculation for the agricultural sector. *Id.* The GHG emissions calculations done in Washington for the agricultural sector explicitly recognize the need for more precise data because “[e]missions from enteric fermentation and manure management are dependent on the estimates of animal populations and the various factors used to estimate emissions for each animal type and manure management system (i.e., emission factors which are derived from several variables including manure production levels, volatile solids content, and CH₄ formation potential).” *Id.* at F-6.

In 2012, the leading source of methane in the United States was enteric fermentation, and manure management was the fifth largest source.¹⁶⁵ Activities associated with manure management are also the third largest source of nitrous oxide, another powerful greenhouse gas.¹⁶⁶ In Washington State, enteric fermentation was responsible for 2.0 million metric tons of CO₂ equivalents (“MMT CO₂eq”) and manure management was responsible for 1.1 MMT CO₂eq in the year 2010.¹⁶⁷

Methane is produced by ruminants during the digestion process. Furthermore, anaerobic conditions in manure holding areas and runoff lagoons lead to methane emissions. The EPA website estimates that one cow produces up to 110 kg of methane per year.¹⁶⁸ Nitrous oxide, a powerful greenhouse gas,¹⁶⁹ is also produced from combined manure and urine during storage. In addition, the farm equipment, generators and boilers used at the feedlot facility and heavy-duty diesel trucks transporting livestock and feed will produce carbon dioxide from fuel usage and from electricity usage. Diesel-powered engines and generators are also a significant source of black carbon. If Ecology wants to give the agricultural industry the economic benefit of generating emission reduction units, it must also treat agriculture as a covered party under the rule.

5. Ecology Must Regulate Consumption-based Emissions

Ecology must do a greenhouse gas emissions inventory that includes consumption-based emissions. A consumption-based emissions inventory is a greenhouse gas inventory including estimates of embedded emissions associated with the

¹⁶⁴ WA Department of Community, Trade & Economic Development, Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2010 (December 2007), *available at* http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf (last visited March 31, 2014) at F-4.

¹⁶⁵ USEPA, Inventory of US Greenhouse Gases and Sinks: 1990-2012 2-4 (Apr. 15, 2014).

¹⁶⁶ *Id.* at 2-5.

¹⁶⁷ WA Dept. of Ecology, WASHINGTON STATE GREENHOUSE GAS EMISSIONS INVENTORY 1990-2010 at 4 (2012).

¹⁶⁸ See <http://www.epa.gov/rlep/faq.html>, last visited May 21, 2014.

¹⁶⁹ Myhre et al, IPCC AR5 Chapter 8 at 714 (N₂O GWP = 298 over 100 years and 268 over 20 years).

life cycle of materials and services, including electricity and fuels, consumed in Washington. These emissions are included regardless of whether they physically originate in Washington. A consumption-based inventory uniquely counts out-of-state emissions associated with producing the products, services, and fuels consumed in Washington. It also counts emissions associated with producing fuels that are used to generate electricity consumed in Washington. Ecology has not provided a consumption-based inventory for CO₂ emissions, which would include all embedded CO₂ emissions for goods produced outside of Washington and consumed within Washington. Without this inventory and analysis, Ecology cannot accurately account for all of the State's emissions sources to ensure that it is fulfilling its constitutional and statutory mandate to protect the rights of young people and future generations.

Oregon is a model state for accounting for consumption emissions. The state has recognized that Oregon households' consumption affects the global environment and contributes to climate change.¹⁷⁰ In order to assess more complete carbon footprint, the State developed a scheme to include out-of-state production emissions for products consumed within the state. Emissions are counted if they satisfy households' economic final demand.¹⁷¹ The inventory includes emissions associated with tangible commodities such as food, vehicles, appliances, furnishings and electronics. It also includes services, fuels, and electricity.¹⁷² The inventory helps Oregon "design strategies that lower the carbon intensity of goods and services consumed by Oregonians and create incentives for Oregon's in- and out-of-state suppliers to shift to production methods that reduce their carbon footprint."¹⁷³ Ecology has failed to include emissions standards for consumption emission reductions into the rule. In order to effectively address all of Washington's GHG emissions, Ecology must 1) prepare a consumption-based inventory of Washington GHG gases and 2) set consumption emission reduction emission standards as part of the Clean Air Rule.

6. Ecology Must Lower the Threshold for Covered Parties

Ecology must lower the threshold for parties to be covered under the rule in order to adequately reduce atmospheric CO₂ levels. The current threshold schedule is arbitrary and not based on sound science. Under the proposed rule, the first compliance period includes covered parties with annual emissions greater or equal to 100,000 MT CO₂.¹⁷⁴ The compliance threshold gradually decreases by 5,000 MT CO₂ each compliance period until it reaches 70,000 MT CO₂ in 2035, after which the threshold remains at 70,000 MT CO₂. So in essence, Ecology is legalizing the emission of massive amounts of CO₂ and makes it impossible for the state to reduce its GHG emissions in the manner prescribed

¹⁷⁰ See Oregon Department of Environmental Quality, Oregon Department of Energy, Oregon Department of Transportation, *Oregon's Greenhouse Gas Emissions Through 2010: In-Boundary, Consumption-Based and Expanded Transportation Sector Inventories* (July 18, 2013) at 9, available at http://www.oregon.gov/deq/AQ/Documents/OregonGHGInventory07_17_13FINAL.pdf.

¹⁷¹ *Id.*

¹⁷² *Id.* at 29.

¹⁷³ *Id.* at 9.

¹⁷⁴ Clean Air Rule, Wash. Admin. Code § 173.442.110(3) (proposed May 31, 2016); WAC § 173.442.030(3).

by best available climate science. The thresholds selected by Ecology grossly deviate from current state and federal reporting requirements as well as other cap and trade programs. In Washington, facilities and transportation fuels suppliers emitting at least 10,000 MT CO₂ of greenhouse gases are statutorily required to report their emissions.¹⁷⁵ It follows, then, that Ecology has express legislative approval to regulate sources that exceed more than the 10,000 MT CO₂ threshold.

Additionally, the EPA reporting threshold is 25,000 MT CO₂.¹⁷⁶ California's reporting threshold is 25,000 MT CO₂, and the state also requires entities whose annual emissions equal or exceed 25,000 MT CO₂ of GHG emissions to comply with the state cap-and-trade program.¹⁷⁷ To date, Ecology has offered no justification for deviating from either the 10,000 MT CO₂ or 25,000 MT CO₂ thresholds or failing to connect its established thresholds to science-based levels of emission reductions. In order to be on track to adequately reduce statewide emissions, Ecology should lower the compliance threshold to at least match the GHG emission reporting threshold of 10,000 MT CO₂.

Washington's Clean Air Act provides Ecology broad authority to cover significantly more parties than what is proposed in the current draft of the rule.¹⁷⁸ Pursuant to the Washington Clean Air Act, Ecology is charged with securing and maintaining the ". . . levels of air quality that protect human health and safety. . ." ¹⁷⁹ In order to reduce atmospheric CO₂ emissions to 350 ppm by the end of the century, it is imperative that Ecology regulate a significantly larger segment of GHG emitters.¹⁸⁰

iii. The Proposed Rule Illegally Delays Compliance & Contradicts Ecology's Own Findings that Urgent Action is Needed to Draw Down GHG Emissions

After detailing the devastating impacts all sectors of Washington will face in light of climate change, in December 2014 Ecology proclaimed:

If we delay action by even a few years, the rate of reduction needed to achieve these goals would have to be beyond anything achieved historically and could be very costly.

* * *

Climate change is not a far off risk. Globally, it is happening now and is worse than previously predicted, and it is forecasted to get worse.

¹⁷⁵ RCW § 70.94.151 (5)(a) ("The department shall adopt rules requiring persons to report emissions of greenhouse gases as defined in RCW 70.235.010 where those emissions from a single facility, source, or site, or from fossil fuels sold in Washington by a single supplier meet or exceed ten thousand metric tons of carbon dioxide equivalent annually.").

¹⁷⁶ 40 C.F.R. § 98.2.

¹⁷⁷ Cal. Code Regs. tit. 17, §§ 95812, 95101.

¹⁷⁸ RCW § 70.94.331.

¹⁷⁹ RCW § 70.94.011.

¹⁸⁰ See Hansen, et al. *Assessing 'Dangerous Climate Change.'*

We are imposing risks on future generations (causing intergenerational inequities) and liability for the harm that will be caused by climate change that we are unable or unwilling to avoid.¹⁸¹

In spite of this finding, which simply reiterates what the agency has been saying for years,¹⁸² Ecology has arbitrarily allowed a twenty-year “phase-in” for covered parties to come into compliance with the requirements of the rule. It is unfathomable for Ecology to sanction such a long delay for implementation of the rule in light of its own findings regarding the urgency of the climate crisis. The Clean Air Rule must require immediate reductions of GHG emissions if we are to have any hope of contributing to the resolution of the climate crisis. We have a very small window of opportunity to achieve global concentrations of 350 ppm by the end of the century and Ecology’s “kick the can down the road” approach is unlawful.

iv. The Emissions Threshold Arbitrarily Does Not Continue To Decrease After 2035

Remarkably, Ecology does not decrease the emissions threshold after 2035, a time when the young people of today will be experiencing more severe impacts of living in a climate-changed world. Ecology offers no justification for this. Given the science that clearly demonstrates the need and feasibility of a achieving net-zero carbon economy in Washington state,¹⁸³ it is illegal for Ecology to sanction such dangerous levels of GHG emissions after 2035.

v. The Proposed Rule Arbitrarily Relies Upon A Flawed Washington GHG Reporting Program

The current GHG reporting program (GHGRP) rules does not cover all petroleum products, and appears to be limited to “liquid motor vehicle fuel, special fuel, or aircraft fuel.” This should be clarified and addressed by Ecology. Are liquefied petroleum gases and all other petrochemical products covered by the reporting program? If so, they should be regulated under the proposed Clean Air Rule.

Even under its current GHGRP, Ecology is 4 years behind in reporting emissions data. Our consultant has provided up to date emissions data for WA through 2015 based on the EPA Tool and EIA SEDS data.¹⁸⁴ This level of information on emissions and the trajectory are a major failing of the proposed rule.

¹⁸¹ Ecology, Washington Greenhouse Gas Emission Reduction Limits, Ecology Publication No. 14-01-006 (December 2014) at 18.

¹⁸² See, e.g., Ecology, Path to a Low Carbon Economy, Ecology Publication No. 10-01-011 (December 2010) at 1 (“Global climate change is the economic and environmental issue of our lifetime. The science is clear that we must move forward quickly to reduce greenhouse gas (GHG) emissions in order to mitigate its effects. Without action, climate change will negatively affect nearly every part of Washington’s economy through changes in temperature, sea level, and water availability.”).

¹⁸³ See Jacobson Decl. (Exhibit P).

¹⁸⁴ See Exhibit Q (Washington Emissions Data Compared to Science-Based Emissions Reductions-OCT).

Further, Ecology intends to update the reporting methodology and requirements for GHG reporting in preparation for the Clean Air Rule implementation in a way that, when the updates take effect, expected emissions from individual fuel providers will change (based upon the new methodology) and entities that currently appear that they would be covered or not covered under the program based on old data may switch to being covered or not covered when the new reporting methodology comes into effect. However, none of this is clear in the proposed rule, which leaves a tremendous amount of uncertainty for the public and industry. Furthermore, an accurate reporting system is a necessary first step towards fulfilling Ecology's obligation to address climate change.

vi. The Rule's Reliance on Offsets is Flawed

- (a) The proposed Rule Allows Ecology to Delegate Responsibility for the Creation of Offsets and their Attendant Emissions Reductions to Other State Agencies and External Carbon Registries.

Ecology's strong reliance on the use of offsets is ill advised.¹⁸⁵ The proposed rule establishes a compliance obligation WAC 173-442-200(3) that must be met with emissions reductions by the end of each compliance period as measured in Emissions Reduction Units, which are equivalent to one metric ton of CO₂e WAC 173-442-020(1)(m). According to Ecology's cost-benefit analysis, covered parties may, individually or in combination:

- A. Reduce emissions on-site at the covered party, or obtain the equivalent of similar reductions from other covered or voluntarily participating parties.
- B. Offset emissions using an in-state emissions reduction project or program, including RECs, as allowed by the proposed rule.
- C. Purchase emissions allowances through existing carbon markets if allowed by the proposed rule.¹⁸⁶

In their analysis, Ecology forecast a range of compliance costs per MT CO₂e for each compliance option. The estimated costs are:

Emission reduction programs (Renewable Energy Credits): \$3 – \$11 per MT CO₂e

Emissions reduction projects: \$5 – \$29 per MT CO₂e

Market emissions reductions: \$13 – \$14 per MT CO₂e

On-site emissions reductions: \$23 – \$57 per MT CO₂e¹⁸⁷

The cost-benefit analysis acknowledged that:

¹⁸⁵ For a more thorough description of the problems associated with offsets, *see* the comments submitted by Food and Water Watch on the proposed Clean Air Rule.

¹⁸⁶ Preliminary Cost-Benefit and Least Burdensome Alternative Analysis, p. 13.

¹⁸⁷ *Id.* p. 14-15.

Actual costs depend on the method of compliance chosen, and Ecology assumes that covered parties will choose the lowest-cost option available to them. In order, these are RECs, in-state emissions reduction projects, market purchases, and on-site emissions reductions.¹⁸⁸

These projected results highlight the importance of offset projects and programs under the proposed rule, given that Ecology expects them to be preferred by covered parties given their more favorable economics. Further, as a centerpiece to the proposed rule, Ecology identifies a wide range of projects and programs that can generate offset credits, and indeed encourages polluters to take advantage of offsets rather than reducing their own emissions in the state. This is the wrong approach.

As the agency responsible for operating and enforcing any Washington GHG reduction program, Ecology is legally obligated to ensure that its verification criteria are met. However, the proposed rule shifts responsibility for determining projects and programs that generate offset credits to other state agencies and external registry programs, and provides contradictory provisions as to eligible programs, making Ecology's job of policing offsets criteria virtually impossible.

A key criterion for offset credit is that the emissions reductions must be “[a]dditional to existing law or rule” and cannot be used if “[i]f an emission reduction is required by another statute, rule, or other legal requirement.” WAC 173-442-150 Nevertheless, the proposed rule would allow emissions reductions from the following already-existing “policies” to create ERUs and be used for compliance: (1) The EPA Clean Power Plan; (2) The Washington GHG emissions performance standard; (3) The Washington CO₂ mitigation standard for fossil-fueled thermal electric generation facilities; and (4) Commute trip reduction programs.

To the extent that emission reductions are required by these programs, their use for the creation of offsets would lead to double-counting and violate the additionality criterion. To generate ERUs, sectors include transportation, combined heat and power, energy, livestock and agriculture, waste and wastewater, and industrial sectors. The proposed rule establishes exceedingly complicated and poorly specified processes to determine actual emissions reductions and the generation of ERUs from activities and programs within these sectors. WAC 173-442-160. They include protocols from established registries or state agency processes to establish the eligibility of activities and programs in each sector, and the ensuing emissions reductions that Ecology would rely on to assign ERUs. The sole responsibility for Ecology for offsets would be to “assign the appropriate quantity of ERUs.” WAC 173-442-160.

For each sector, other entities besides Ecology would be responsible for determining emissions reduction activities and programs and the resulting emission reductions. However, for each of these sectors, emissions reductions may also be determined through a methodology approved by Ecology, with Ecology assigning a value

¹⁸⁸ *Id.* p. 23.

for a quantity of ERUs. WAC 173-442-060. Ecology's ability to judge whether or not projects and programs meet established criteria, especially the critical criterion of non-additionality, would be highly compromised given that these offsets would be administered by separate agencies and held to the standards of different registry protocols.

Finally, nowhere in the proposed rule is it specified how covered parties can acquire offset credits or the ERUs deemed created by Ecology, by funding projects and programs, purchasing credits from the responsible parties, or other means. The failure of the proposed rule to spell out how the marketplace for offset credits would operate is an enormous and inexplicable gap in the design of the proposed offset program.

(b) The Excessive Role Envisioned for Allowances Would Impose Costs and Deny Benefits to Washingtonians.

The proposed rule establishes purchases of allowances from external multisector GHG emission reduction programs as a compliance option. WAC 173-422-110(3). The proposed rule sets limits on how much of a covered party's compliance obligation can be met through allowances, starting at 100% for the first two compliance periods and declining slowly over time. WAC 173-442-170. Ecology's focus should be on requiring polluters to install the technology needed to minimize the pollution. Ecology should not be legalizing the continued discharge of dangerous levels of GHG emissions. Such an approach puts those in close proximity to the polluting facilities in harms way. Those are precisely the people Ecology is supposed to be protecting.

As an initial matter, the proposed rule states that allowances must be "derived from methodologies congruent with chapter 173-441 WAC."¹⁸⁹ This chapter is Washington's GHG reporting rule. Allowances are not the same as activities that generate GHG emissions reductions reportable to the Washington system. Rather, they are officially-sanctioned authorizations by air quality regulators allowing a certain amount of GHG emissions to be emitted. It is unclear what this provision seeks to accomplish.

The ability of covered parties to use allowances for all or most of their compliance obligations prioritizes perceived market efficiencies over equally important non-market factors. Ecology's cost-benefit analysis acknowledges that there are trade-offs between in-state reductions and allowances. For example, the cost-benefit analysis identifies important pollution and environmental justice factors to weigh against the use of allowances. It acknowledges that reductions in associated emissions such as criteria pollutants and toxic air pollutants can have major public health benefits.¹⁹⁰ Ecology identified a number of population groups living near GHG emissions facilities: children, the elderly, minorities, and low-income, linguistically-isolated, and less educated populations. While each of these groups living near covered facilities stand to benefit from on-site emissions reductions, Ecology declined to analyze the tradeoffs between

¹⁸⁹ Id. p. 18.

¹⁹⁰ Id. p. 39

these. This is reflected in the proposed rule, which leaves it up to covered parties to decide which compliance options to use based on their monetary costs alone. Ecology's assumption that on-site emission reductions will be selected last by covered parties makes it highly likely that Washingtonians are not going to see the potential benefits of a rule that regulates actual GHG emissions.

(c) Ecology Must Create Opportunities for Public Involvement in the Implementation of Any GHG reduction Program.

Any offset program should be fully transparent and involve public participation in implementation, such as third-party verification of reductions, the assignment of emissions to entities that do not have reported emissions, and the assignment of ERUs to offset projects. We believe that a vehicle for public oversight should be established under the rule to provide the public with opportunities to participate directly in the state's efforts to reduce GHG emissions. In California, oversight committees were established during the initial operations of the CA Cap and Trade Program, including an Emissions Market Assessment Committee and an Economic and Allocation Advisory Committee. A public oversight committee should include representatives of groups interested in the achievement of GHG reductions in Washington and communities disproportionately impacted by GHG pollution and climate change.

V. ECOLOGY'S COST BENEFIT ANALYSIS IS FLAWED

a. The Social Cost of Carbon Estimates Require Reductions Based on Science

i. Ecology is Required to Consider the Real Costs & Benefits of the Proposed Clean Air Rule.

Under RCW 34.05.328, the Department of Ecology is required to “[d]etermine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.” Ecology assessed some costs in its Preliminary Cost-Benefit and Least Burdensome Alternative Analysis.¹⁹¹ In this analysis, Ecology estimates the value of reducing GHG emissions based on the social cost of carbon (SCC) developed by the federal government and the expected trajectory of GHG reductions as covered parties meet their GHG emission reduction pathways. The SCC developed and used by the federal government estimates economic damages expected from increases in carbon dioxide emissions, monetized as dollars per metric ton.¹⁹² The damages from climate change assessed in the SCC include “changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning.”¹⁹³ The

¹⁹¹ Ecology Publication No. 16-02-008 (June 2016).

¹⁹² EPA, “The Social Cost of Carbon,” (Last updated Feb. 23, 2016) available at <https://www3.epa.gov/climatechange/EPAactivities/economics/scc.html> (last visited July 7, 2016).

¹⁹³ *Id.*

purpose of the SCC, pursuant to Executive Order 12866, is to enable governmental agencies to include the social benefits of reducing CO₂ emissions when conducting cost-benefit analyses on regulatory actions that affect global emissions.¹⁹⁴ We applaud and support Ecology's use of the SCC as part of its rulemaking process, especially since the most significant social costs of climate change will be experienced by the young and future generations. It is important that those costs are weighed against the minimal costs imposed on the corporations who are to be primarily regulated under the rule. We also support Ecology's focus on global damage estimates as opposed to solely domestic estimates because of the inherent global nature of climate change. That being said, we offer the following comments to improve the accuracy of Ecology's analysis.

ii. The U.S. Social Cost of Carbon Analysis Undervalues the Rights of Children & Future Generations.

For 2015, the U.S. has estimated the SCC range as between \$11 and \$105 per metric ton; for 2020, the range is between \$12 and \$123.¹⁹⁵ When these estimates are viewed as "avoided costs," they represent the dollar value of the benefits from avoiding future damages caused by climate change. However, the U.S. (and now Ecology) erroneously uses unreasonably high discount rates as a key component of the SCC, which discounts future benefits more steeply than near-term benefits, thereby valuing adults of the present generation more highly than children and all future generations, in violation of long-standing principles of evolutionary biology¹⁹⁶ and morality, as well as legal rights of youth and future generations. Discount rates essentially are used to calculate the present value of future damages,¹⁹⁷ and are represented as percentages. The federal government uses four discount rates to calculate a range of present values for the average annual SCC forecast by three integrated assessment models. The discount rates are 5%, 3%, 2.5%, and the 95th percentile at 3%, the high end of the distribution of potential future damages.¹⁹⁸ Higher discount rates give less value to future damages and yield lower present values and, alternatively, lower discount rates give greater value to future damages and yield higher present values.¹⁹⁹ The federal government uses a range of

¹⁹⁴ U.S. Interagency Working Group on Social Cost of Carbon, "Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866," at 3 (May 2013) available at http://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf (last visited July 7, 2016).

¹⁹⁵ U.S. Interagency Working Group on Social Cost of Carbon, "Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866," at 3, 13 (May 2013, Revised July 2015) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-tds-final-july-2015.pdf> (last visited July 8, 2016).

¹⁹⁶ Trivers, R.L. 1972. Parental Investment and Sexual Selection. In B. Campbell, ed. *Sexual Selection and the Descent of Man, 1871-1971*, Aldine-Atherton, Chicago, pp. 136-179, at http://roberttrivers.com/Publications_files/Trivers%201972.pdf (last visited July 20, 2016) (defining parental investment as "any investment by the parent in an individual offspring that increases the offspring's chance of surviving (and hence reproductive success) at the cost of the parent's ability to invest in other offspring.").

¹⁹⁷ EPA, EPA Fact Sheet, "The Social Cost of Carbon," at 1 (Dec. 2015) available at <https://www3.epa.gov/climatechange/Downloads/EPAactivities/social-cost-carbon.pdf> (last visited July 11, 2016).

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 2

discount rates “because the literature shows that the [SCC] is highly sensitive to the discount rate and because no consensus exists on the appropriate rate to use for analyses spanning multiple generations.”²⁰⁰ The 2.5% discount rate is not, as Ecology suggests, the most appropriate discount rate and the SCC values derived from a 2.5% discount rate should not be valued as the most likely SCC.²⁰¹ Rather, the range of costs produced by the SCC are simply meant to cover a range of future damage estimates. The 2.5% discount rate applied by Ecology is too high and, therefore, inappropriate for use in its cost-benefit analysis.

iii. Ecology’s Estimates Improperly “Discount” Children & Future Generations

Agencies using the SCC developed by the U.S. Interagency Working Group rely on estimates that do not adequately represent the costs of climate change to children and future generations.

According to the 2010 Technical Support Document of the Interagency Group:

With respect to the pure rate of time preference, most papers in the climate change literature adopt values for ρ [discount rate] in the range of 0 to 3 percent per year. The very low rates tend to follow from moral judgments involving intergenerational neutrality. Some have argued that to use any value other than $\rho = 0$ would unjustly discriminate against future generations (e.g., Arrow et al. 1996, Stern et al. 2006). However, even in an inter-generational setting, it may make sense to use a small positive pure rate of time preference because of the small probability of unforeseen cataclysmic events (Stern et al. 2006).²⁰²

Nevertheless, although estimates for appropriate discount rates of future generations ranged from 1% to 3%,²⁰³ the Working Group chose 3% as the central value. The Working Group “consistently chose relatively high discount rates available, without explaining its rejection of alternative lower ones.”²⁰⁴ Of the four major uncertainties that exist in applying economics to future climate change impacts, the Interagency Working Group selected “the option[s] that minimize[] estimates of climate risks and damages.”²⁰⁵

²⁰⁰ *Id.*

²⁰¹ AIR QUALITY PROGRAM, WASHINGTON STATE DEPARTMENT OF ECOLOGY, PRELIMINARY COST-BENEFIT AND LEAST-BURDENSOME ALTERNATIVE ANALYSIS, CHAPTER 173-442 WAC, 1, 12, 60 (2016) at <https://fortress.wa.gov/ecy/publications/SummaryPages/1602008.html> (last visited July 19, 2016).

²⁰² U.S. Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866” at 21 (February 2010) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf>

²⁰³ *Id.* at 21

²⁰⁴ Laurie T. Johnson and Chris Hope, *J Environ Stud Sci*, “The social cost of carbon in U.S. regulatory impact analyses: an introduction and critique,” at 8 (Sept. 2012) available at <http://www.ourenergypolicy.org/wp-content/uploads/2012/09/fulltext.pdf> (last visited July 11, 2016).

²⁰⁵ Frank Ackerman and Elizabeth A. Stanton, “Climate Risks and Carbon Prices: Revising the Social Cost of Carbon,” at 6 (2011) available at http://sei-us.org/Publications_PDF/SEI-Climate-Risks-Carbon-Prices-2011-full.pdf (last visited July 11, 2016).

By selecting these lower-risk options, the Working Group ignores “increasingly ominous scientific evidence about climate risks [that] impl[y] much greater losses at higher temperatures.”²⁰⁶ These risks must be considered when determining the SCC because “[b]y the time we know what climate sensitivity and higher temperature damages turn out to be, it will be much too late to do anything about it.”²⁰⁷

The EPA acknowledges that current SCC modeling does not account for all important damages.²⁰⁸ There is a noted absence in the models of many physical, ecological, and economic impacts predicted by current climate science.²⁰⁹ In responding to comments on the development of the SCC, the Interagency Working Group acknowledged that two of the three models used to derive an average SCC do not account for variability in the climate that could affect agriculture.²¹⁰ Additionally, the models used in the SCC do not accurately, or at all, account for feedback loops such as ocean circulation patterns, forest diebacks, sea ice melt, and permafrost melt.²¹¹ Experts with the Natural Resources Defense Council found the models “likely to understate impacts by excluding a large number of factors that would increase it while excluding only a very small number of countervailing forces.”²¹² Moreover, the models used to develop the SCC omit climate change damages to fisheries, forests, and resource scarcity due to migration.²¹³ A 2014 study found that the SCC should be no lower than \$125 per metric ton based on an aggregate of studies using high and low discount rates, and even this value, which is marginally larger than federal estimates, was considered “realistic and conservative.”²¹⁴ Further, some studies find *negative* discount rates may be more appropriate for estimating the SCC.²¹⁵

²⁰⁶ *Id.* at 13

²⁰⁷ *Id.* at 19

²⁰⁸ EPA, “The Social Cost of Carbon,” (Last updated Feb. 23, 2016) available at <https://www3.epa.gov/climatechange/EPAactivities/economics/scc.html> (last visited July 7, 2016).

²⁰⁹ *Id.*

²¹⁰ Interagency Working Group on Social Cost of Carbon, United States Government, “Response to Comments: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, at 15 (July 2015) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-response-to-comments-final-july-2015.pdf> (last visited July 11, 2016).

²¹¹ *Id.*

²¹² Johnson and Hope at 3 (Sept. 2012) available at <http://www.ourenergypolicy.org/wp-content/uploads/2012/09/fulltext.pdf> (last visited July 11, 2016).

²¹³ Environmental Defense Fund, Institute for Policy Integrity, Natural Resources Defense Council, “Social Cost of Carbon Pollution Fact Sheet,” (April 2014) available at http://costofcarbon.org/files/Cost_of_Carbon_Fact_Sheet.pdf (last visited July 19, 2016); *See also* U.S. Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866,” 1, 11 (Feb. 2010) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf> (last visited July 19, 2016).

²¹⁴ Jacobson et al., *Energy Environ. Sci.*, “100% clean and renewable wind, water, and sunlight (WWS) all-sector energy roadmaps for the 50 United States,” Supplement at 26 (2015) available at <https://web.stanford.edu/group/efmh/jacobson/Articles/I/USStatesWWS.pdf> (last visited July 11, 2016).

²¹⁵ *See, e.g.*, Fleurbaey, Marc and Zuber, Stephane, “Climate policies deserve a negative discount rate,” *Chicago Journal of International Law*: Vol. 13: No. 2, Article 14, 565, 592 (2013) available at <http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1381&context=cjil> (last visited July 15, 2016).

Ecology estimates the present value of avoided GHG emissions under the proposed rule over a 20-year period as \$14.5 billion, which is a vast underestimate.²¹⁶ Governor Inslee stated in Executive Order 14-04 that “the effects of climate change on water supplies, public health, coastal and storm damage, wildfires, and other impacts, will cost Washington almost \$10 billion per year after 2020” based on a study by the University of Oregon.²¹⁷ Governor Inslee also stated that “studies conducted for the Western Climate Initiative indicated that a program to limit carbon emissions, implemented through market mechanisms, would result in a net increase of 19,300 jobs and increased economic output of \$3.3 billion in Washington by 2020.”²¹⁸

Another indicator that Ecology’s estimate of the benefits of the rule is underestimated is its failure to take into account the Social Cost of Methane (SCM).²¹⁹ Estimates of the SCM range from roughly \$490 to \$1500/MT in 2015 (in 2012 dollars) at discount rates of 5% and 2.5% respectively.²²⁰ The SCM has been adopted by EPA in recent regulatory impact analyses.²²¹ In its cost-benefit analysis, Ecology failed to account for methane’s much greater impact on climate and its much higher social cost. According to the Washington GHG Inventory, methane emissions were estimated from the natural gas and wood products sectors at .9 MMTCO_{2e}, roughly 1% of total GHG emissions. As noted above, methane is highly likely to be emitted by other sectors and we expect actual methane emissions to be significantly higher than those reported in the Inventory. If roughly half of the methane emissions reported in the Inventory were eliminated by the CAR, it would add roughly \$32 million to the benefits under the rule.

Furthermore, Governor Gregoire, in Executive Order 12-07 stated:

Washington is the country’s top provider of farmed oysters, clams, and mussels. Our shellfish growers employ directly and indirectly more than 3,200 people around the state and provide an annual total economic contribution of \$270 million statewide. The increasing levels of acidification in Washington’s marine waters pose serious and immediate threats to our shellfish resources, and the revenue and jobs supported by the shellfish industry.²²²

The UW Climate Impact Group reports that “[b]y the end of the century, ocean

²¹⁶ AIR QUALITY PROGRAM, WASHINGTON STATE DEPARTMENT OF ECOLOGY, PRELIMINARY COST-BENEFIT AND LEAST-BURDENSOME ALTERNATIVE ANALYSIS, CHAPTER 173-442 WAC, at 39.

²¹⁷ Exec. Order No. 14-04: Washington Carbon Pollution Reduction and Clean Energy Action, 1 (2014) available at http://www.governor.wa.gov/sites/default/files/execute_order/eo_14-04.pdf (last visited July 19, 2016).

²¹⁸ *Id.* at 2

²¹⁹ Marten *et al.*, Incremental CH₄ and N₂O mitigation benefits consistent with the U.S. Government’s SC-CO₂ estimates, *Climate Policy*, 15:2, 272-298 (2015).

²²⁰ Regulatory Impact Analysis of the Proposed Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector, US Environmental Protection Agency, 2015 at 4-14. Available at https://www3.epa.gov/airquality/oilandgas/pdfs/og_prop_ria_081815.pdf

²²¹ *Id.*

²²² Executive Order No. 12-07 (Nov. 27, 2012), at http://www.ecy.wa.gov/water/marine/oa/MRAC_ExecutiveOrder_12-07.pdf (last visited July 20, 2016).

acidification is projected to result in a 40% reduction, globally, in the rate at which mollusks (e.g., mussels and oysters) for shells, as well as a 17% decline in growth, and a 34% decline in survival.”²²³ These numbers serve as examples that the estimated \$14.5 billion in avoided costs is much lower than the actual avoided costs of climate change. Many other Washington-specific costs (e.g. loss of forest land due to wildfires, loss of tidelands due to sea level rise, etc.), are incorrectly omitted from this equation.

Finally, the “pure discounting” approach taken by the federal government values harm and death to future generations as only a fraction of the value of harm and death to the present generation.²²⁴ Discounting has been criticized as violating intergenerational neutrality, favoring the present generation over future generations.²²⁵ Applying higher discount rates in determining the SCC diminishes future generations’ rights to life, liberty, due process, and equal protection. Thus, a social cost of carbon analysis that applies a discount rate to the lives of future generations is manifestly unconstitutional and will lead to unconstitutional policies that lock in dangerous levels of warming, such as the proposed Clean Air Rule in its current form.

iv. Ecology’s Estimates Are Inadequate

Ecology estimates the SCC for present and future generations of Washingtonians based on the SCC developed by the federal government, but many assumptions and parameters used in Ecology’s estimates equate to grossly inadequate values. First, Ecology is basing the SCC on a 20-year timeframe. This timeframe is not only shorter than that utilized by the federal government, but the most severe climatic damage will occur beyond the 20-year mark. Second, Ecology fails to account for many important damages that climate change will bring, including physical, ecological, and economic impacts on both the local and global scale. Last, as stated above, evidence suggests that the discount rate used by the federal government favors the present generation over future generations and that the actual SCC is much higher than current SCC estimates. While we support Ecology’s use of the SCC in its economic analysis, it requires revision for the reasons set forth above.

VI. THE RULE ARBITRARILY EMULATES CAP & TRADE PROGRAMS IN OTHER JURISDICTIONS THAT ARE NOT WORKING & FAILS TO DIRECTLY REGULATE EMITTERS AND SAFEGUARD AGAINST LEAKAGE AND MARKET INSTABILITY

The ERU system, the centerpiece of Ecology's Proposed Clean Air Rule, is modeled on cap-and-trade programs, such as California's, that do not adequately reduce emissions and, if pursued, must be accompanied by strong, direct regulation of emission

²²³ UW Climate Impacts Group, State of the Knowledge Report – Climate Change Impacts & Adaptation in Washington State: Technical Summaries for Decision Makers (2013), at <https://cig.uw.edu/resources/special-reports/wa-sok/> (last visited July 20, 2016) at 8-4.

²²⁴ John E. Davidson, Amicus Curiae Brief, *Juliana v. United States*, at 29 (Feb. 24, 2016)

²²⁵ David A. Weisbach & Cass R. Sunstein, "Climate Change and Discounting the Future: A Guide for the Perplexed," 27 Yale Law and Policy Review 433, 435 (2009).

sources. The Proposed Rule relies upon a market based system that will fail to result in anything near the reductions needed; an approach that actually risks market instability. To remedy this, Ecology must ensure that rule requires actual, on-site emission reductions, coupled with a cap-and-trade approach that incorporates safeguards not currently in place in this Proposed Rule's ERU program.

(a) Cap-and-trade programs alone do not result in the emissions reductions necessary to address the risks of climate change

Ecology's exclusive reliance on a cap-and-trade model as the primary component of its emissions reduction program ignores the fact that other jurisdictions, such as California, have not achieved clear emissions reductions from these types of programs. For example, while California's cap-and-trade program has been portrayed as the centerpiece of efforts to halt climate change, it only accounts for a small proportion of targeted emission reductions.²²⁶ In fact, to this point, it has not resulted in any measurable reductions in emissions.²²⁷ This is consistent with the results of other market-based programs, which tend to be aimed more at assuaging business concerns rather than actually reducing GHG emissions. We understand that corporations feel they need to continue to profit at the expense of young people and future generations, but Ecology's Proposed Rule is a giant corporate giveaway that does not make the covered parties pay into the ERU trading system created by the rule.

(b) Existing Cap-and-Trade Programs Suffer from Leakage

Ecology's Proposed Rule, in allowing offsets and failing to include safeguards, risks leakage and the negation of any real emissions reductions, as well as market instability. To protect against these issue, Ecology must include safeguards in the rule, such as tighter restrictions on offsets. Leakage occurs when the actual total amount of emissions are not reduced, but are rather shifted so as to make it appear that an entity has reduced emissions.²²⁸ Broadly allowing offsets risks, as the Proposed Rule does, risks widespread leakage and a failure to produce any reduction in emissions. To protect against this catastrophe, Ecology should review the language in AB32 in California which aimed to ensure leakage was minimal.²²⁹ Ecology must, however, avoid California's, subsequent mistake, where negotiations with industry resulted in a series of exemptions that now allow for carbon leakage that potentially matches the quantity of carbon in the market.²³⁰ Not only does this negate any positive impact of California's

²²⁶ See, e.g., California Carbon Dashboard. *Cap and Trade*. <http://calcarbondash.org/>. Last accessed 007/21/16. Noting California Cap-and-Trade aims to result in 22% of the programs total emission reductions).

²²⁷ See, e.g., Food and Water Watch Comment Letter (July 22, 2016) at ¶ 11.

²²⁸ David Roberts. *California's Carbon Market is Leaking*. Grist. (Oct. 30, 2014).

²²⁹ *Id.* See California Health and Safety Code (2014: §§ 35852(b), (b)(8)).

²³⁰ *Id.* See, also, Danny Cullenward. *How California's Carbon Market Actually Works*. 70 Bulletin of the Atomic Scientists 35, 39 (2015).

cap-and-trade program, it may be, in part, responsible for the reduction in demand for carbon credits in May's auction.²³¹

Recently, California's carbon credit auction resulted in only 10% of credits available being purchased. Analysts suggest that the causes of this dismal auction outcome involved three primary issues, two of which are issues specific to California's tax structure and statutory guidelines.²³² The third, however, overproduction of credits, results from leakage and emissions shuffling. Ecology's Proposed Rule must be modified to ensure that its ERU program does not suffer from the same sort of leakage that California's rule does. To do so, it must further limit reliance on offsets and ensure that the ERUs are allocated for true emission reductions and not as a result of shuffling or other activities that mask an industry's continued emissions.²³³

Ecology's proposed rule emulates aspects of the California cap-and-trade approach, without the additional regulations needed to reduce emissions and without sufficient safeguards, such as tight controls on offsets, to reduce leakage. It therefore fails to adequately cap emissions while risking instability greater than that that has occurred in California. In promulgating this rule, Ecology not only ensures that Washington's attempt to combat climate change is minimal and unlawful, but that this state will not lead in the effort to reduce emissions as envisioned by the Legislature and Governor Inslee. In addition, the destabilization and failure of the ERU program will result in and reinforce anxiety in other states about the risks of diverse approaches to emissions reduction. By creating a rule that directly acts to reduce emissions at the source and, for any cap-and-trade component of that rule, taking into considerations the lessons offered by California and other jurisdictions, Ecology has the opportunity to remedy this before this Proposed Rule becomes cemented as active regulation.

VII. ECOLOGY HAS THE LEGAL TOOLS IT NEEDS TO REDUCE WASHINGTON'S SHARE OF EMISSIONS ON A PATH TARGETED TO 350 PPM BY THE END OF THE CENTURY

In addition to Ecology's Constitutional obligation to protect public trust resources, Ecology has ample legal authority to require more stringent emission reductions targeted to achieving 350 ppm by the end of the century. Ecology has been entrusted with protecting Washingtonians' health and safety²³⁴ through the management

²³¹ See, Danny Cullenward and Andy Coghlan. *Structural Oversupply and Credibility in California's Carbon Market*. 29, *The Electricity Journal* 7, 14 (2016).

²³² Commentators believe the current legal challenge, based on Proposition 13's requirement that new taxes be supported by a two-third vote of the legislature, will not be successful. While the original statutory authority to initiate the cap-and-trade program possibly ends 2020, the legislature recently released a series of amendment's that would continue the program through 2030. See Dan Walters, *Could California's 'cap-and-trade' auction meltdown happen again?* *The Sacramento Bee*. (June 13, 2016). <http://www.sacbee.com/news/politics-government/politics-columns-blogs/dan-walters/article83098292.html> Last accessed July 19, 2016.

²³³ See, e.g., Wara Comment Letter on Proposed Clean Air Rule ¶¶ 5, 6.

²³⁴ Wash. Rev. Code § 43.21A.010 (1970); Wash. Rev. Code § 70.94.011 (1991); Wash. Rev. Code § 34.05.328 notes (1995).

of air and water resources.²³⁵ Moreover, it must do its part to stabilize global climate levels.²³⁶ In order to achieve these goals, and comply with its other statutory obligations described above, Ecology has rulemaking authority to adopt rules and regulations that protect Washingtonians’ “fundamental and inalienable right . . . to live in a healthful and pleasant environment.”²³⁷ In addition, Ecology has a specific mandate to promulgate rules “establishing air quality objectives and air quality standards.”²³⁸ The department must fulfill its duties by managing and developing air and water resources,²³⁹ providing sound science to facilitate development of state electric power resources,²⁴⁰ limiting GHG emissions by complying with state law and regularly providing scientifically-informed recommendations to the Legislature,²⁴¹ and mitigate harmful pollution and ocean acidification impacts to Washington’s waters.²⁴² Additionally, Ecology has been entrusted with the protection of air quality for current and future generations and securing air quality levels to protect Washingtonians’ health and safety.²⁴³ The department must adopt rules and emission standards²⁴⁴ “as expeditiously as possible”²⁴⁵ to ensure air quality contaminant levels do not reach levels that endanger human health and the environment.²⁴⁶ Ecology must leverage their current authority to implement policies to ensure Washington is on track to achieve an annual 8% GHG emissions reduction.

(a) 100% Renewable Energy System By 2050

A 100% renewable U.S. energy system can be achieved within the next thirty-five years without acquiring carbon credits from other countries. In other words, actual physical emissions of CO₂ from fossil fuels can be eliminated with technologies that are now available or reasonably foreseeable. This can be done at a reasonable cost by eliminating fossil fuel subsidies and creating annual and long-term CO₂ reduction targets. Net U.S. oil imports can be eliminated in about 25 years, possibly less. The result will also include large ancillary health benefits from the significant reduction of most regional and local air pollution, such as high ozone and particulate levels in cities, which is mainly due to fossil fuel combustion.²⁴⁷ Experts have:

²³⁵ RCW § 43.21A.020.

²³⁶ RCW § 70.235.020 (1)(a)(iii).

²³⁷ RCW § 43.21A.010.

²³⁸ RCW 70.94.011(2)(a).

²³⁹ RCW § 43.21A.020.

²⁴⁰ RCW § 43.21A.600 (2009).

²⁴¹ RCW § 70.235.020; RCW § 70.235.040.

²⁴² Wash. Rev. Code § 43.27A.90(8) (1988); Wash. Rev. Code § 90.48.30 (1987); Wash. Rev. Code § 90.48.80 (1987).

²⁴³ RCW § 70.94.011.

²⁴⁴ Wash. Rev. Code § 70.94.331(2)(a)-(c) (1991).

²⁴⁵ RCW § 70.94.011.

²⁴⁶ *Id.*

²⁴⁷ See Mark Z. Jacobson et al., *100% Clean and Renewable Wind, Water, and Sunlight (WWS) All-Sector Energy Roadmaps for the 50 United States*, 8 Energy & Env'tl. Sci. 2093 (2015) (for plans on how the United States and over 100 other countries can transition to a 100% renewable energy economy see www.thesolutionsproject.org); Arjun Makhijani, Carbon-Free, Nuclear-Free: A Roadmap for U.S. Energy Policy (2007); see generally Mark Z. Jacobson declaration, attached hereto as Exhibit P.

found transitioning by 2050 to be economically feasible for every state. Importantly, states on schedule to transition to 100% renewable energy by 2050 will also reduce their emissions on the “350 by 2100”-trajectory, the pace needed to return atmospheric CO₂ levels to 350 parts/million by the year 2100, in line with the prescription stated by Dr. James Hansen and other expert climatologists.²⁴⁸

Experts state that approaches to transition to a renewable energy system and to phase out fossil fuels by about 2050 include: A cap on fossil fuel use that declines to zero by 2050 or a gradually rising carbon tax with revenues used to promote a zero-CO₂ emissions energy system and to mitigate adverse income-distribution effects; increasingly stringent efficiency standards; elimination of direct and indirect subsidies and other incentives for fossil fuel extraction, transportation, and combustion; investment in a vigorous and diverse research, development and demonstration program; banning new coal-fired power plants and phasing out existing coal-fired power plants; adoption of a policy that would aim to have essentially carbon-free state and local governments, including almost all of their buildings and vehicles by 2030; and adoption of a gradually increasing renewable portfolio standard for electricity until it reaches 100% by about 2050.²⁴⁹ Products and services already exist for building or remodeling buildings to have zero GHG emissions; for generating sufficient electricity with zero carbon dioxide emissions; for zero-emission transportation and industrial processes; and agricultural and forest processes that can also decrease GHG emissions and increase CO₂ sequestration. Governments around the world, including Washington, must fully consider and implement these measures in achieving their own annual emissions reduction measures to transition off of fossil fuels.

Furthermore, experts have already prepared plans for U.S. states, including Washington, as well as for over 100 countries that demonstrate the technological and economic feasibility of transitioning off of fossil fuels toward 100% of energy, for all energy sectors, from clean and renewable energy sources: wind, water, and sunlight by 2050. It is time to put these plans into action.

(b) Transitioning to 100% Clean and Renewable Energy by 2050 in Washington Is Possible & Necessary

Ecology can lead and facilitate Washington’s transition to 100% clean and renewable energy by 2050. Expert-prepared plans are already available to ensure Washington can meet emission reductions required by the best climate science. All that is missing is a comprehensive regulatory program by Ecology to facilitate and compel the transition. Reforming the energy system (in all sectors, including transportation) is technically and economically feasible, and in fact will be beneficial to Washingtonians and the state economy. Mark Jacobson, of Stanford University, is an expert who has

²⁴⁸ Jacobson Decl. at ¶ 5.

²⁴⁹ *See id.*

prepared a detailed plan for Washington and has offered a declaration in support of these comments on behalf of youth and future generations.²⁵⁰ The plan outlines the means by which solar, hydro and geothermal energy can take over the service now provided by fossil and bio-fuels across Washington State. See Figure 1. Additionally, the plan outlines policy measures needed to ensure Washington can transition to 100% renewable energy by 2050.

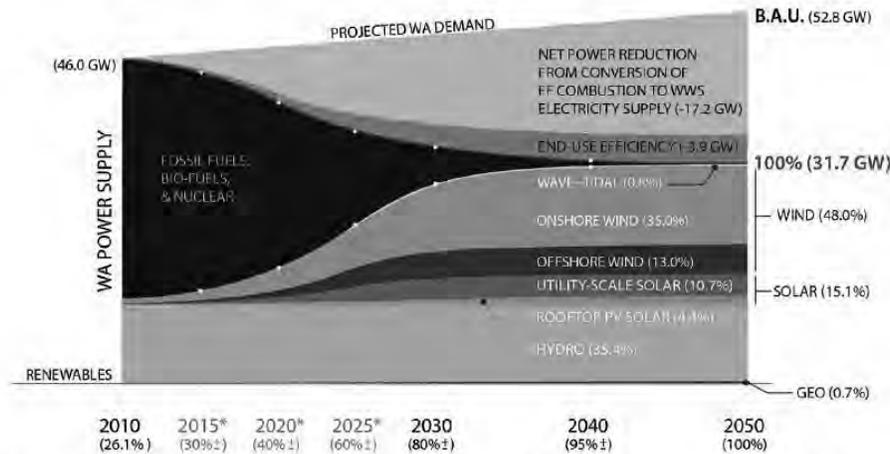


Fig. 4. Change in Washington State end-use all-purpose (electricity, transportation, heating/cooling, and industry) supply and demand over time with business as usual (BAU) versus WWS. Total power demand decreases upon conversion to WWS due to the efficiency of electricity over combustion and end-use energy efficiency measures. The 100% demarcation in 2050 indicates that 100% of all-purpose power is provided by WWS technologies by 2050, and the power demand by that time has decreased. The numbers in parentheses are values in 2050. The percent conversions assumed in the figure are 30% by 2015, 40% by 2020, 80% by 2030, 95% by 2040, and 100% by 2050. Karl Burkart (personal communication).

(i) Other Policy Options for Ecology

A wide array of emissions reduction policy options are available for Ecology to implement using its existing legal authority. We recognize the challenges the state has faced in light of our legislature’s recalcitrance to address climate change. But fortunately previous legislators, who took their job seriously as trustees of the state’s natural resources, gave us the tools we need to resolve this crisis. By implementing a combination of policies, instead of solely relying on the flawed Clean Air Rule, Ecology can more effectively and efficiently reduce Washington’s emissions. Furthermore, it is in both Ecology’s and the public interest for Ecology to collaborate with as many Executive agencies as possible and serve as a leader on the issue of climate change. An interdepartmental approach to climate change will result in the most robust and lasting change.

Much work has been done in regards to the policy measures that should be implemented to allow the state to reduce its GHG emissions.²⁵¹ What is missing from Ecology, however, is the implementation and enforcement of the recommended policies.

²⁵⁰ Mark Z. Robinson Declaration, attached as Exhibit P.

²⁵¹ See, e.g., Ecology, Path to a Low-Carbon Economy: An Interim Plan to Address Washington’s Greenhouse Gas Emissions, Ecology Publication No. 10-01-011 (December 2010); Leidos, Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State – Final Report (October 14, 2013).

Ecology has the legal tools it needs to both require science-based emission reductions and to achieve them by setting emissions standards and implementing a wide array of complementary policies that when implemented will put Washington on a path to do its part to address global climate change and ocean acidification. Given the breadth of Ecology's authority under the Clean Air Act, it can regulate all sources of pollution in the state by establishing air emission standards and limitations for those sources, including the electricity sector, building sector, transportation sector, industrial sector, agricultural sector, consumption sector, etc. Ecology will need to work in tandem with and collaboratively with other agencies and authorities as well in order to shift the systemic reliance on a fossil fuel-based energy system in all sectors, towards a renewable-based energy system. But to be clear, only Ecology is specifically charged with regulating emissions and setting standards and limits for those emissions. It cannot evade that statutory mandate simply because other agencies have overlapping authority that also affect emission levels. Ecology must lead, as mandated by the legislature. Climate change cannot be somebody else's problem.

As examples, Ecology has the authority to implement all of the following policies and should thoroughly consider, evaluate and disclose the emission reduction potential of each of these policy mechanisms in its analysis of the proposed Clean Air Rule. Ultimately, it is up to Ecology to determine the appropriate policy make-up to achieve science-based emission reductions on track with the 350 ppm prescription. However, Ecology has not demonstrated that its current policy proposal, the Clean Air Rule, will be able to achieve emission reductions and thus these alternatives need to be considered. Thus, the following panoply should be considered:

1. Clean Energy Fund

Ecology should develop a Clean Energy Fund to offset costs of transitioning to renewable and clean energy and to administer a comprehensive regulatory scheme to reduce state emissions according to the best science and Ecology's legal mandate. Clean Energy Funds are typically comprised of fees from consumer electricity bills or from electric utilities.²⁵² Here however, the Fund could include fees charged to industries that emit GHGs, such as the petroleum refinery, production, or fuel distribution sector. These funds can be used in research and development of clean energy technologies and training, infrastructure upgrades, as well as sponsoring energy efficiency programs. For example, Clean Energy Fund fees may be collected by charging electricity consumers or by collecting or charging contributions from electric utility companies or other companies responsible for GHG emissions.²⁵³

Any regulatory fee should be directly linked to the social costs associated with emissions, achieving appropriate science-based levels of emissions reductions, and

²⁵² See Public Benefit Funds, Center for Climate and Energy Solutions, <http://www.c2es.org/us-states-regions/policy-maps/public-benefit-funds> (last visited July 5, 2016); U.S. Dept. of Energy, <http://energy.gov/savings/public-benefits-funds-renewables-and-efficiency> (last visited July 21, 2016); Open Energy Information, http://en.openei.org/wiki/Public_Benefits_Fund (last visited July 21, 2016).

²⁵³ *Id.*

funding the regulatory program. Based on a report from Oregon, a fee on carbon of \$150 a ton would only get Oregon about halfway to its (scientifically-inadequate) goal of reducing GHG emissions to 75% below 1990 levels.²⁵⁴ Even a regulatory fee on carbon of \$150 per metric ton is well below the estimated cost to remove one metric ton of carbon from the atmosphere, which is around \$600 per ton.²⁵⁵ Therefore, a regulatory fee on carbon is not likely to be sufficient on its own to meet Washington's required GHG emission reductions, but coupled with other efforts, is an important policy option for Ecology to consider.²⁵⁶

The Washington Clean Air Act, administered by Ecology, directs state and local agencies to “lessen the negative environmental impact of . . . project[s] on all environmental media, including air, water, and land” when choosing air pollution control strategies.²⁵⁷ Furthermore, the Act directs that “the costs of protecting the air resource and operating state and local air pollution control programs shall be shared as equitably as possible among all sources whose emissions cause air pollution.”²⁵⁸ In accordance with the Act’s policy to “safeguard the public interest,” the Washington Clean Air Act, administered by Ecology, “provide[s] for the use of all known, available, and reasonable methods to reduce, prevent, and control air pollution.”²⁵⁹ The Department is “authorized to adopt such rules and regulations as are necessary and appropriate to carry out the provisions of this Chapter,” RCWA 43.21A.80, and as to the development of electric power resources, the Director “may represent the state and aid and assist the public utilities therein to the end that its resources shall be properly developed in the public interest insofar as they affect electric power”²⁶⁰ Ecology has full authority to impose regulatory fees in administering a comprehensive program to reduce GHG emissions without infringing on the taxation power of the legislature.²⁶¹ Accordingly, Ecology should do the following:

- Impose regulatory fees on electric utilities and other industries directly emitting or responsible for emissions from the sale of their products

²⁵⁴ Oregon Legislative Revenue Office, *Economic and Emissions Impacts of a Clean Air Tax of Fee in Oregon (SB306)* 5 (Dec. 2014), available at <http://www.pdx.edu/nerc/sites/www.pdx.edu/nerc/files/carbontax2014.pdf>.

²⁵⁵ Earth Challenge, *The Implications of Demonstrating the Economic Removal of Carbon Dioxide* (Nov. 4, 2015), <http://www.pdx.edu/nerc/sites/www.pdx.edu/nerc/files/carbontax2014.pdf>.

²⁵⁶ The passage of a carbon tax (e.g. Initiative 732) can also be used to facilitate the transition to clean energy and reduce the amount needed to be charged by a regulatory fee. Because that requires the passage of new law, we have not included a carbon tax on the list of policy options Ecology can and should implement.

²⁵⁷ RCW § 70.94.011.

²⁵⁸ *Id.*

²⁵⁹ RCWA 70.94.011.

²⁶⁰ RCWA 43.21A.605.

²⁶¹ In Washington, a regulatory fee is distinguished from a tax if the following conditions are met 1) the primary purpose of the fee “is to pay for a regulatory scheme, a particular benefit conferred, or mitigation of the burden created;” 2) “the money allocated [is] only to an authorized purpose;” and 3) “there is a direct relationship between the fee charged and the service received by those who pay the fee or between the fee charged and the burden produced by the fee.” *Storedahl Properties, LLC v. Clark County*, 178 P.3d 377, 382-5 (Wash.App. Div. 2, 2008). The Clean Energy Fund and its fees would clearly meet the test and qualify as a regulatory fee.

greater than 10,000 mtC, where the funds go into a Clean Energy Fund and are used for energy efficiency and clean energy projects.

- Provide permits to emit that include costs for GHG emissions, which feed into the Clean Energy Fund.
- Develop funding projects that allow utilities, property owners, businesses, and individuals access to Clean Energy Fund funds to assist their emission reduction efforts, with special consideration to low-income and disadvantaged communities.

2. New Building Emission Reductions and Green Building

Residential, commercial, and industrial greenhouse gas emissions represent 22% of Washington’s GHG emissions.²⁶² As discussed earlier, Ecology must establish emissions standards for new or retrofitted buildings to ensure an expansion of energy efficiency measures. Additionally, technology already exists to implement Zero Energy Building (ZEB) standards. A ZEB is defined as “an energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy.”²⁶³ Thus, Ecology should consider the following in its proposed rule:

- Establish building emissions standards for new construction or retrofits to ensure expansion of energy efficiency measures that result in 100% carbon neutral buildings.
- Require all non-permitted businesses, including landlords, to do a carbon footprint audit that results in energy efficiency recommendations and make the Clean Energy Fund available for qualified projects.
- Provide support to the State Building Code Council, as needed, to ensure building codes are consistent with new emission standards and the legislature’s goal that by at least the year 2031, new homes and buildings will have zero fossil-fuel emissions.²⁶⁴ The legislature has found that energy efficiency is the “cheapest, quickest, and cleanest way to meet rising energy needs, confront climate change, and boost our economy.”²⁶⁵

3. Electricity Sector Emission Reductions

The electricity sector represents 20% of Washington’s GHG emissions. Direct electricity production emissions can be addressed through the transition from fossil fuels to renewable energy. Washington’s electricity sector must eliminate coal, petroleum, and natural gas and transition to a 100% wind, water, and solar energy plan. In order to do

²⁶² See Department of Ecology, Climate Change, Frequently asked questions about the Washington Clean Air Rule (July 21, 2016), at <http://www.ecy.wa.gov/climatechange/CarbonRuleFAQ.html>.

²⁶³ See United States Department of Energy, *A Common Definition for Zero Energy Buildings* (September 2015) at 4, available at http://energy.gov/sites/prod/files/2015/09/f26/bto_common_definition_zero_energy_buildings_093015.pdf.

²⁶⁴ RCW § 19.27A.020.

²⁶⁵ RCW § 19.27A.130.

this, utilities must enhance the current infrastructure to more efficiently generate, store, and distribute renewable energy electricity. These efforts can be facilitated by a Clean Energy Fund, which can provide funds for projects to increase generation capacity and storage and to ensure the most efficient electricity transmission. Ecology has the authority to establish a fund, to set emissions standards, and to provide guidance to utilities in transitioning to a 100% renewable energy system.

Renewable Portfolio Standard

Washington currently has a Renewable Portfolio Standard that “requires large utilities to obtain fifteen percent of their electricity from new renewable resources.”²⁶⁶ The current statutory renewable energy targets are nine percent by 2016 and fifteen percent by 2020.²⁶⁷ Ecology does not need to wait for the Legislature to enact new statutory targets. Rather, the department must utilize its existing authority to expand the standard to require utilities incorporate 80% renewable energy by 2030 and 100% renewables by 2050, which are technically and economically feasible.²⁶⁸ Accordingly, Ecology must do the following:

- Expand Washington’s Renewable Portfolio Standard to require large utilities to obtain 80% of their electricity from new renewable resources by 2030 and 100% by 2050.

Renewable Energy Funding Projects

In order to efficiently transition to a 100% renewable energy sector, systems must be in place to create a robust energy infrastructure. The Clean Energy Fund provides a way for Ecology to offset the costs associated with transitioning to renewable energy. Ecology should develop multiple avenues for utilities, property owners, businesses, and individuals (especially from low-income areas and with special consideration of communities of color who are facing environmental injustice issues) to access funds to support renewable energy projects. Energy project funds may support energy efficiency improvements, sequestration activities, transitioning to 100% renewable energy sources, the elimination of diesel and gas backup generators, and other projects that reduce GHG emissions. Ecology should consider establishing the following funding projects:

- Develop a Property Assessed Clean Energy Program (PACE) that uses Clean Energy Fund funds to provide energy efficiency improvements loans for residential, commercial, and industrial facilities that are transferable to subsequent property owners.

²⁶⁶ RCW § 19.285.010.

²⁶⁷ Wash. Rev. Code § 19.285.040(2)(a)(ii)-(iii) (2014).

²⁶⁸ See Jacobson Decl.; Mark Z. Jacobson et al., *A 100% Wind, Water, Sunlight (WWS) All-sector Energy Plan for Washington State*, Renewable Energy 86 (2016) 75, 86.

- PACE programs are administered by local governments and provide loans to property owners for energy improvements.²⁶⁹ The financing mechanism allows owners to repay the loan with a 20-year term property tax-like assessment.²⁷⁰ If the property owner sells their property before the end of the loan term, the loan can be paid off or transferred to the new property owner.²⁷¹
 - Develop a fund specific to land use that allows landowners to apply for grants and incentives for sequestration activities and avoiding conversion.
 - Sequestration activities may include but are not limited to programs to encourage reforestation, improve forest management, reduce deforestation, conservation, and manage agricultural soils.²⁷²
 - Develop an environmental justice fund to assist non-homeowners in low-income and disadvantaged communities to make their homes more efficient and lower their energy costs.
 - Develop a fund for utilities transitioning to 100% renewable energy sources.
 - Increase the capacity factor of existing hydropower.²⁷³²⁷⁴
 - Encourage the use of heat pumps and constant energy use.²⁷⁵
 - Infrastructure upgrades.
 - Develop plan to implement home and community energy storage and eliminate diesel and gas backup generators by 2030.²⁷⁶
 - Develop incentive and rebate programs, including but not limited to energy efficiency measures in buildings, including appliances and processes; weatherization; landlord efficiency investment;²⁷⁷ efficient city street and building lighting; commercial and personal electric vehicles;

²⁶⁹ See State of Washington, Climate Legislative and Executive Workgroup, *Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State - Final Report* (October 14, 2013) (“Evaluation”) at 35, available at http://www.governor.wa.gov/sites/default/files/documents/Task_4_Final_Report_10-13-2013.pdf.

²⁷⁰ *Id.*

²⁷¹ *Id.*

²⁷² Managed agricultural soils have the potential store and reduce GHG emissions. Ecology should develop a grant program that encourages landowners to adopt recommended farming practices that result in GHG sequestration. Several of the recommended agricultural processes, including land application of biosolids and compost, have high accompanying costs. A grant program can help offset these costs to encourage better land practices while reducing overall GHG emissions. See Department of Ecology, *Soil Organic Carbon Storage (Sequestration) Principles and Management: Potential Role for Recycled Materials in Agricultural Soils of Washington State*, at vi (January 2015) available at vi, 68-9 <https://fortress.wa.gov/ecy/publications/publications/1507005.pdf>.

²⁷³ Washington produces more hydropower than any other state. Currently, there is an oversupply of energy from other sources, causing hydropower to operate at less than its maximum capacity. Washington does not need to install any new hydropower plants. Instead, it must increase the capacity to utilize all current energy waste. *Id.* at 79-80

²⁷⁴ *Id.*

²⁷⁵ *Id.*

²⁷⁶ See Jacobsen et al. at 86.

²⁷⁷ *Id.*

alternative and public transportation; and the development of hydrogen fuel vehicle fleets.

Work with the Washington Utilities and Transportation Commission (UTC)

Ecology has the authority to aid and assist the public utilities to ensure that its resources are developed in the public interest.²⁷⁸ The health, environmental, and economic benefits of clean energy are in the public's interest. Ecology should work with UTC to adjust electricity rate schedules, remote long-term renewable energy contracts, eliminate coal and natural gas from electricity sector, reduce overall power production, upgrade electricity transmission lines, streamline renewable energy permitting, and develop other actions that will lead to a 100% renewable energy system by 2050. As such, Ecology should aid and assist the UTC with the following:

- Adjust the rate schedule to encourage energy use when wind, water, and solar power generation is abundant or during traditionally low-use times.²⁷⁹
- Require long-term, feed-in-tariff (FIT) contracts with providers of renewable energy at levelized rates for generation with optimal project siting requirements.
 - FITs are long-term fixed price renewable energy contracts between utilities and energy producers. They provide certainty to energy producers, and thus encourage the use of renewable energy. Currently, Washington utilizes a combination of net metering and a tax incentive mechanism. These policies can be replaced with a FIT.²⁸⁰
- Eliminate coal and natural gas from the electricity sector, including both in-state generation and electricity purchased from out-of-state.
- Require new permits from fossil fuel burning power plants that collectively result in a net power reduction of 17.2 GW by 2050.²⁸¹
- Collaborate with the Western Interconnection states to develop plan to transition power lines to high-voltage direct current (HVDC) lines.
 - The current electricity transmission system utilizes high-voltage alternating current (HVAC) lines.²⁸² HVDC lines are more efficient and less expensive.²⁸³ A network of HVDC lines reduces dependence on costly storage technologies to manage the intermittency of renewable energies.²⁸⁴

²⁷⁸ RCW § 43.21A.605

²⁷⁹ *Id* at 87.

²⁸⁰ *See* Evaluation at 36-7.

²⁸¹ Jacobson Decl, Exhibit P at 87.

²⁸² *See* A. Kalair et al., *Comparative Study of HVAC and HVDC Transmission Systems*, Renewable and Sustainable Energy Reviews 59 (2016) 1653-1675.

²⁸³ *See* Alexander E. MacDonald et al., *Future Cost-competitive Electricity Systems and their Impact on US CO₂ Emissions*, Nature Clim. 6 (2016) 526-531, 527.

²⁸⁴ *Id* at 526.

- Develop plan to streamline renewable energy permitting that will prioritize and fast track wind, water, and solar power generation and transmission lines permit applications;²⁸⁵ incorporate environmental review process in permit process; and establish a fund from Clean Energy Fund funds for easy small scale solar and wind permitting.

4. Transportation

Transportation emissions represent 44% of overall GHG emissions in Washington.²⁸⁶ Ecology must establish new transportation emissions standards to ensure the reduction of transportation emissions. Ecology can create a schedule to phase out fossil fuel vehicles and transition to 100% zero emissions by 2050. In the interim, Ecology should implement a program that encourages the use of low-carbon clean fuels. Additionally, Ecology should develop a plan to transition all public transportation fleets to 100% zero emissions by 2050. In an effort to slash transportation emissions, Ecology should consider the following:

- Implement a zero emissions vehicles (ZEV) goal that requires 50% of all vehicles sold by 2025 to be electric (zero-tailpipe emissions) with the elimination of fossil fuel-vehicle sales by 2050.²⁸⁷
- Implement a low carbon fuel standard, which includes a low-carbon full lifecycle analysis (LCFS)²⁸⁸ to encourage the use of low-carbon clean fuels until fossil fuel vehicles are completely phased out.
 - A LCFS regulates fuel producers and importers selling gasoline and diesel fuel. It generates credits for lower carbon intensive transportation fuels, including ethanol, natural and bio-based gases, biodiesel, and electricity.²⁸⁹
- Enhance public transportation fleets and infrastructure:
 - Develop a plan to transition to 50% land and water electric vehicle fleets by 2025 and 100% by 2050
 - Provide assistance to local planning departments to develop a more robust and efficient public transportation infrastructure that encourages the use of public and alternative transportation.

(ii) Policies Ecology Should Recommend to the Legislature to Reduce the Burden on Ecology

²⁸⁵ *Id* at 85.

²⁸⁶ See Department of Ecology, *Washington Greenhouse Gas Emission Reduction Limits: Report prepared under RCW 70.235.040*, at 8 available at <https://fortress.wa.gov/ecy/publications/documents/1401006.pdf>.

²⁸⁷ See Evaluation at 31-2.

²⁸⁸ See Department of Ecology, *Path to a Low-carbon Economy: An Interim Plan to Address Washington's Greenhouse Gas Emissions* (December 2010) at 15, available at <https://fortress.wa.gov/ecy/publications/publications/1001011.pdf>.

²⁸⁹ In 2010, Ecology analyzed the effectiveness of a LCFS and found that it “would reduce covered transportation GHG emissions by up to 12 percent above the policies the state currently has in place” and “provide a clear, long-term market for biofuels, electricity, and other alternative fuels in the state and promote investment in the infrastructure to deliver the low-carbon fuels of the future to Washington consumers.”*Id.*

Ecology has a mandate to act now to reduce state GHG emissions. Ecology must do all it can to ensure the reduction of atmospheric CO₂ levels and ensure the protection of current and future generations. All of the policies listed in the previous section can be accomplished without additional Legislative approval. However, it may benefit the agency to make legislative recommendations, which, if enacted, could facilitate state efforts in mitigating the harmful effects of climate change. Regardless, the agency must act urgently and not wait for the Legislature to respond to recommendations. In an effort to collaboratively address climate change, Ecology should recommend the Legislature do the following:

1. Tax Credits

- Implement a carbon tax, and use funds for clean energy transition incentives and rebates programs, environmental justice programs, forest and soil protection programs and adaptation plans.²⁹⁰
 - Carbon taxes can help policymakers, individuals, and firms prepare for GHG emissions costs by providing price certainty to the market.²⁹¹
- Create tax credits for emission reduction initiatives, including but not limited to green building initiatives, solar production projects, and industrial on-site wind, water, solar electricity generation.
- Provide state funding to support on-site industrial wind, water, and solar electricity generation.

2. Greenhouse Gas Emission Limits and Renewable Energy Standard Targets based upon best available science.

- Increase renewable energy targets for all sectors under RCW 19.285.040 to 80% by 2030 and 100% by 2050.²⁹²

3. Green Building Standards

- Mandate that all new construction meet green building standards.
 - Washington Revised Code 39.35D currently mandates that projects receiving state funding must meet green building standards. The statute extends to all of Ecology's building projects. Ecology should recommend that this statute be expanded to all new construction.²⁹³
- Provide tax exemptions for landlords' energy efficiency projects in rental properties.

²⁹⁰ See Evaluation at 29-30.

²⁹¹ *Id.*

²⁹² See Mark Z. Jacobson et al., *A 100% Wind, Water, Sunlight (WWS) All-sector Energy Plan for Washington State*, *Renewable Energy* 86 (2016) 75, 86.

²⁹³ Wash. Rev. Code § 39.35D.030 (2011).

4. Electricity Sector

- Require energy grid storage of 1.3 GWh by 2020.²⁹⁴
- Impose fines for excess wind, water, and solar energy bleeding.

5. Incentives and Rebates

- Pass enabling legislation to remove barriers to local Property Assessed Clean Energy (PACE)²⁹⁵ programs administration that support energy conservation and renewable energy.²⁹⁶
- Establish a fund for electric utilities, property owners, industries, and individuals to incorporate renewable energy technologies into electric sector. Projects may include but are not limited to heat pump utilization, solar panels, and electric vehicles.

There are many other policy options that Ecology can and should implement in order to reduce GHG emissions in a manner that protects the rights of young people and future generations.

VIII. CONCLUSION

We recognize that Ecology is currently under court order to finalize the Clean Air Rule by the end of the year. That order is in place in light of the urgency of the climate crisis and Ecology's historic inability to take regulatory action to reduce the state's GHG emissions. In light of the significant flaws in the existing draft of the Clean Air Rule that have been described above, we encourage you to work with us, as petitioners in the *Foster* case, on developing a rule that is based upon science, not politics.

We hereby incorporate by reference all hyperlinked and cited documents throughout these comments into the administrative record for this project. They are all publicly available. If you require PDF or hard copies of any of the hyperlinked or cited documents, please let us know and we will supply them; otherwise we will assume that Ecology can access them via the internet and will include them in the administrative record.

Respectfully Submitted,

s/ Andrea K. Rodgers

Andrea K. Rodgers
Attorney

s/ Julia Olson

Julia Olson
Executive Director & Chief Legal Counsel

²⁹⁴ See Jacobson et al. at 86.

²⁹⁵ See State of Washington, Climate Legislative and Executive Workgroup, *Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State - Final Report* (October 14, 2013) ("Evaluation") at 35, available at http://www.governor.wa.gov/sites/default/files/documents/Task_4_Final_Report_10-13-2013.pdf.

²⁹⁶ *Id.*

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EXHIBITS:

- A. List of people and organizations that these comments are also submitted on behalf of
- B. Petition for Rulemaking (June 17, 2014)
- C. Ecology's Denial of Petition for Rulemaking (August 14, 2014)
- D. *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order Affirming the Department of Ecology's Denial of Petition for Rulemaking) (Nov. 19, 2015)
- E. *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order on Petitioners' Motion for Relief Under CR 60(b)) (May 16, 2016)
- F. Washington Executive Order 14-04 (April 29, 2014)
- G. Ecology December 2014 Report
- H. Center for Biological Diversity, Petition to EPA for Additional Water Quality Criteria & Guidance Under Section 304 of the Clean Water Act, 33 U.S.C. § 1314, to Address Ocean Acidification (April 17, 2013)
- I. Center for Biological Diversity Petition to EPA for Revised State Water Quality Standards for Marine pH Under the Clean Water Act, 33 U.S.C. § 1313(c)(4) (October 18, 2012)
- J. *Svitak, et al. v. State*, King County Superior Court No. 69710-2-I (Amended Complaint) (filed May 18, 2011)
- K. *Foster, et al. v. Ecology*, King County Superior Court No. 14-2-25295-1 (Department of Ecology's Response to June 23, 2015 Court Order) (filed August 7, 2015)
- L. Dec. of Dr. Richard H. Gammon, *Foster v. Wash. Dep't of Ecology*, No. 14-2-25295-1 SEA 1 (Wash. Super. Ct. Aug. 24, 2015)
- M. Dec. of Dr. Ove Hoegh-Guldberg, *Foster v. Wash. Dep't of Ecology*, No. 14-2-25295-1 SEA, 1 (Wash. Super. Ct. Aug. 24, 2015)
- N. Declaration of Thomas Crowther, Ph.D.
- O. Declaration of Dr. James Hansen
- P. Declaration of Mark Jacobson
- Q. Washington Emissions Data Compared to Science-Based Emissions Reductions



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July 22, 2016

Via Electronic & U.S. Mail

Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia, WA 98504-7600
Email: AQComments@ecy.wa.gov

Re: Comments on Ecology's Proposed Clean Air Rule

Dear Mr. Wilson,

These comments are being submitted on behalf of our clients, Aji and Adonis Piper, Wren Wagenbach, Lara and Athena Fain, and Gabriel Mandell, the youth who took the Washington Department of Ecology ("Ecology") to court for failing to protect their fundamental constitutional rights in response to climate change in *Foster, et al. v. Ecology*. These young people secured a court order directing Ecology to promulgate a rule limiting greenhouse gas emissions in Washington by the end of 2016. These comments are also submitted on behalf of the people and organizations who believe these children have a constitutional right to a livable future, a list of whom is included as Exhibit A to these comments. Finally, these comments are submitted on behalf of all future generations and the rights and natural resources we are working hard to pass down to them, and to whom you owe a profound obligation as their fiduciary trustee.

Thank you for the opportunity to comment on Ecology's Proposed Clean Air Rule. We truly hope that you take this opportunity to promulgate a rule that is based on science, as time is running out. Our comments are supported by declarations by some of the world's most foremost climate scientists and policy experts. As we rapidly approach climate tipping points, only the current Ecology policymakers are capable of protecting the rights of these young people. They, and the world's children, are depending on you.

I. INTRODUCTION

Ecology has clear constitutional and statutory responsibilities to cap and regulate carbon dioxide emissions based upon best available science. The best way to do that is through the direct regulation of known emission sources to force polluters to implement the pollution-prevention technology that is needed to eliminate the need for the pollution in

the first place. Technology-forcing serves as a bedrock principle of the federal Clean Air Act and has been described as follows:

The idea, briefly put, is that the government can order into being technological achievements not now enjoyed by a particular industry. A policy of technology-forcing assumes that existing market forces fail to produce an appropriate level of pollution control, either because of explicit collusion among the manufacturers¹ or because of the inability of spillover victims to communicate and enforce their needs within the market. A policy of technology-forcing presupposes also that intervention by law will bring a response, either from the manufacturers themselves or equipment suppliers, and that these new forces can be loosed to create a technology that is “superior” to the ones it replaces. The metaphors of this movement are of reluctance overcome, of fires being lit, of perceived limits quickly surpassed, of wills and ways.²

Ecology’s proposed Clean Air Rule, as it is currently structured, serves to undercut technological solutions to climate change. A cap and trade system, if it is to be used at all, should be the cherry on top of a powerful regulatory scheme mandating the reduction, and ultimate elimination, of carbon dioxide emissions. Cap and trade can potentially be one tool to make a scientifically-targeted regulatory program more palatable for those corporations who put profits before the health and wellbeing of their children and future generations. However, it should not be used as the centerpiece of a regulatory plan that exempts, excuses and makes allowances for not reducing emissions that can technically, economically and feasibly be reduced to protect life, liberty, and all of the fundamental rights of citizens, especially Washington youth and future generations.

These comments set forth both a specific critique of the proposed Clean Air Rule and identifies alternative regulatory mechanisms that Ecology has the existing authority to promulgate and implement. As you know, in June 2014, youth submitted a Petition for Rulemaking with the Department of Ecology asking the agency to use its existing authority to cap and regulate GHG emissions based upon best available science. Two years later, we are saddened and frustrated that Ecology continues to ignore the scientific consensus on what needs to be done to stem the tide of climate change. Ecology, as the legislatively designated trustee of the natural resources of Washington, must adopt a rule to achieve science-based emission reductions necessary to do Washington’s part to stabilize the climate and protect our oceans.

II. THE PROPOSED RULE DOES NOT COMPLY WITH THE COURT ORDER IN *FOSTER, ET AL. v. ECOLOGY*

On June 24, 2014, eight young Washingtonians filed a petition for rulemaking with Ecology, asking that the agency use its existing legal authority to (1) promulgate a

¹ Indeed, the Clean Air Act was largely passed in response to the “smog conspiracy,” whereby automobile manufacturers conspired to retard the development of pollution prevention control technology.

² Rodgers, 1 Environmental Law at § 3.25(A).

rule mandating reductions of greenhouse gases (“GHGs”) based upon the most current climate science; and (2) and make its statutorily-required recommendation to the legislature on adjusting GHG emission limits (RCW 70.235.040) based on current science through rulemaking.³ On August 14, 2014, Ecology denied Youth Petitioners’ Petition for Rulemaking.⁴ Without addressing the scientific basis for the proposed rule, or its legal responsibility to manage essential natural resources such as air and water, the agency summarily denied the petition for three reasons: (1) nothing in RCW 70.235 requires Ecology to adopt different emissions reductions, develop a plan to ensure those reductions, or implement the monitoring requirements in the proposed rule; (2) Washington “is working to achieve the reductions” set forth in RCW 70.235 and “the measures it is taking are an alternative approach to your proposed rule;” and (3) none of the additional cited sources in the petition require Ecology to adopt the proposed rule.⁵ After over a year of litigation, on November 19, 2015 the Court issued a landmark decision outlining Ecology’s legal responsibilities to take immediate action to address climate change.⁶ At that time, the Court did not order Ecology to undertake rulemaking as Governor Inslee had directed Ecology to do so in July 2015, shortly after meeting with the youth petitioners to discuss the case.

After Ecology withdrew the proposed Clean Air Rule in February 2016, the youth went back to Court, this time securing a court order directing Ecology to do two things: “(1) Ecology shall proceed with the rulemaking procedure to adopt a rule to limit greenhouse gas emissions in Washington state as directed by Governor Inslee in July 2015, and shall issue the rule by the end of calendar year 2016; (2) Ecology shall provide a recommendation to the 2017 legislature on greenhouse gas limits for the state of Washington as provided in RCW 70.235.040.”⁷ When exercising its authority to promulgate a rule regulating carbon dioxide emissions as mandated by Court order, Ecology has a responsibility to fulfill its legal obligations as interpreted by Judge Hill in the *Foster* case.

a. Ecology’s Existing Efforts Are Inadequate

Importantly, in the *Foster* case, the Court found that Ecology’s “alternative approach” to dealing with climate change was legally insufficient. Specifically:

the emission standards currently adopted by Ecology do not fulfill the mandate to ‘[p]reserve, protect and enhance the air quality for current and future generations.’ The regulations currently in place specify technological controls of a small number of air pollution sources while not even addressing transportation which as of 2010 was responsible for 44% of annual total GHG emissions in Washington State. *One need*

³ Petition for Rulemaking (June 17, 2014) (Exhibit B).

⁴ Ecology’s Denial (August 14, 2014) (Exhibit C).

⁵ *Id.* at 1.

⁶ *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order Affirming the Department of Ecology’s Denial of Petition for Rulemaking) (Nov. 19, 2015) (Exhibit D).

⁷ *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order on Petitioners’ Motion for Relief Under CR 60(b)) (May 16, 2016) (Exhibit E).

*only go back to Ecology’s pronouncement in the December 2014 report to appreciate the inadequacy of its current efforts to preserve, protect and enhance the air quality for current and future generations.*⁸

In rendering her decision, the Court made it clear that Ecology needed to undertake additional actions to protect the fundamental rights of the youth petitioners:

In fact, as Petitioners assert and this court finds, their very survival depends upon the will of their elders to act now, decisively and unequivocally, to stem the tide of global warming by accelerating the reduction of emission of GHG’s before doing so becomes first too costly and then too late. The scientific evidence is clear that the current rates of reduction mandated by Washington law cannot achieve the GHG reductions necessary to protect our environment and to ensure the survival of an environment in which Petitioners can grow to adulthood safely. In fact, in its 2014 report to the legislature, the Department stated, “Washington’s existing statutory limits should be adjusted to better reflect the current science. The limits need to be more aggressive in order for Washington to do its part to address climate risks”⁹

The Court’s findings regarding the inadequacy of Ecology’s current approach to climate change is pertinent as it highlights where Ecology must focus its efforts when regulating carbon dioxide emissions.

b. Ecology Has A Mandatory, Statutory Duty To Protect Air Quality for Current & Future Generations Under the WA Clean Air Act

The Court found that Ecology “does have the mandatory duty under the Clean Air Act to ‘[a]dopt rules establishing air quality standards’ for GHG emissions, including carbon dioxide that ‘shall constitute minimum emissions standards throughout the state.’ RCW 70.94.331(2)(a)(b). *This obligation must be implemented in a manner that ‘[p]reserves, protect[s] and enhance[s] the air quality for the current and future generations.’* RCW 70.94.011.”¹⁰ The draft Clean Air Rule violates the plain language of the Clean Air Act as it will not “preserve, protect, and enhance the air quality for current and future generations.”¹¹ Furthermore, the draft Clean Air Rule violates the Legislature’s express purpose for adopting the Clean Air Act. The Legislature has found that:

Air is an essential resource that must be protected from harmful levels of pollution. Improving air quality is a matter of statewide concern and is in

⁸ *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order Affirming the Department of Ecology’s Denial of Petition for Rulemaking) (Nov. 19, 2015) at 6 (emphasis added) (Exhibit D).

⁹ *Id.* at 5.

¹⁰ *Id.* at 6 (emphasis added).

¹¹ RCW 70.94.011.

the public interest. It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.

It is further the intent of this chapter to protect the public welfare, to preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions.¹²

These are not merely words on paper. When Ecology implements its delegated authority to “adopt rules establishing air quality objectives and air quality standards” and “adopt emission standards which shall constitute minimum emission standards throughout the state,”¹³ it must do so in a manner that fulfills the legislative intent as expressed in RCW 70.94.011. The draft Clean Air Rule fails to do so.

c. Ecology Has A Constitutional Duty to Protect Public Trust Resources

The Court held that “Washington courts have found that this provision [WA Const. Art. XVII, Sec. 1] requires the State through its various administrative agencies, to protect trust resources under their administrative jurisdiction.”¹⁴ “Therefore, the State has a constitutional obligation to protect the public’s interest in natural resources held in trust for the common benefit of the people of the State.”¹⁵ The Court recognized the scientific reality that “[t]he navigable waters and the atmosphere are intertwined and to argue a separation of the two, or to argue that GHG emissions do not affect navigable waters is nonsensical. Therefore, the Public Trust Doctrine mandates that the State act through its designated agency to protect what it holds in trust. The Department of Ecology is the agency authorized both to recommend changes in statutory emission standards and to establish limits that are responsible.”¹⁶

Ecology continues to ignore the fact that it has a constitutional duty to protect Public Trust Resources in the state. The draft Clean Air Rule will not protect public trust resources within Ecology’s jurisdiction such as air, tidelands, shorelands, and water.

¹² RCW 70.94.011.

¹³ RCW 70.94.331(1), (2).

¹⁴ *Id.* at 7.

¹⁵ *Id.* at 8.

¹⁶ *Id.*

d. The Youth Have Fundamental & Inalienable Rights to Live in a Healthful & Pleasant Environment

Most significantly, the Court acknowledged that “Ecology’s enabling statute states, “[I]t is a fundamental and alienable right of the people of the State of Washington to live in a healthful and pleasant environment.” RCW 43.21A.010. Although courts have stated that a statutory duty cannot be created merely from the words of the enabling statute, this language [in RCW 43.21A.010] does evidence the legislature’s view as to rights retained under Article I, Section 30” of the Washington Constitution.¹⁷ In light of those fundamental legal rights,

If ever there were a time to recognize through action this right to preservation of a healthful and pleasant atmosphere, the time is now as: ‘Climate change is not a far off risk. It is happening now globally and the impacts are worse then previously predicted, and are forecast to worsen . . . If we delay action by even a few years, the rate of reduction needed to stabilize the global climate would be beyond anything achieved historically and would be more costly.’¹⁸

Ecology is legally obligated to promulgate a rule that complies with the Court’s prior interpretations of the law in the *Foster* case, as that is the controlling precedent. Unfortunately, for the reasons set forth below, Ecology’s proposed Clean Air Rule does not come close to satisfying the law as specified in Judge Hill’s order, including Ecology’s statutory, constitutional and public trust obligations. Ecology is legally and morally obligated to create a statewide Climate Action Plan that protects the fundamental constitutional rights of young people in this state.

III. ECOLOGY HAS THE LEGAL AUTHORITY & DUTY TO PROMULGATE SCIENCE-BASED EMISSION LIMITS

As described above, Judge Hill clearly laid out the constitutional and statutory framework for Ecology to promulgate a rule that fulfills its legal obligations while protecting the rights of young people and future generations. In addition, Ecology has other sources of authority that can and should be invoked in developing a true Climate Action Plan based upon science. Climate change is an “all hands on deck” issue that requires Ecology to implement the full panoply of their legal authority.

a. Ecology Must Do Its Part To Reach Global Climate Stabilization Levels

RCW 70.235.020 sets the following *floor* for GHG emission reductions:

- (i) By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels.

¹⁷ *Id.* at 9.

¹⁸ *Id.* (quoting Ecology, Washington Greenhouse Gas Emissions Reduction Limits, Prepared Under RCW 70.235.040 (Dec. 2014) (Exhibit G)).

- (ii) By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;
- (iii) By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year.

Ecology has correctly noted that this statute reflects “the Legislature’s intent to reduce GHG emissions,” but improperly views the statutory emission limits as a constraint on its authority to establish science-based GHG emissions limits.¹⁹ The AG has interpreted this statute as suggesting that “the legislature intended the reductions goals to be taken seriously”²⁰ *RCW 70.235 does not in any way limit Ecology’s authority to promulgate a science-based rule; indeed, the statute only sets a floor for GHG emission limits and does not preclude Ecology from recommending more stringent limits pursuant to its existing statutory authority and constitutional obligations.*²¹ It would be illogical to interpret RCW 70.235 as the most stringent emission limits that Ecology can adopt. For example, would Ecology be in violation of the statute if it were to achieve emissions reductions of 26% below 1990 levels by 2035, instead of 25%? This would be an absurd result.²² What is clear from the plain language of RCW 70.235.020 is the legislature’s intent that Washington base its efforts on the best available climate science and “do its part to reach global climate stabilization levels,” which the current scientific evidence demonstrates is global atmospheric concentrations of 350 ppm by the end of the century, a standard never disputed by Ecology.²³

When the statute is read in its entirety, it is clear that Ecology is not constrained by the emission targets based in RCW 70.235.020. Indeed, the State’s GHG reduction statute imposes the following mandatory duty on Ecology:

Within eighteen months of the next and each successive global or national assessment of climate change science, the department shall consult with the climate impacts group at the University of Washington regarding the science on human-caused climate change and provide a report to the legislature summarizing that science and make recommendations regarding whether the greenhouse gas emissions reductions required under RCW 70.235.020 need

¹⁹ Ecology, SEPA Environmental Checklist – Clean Air Rule, Appendix A, Staff Report – SEPA Non-Project Review Form, Proposed Clean Air Rule (May 2016) at 5.

²⁰ Attorney General Opinion to Senator Doug Ericksen (Sept. 1, 2015) at 2.

²¹ While we do not necessarily agree with the interpretation of RCW 70.235 by the Attorney General’s Office, it has taken the position that RCW 70.235 is not enforceable, nor binding on the State. Thus, whether our legal interpretation is correct or Ecology follows the advice of the Attorney General, the statute does not pose any barrier to Ecology’s ability to fully implement its statutory, constitutional, and public trust mandate. *Id.* at 1 (finding that the emission “reductions are not a ministerial duty of any specific state official.”).

²² See *Tingley v. Haisch*, 159 Wn.2d 652, 664, 152 P.3d 1020 (2007) (quoting *State v. J.P.*, 149 Wn.2d 444, 450, 69 P.3d 318 (2003) (“A reading [of a statute] that produces absurd results must be avoided because ‘it will not be presumed that the legislature intended absurd results.’”) (internal quotations omitted)).

²³ See section *, *infra*.

to be updated.²⁴

This language makes it clear that the legislature intended the limits be based upon the most current climate science. After Governor Inslee directed Ecology to make this recommendation to the legislature by July 15, 2014,²⁵ the Youth Petitioners asked Ecology to make its recommendations to the Legislature through the rulemaking process because “Ecology’s legislative recommendations implicate youth petitioners’ and future generations’ rights to essential public trust resources”²⁶ It has been over eight years since RCW 70.235 was enacted, and Ecology has still not made a recommendation to the legislature to update the reductions in RCW 70.235.020, despite several advances in the climate science. This failure is fatal to the development of the Clean Air Rule as it is impossible for Ecology to target its reductions in a fashion that protects the rights of young people and future generations, if it continues to refuse to tell the public what those targets should be.

Ecology’s independent decision to target the Clean Air Rule to the emissions limits in RCW 70.235, rather than the best science, is arbitrary in light of the fact that Ecology has concluded that “Washington State’s existing statutory limits should be adjusted to better reflect the current science” and that “[t]he limits need to be more aggressive in order for Washington to do its part to address climate risks and to align our limits with other jurisdictions that are taking responsibility to address these risks.”²⁷ Ecology’s continued failure to make a substantive “recommendation” to the Legislature to update RCW 70.235.020 based upon current climate science serves to exacerbate, prolong, and potentially ensure perpetually the impairment of Youth Petitioners’ fundamental and inherent rights to a healthful and pleasant environment.²⁸ Not only is Ecology failing to take legally required action,²⁹ but the agency is affirmatively advocating, by virtue of its silence, that the Washington Legislature “impos[e] risks on future generations (causing intergenerational inequities) and liability for the harm that will be caused by climate change that we are unable or unwilling to avoid.”³⁰ In light of the clear threats to Youth Petitioners’ inalienable rights to a healthful and pleasant environment, Ecology’s decision to target the Clean Air Rule to RCW 70.235.020 is irrational and will not be upheld by a

²⁴ RCW 70.235.040.

²⁵ Washington Executive Order 14-04 (April 29, 2014) (Exhibit F).

²⁶ Youth Petition for Rulemaking (June 17, 2014) (Exhibit B) at 53.

²⁷ Ecology December 2014 Report (Exhibit G) at 18. Ecology’s action essentially asks the Legislature to violate the Public Trust Doctrine which “prohibits the State from disposing of its interest in the waters of the state in such a way that the public’s right of access is substantially impaired, unless the action promotes the overall interests of the public.” *Rettkowski*, 122 Wn.2d at 232.

²⁸ Ecology December 2014 Report (Exhibit G) at 15 (“Globally, 2013 was the fourth warmest year on record. Globally averaged temperature has increased by 1.5° or 0.85°C between 1880 and 2012. The [IPCC] confirmed continuing the current pattern of greenhouse gas emissions would likely lead to a rise in temperature which will pose unprecedented risks to people’s lives and wellbeing.”).

²⁹ Ecology is now court ordered to make the recommendation to the legislature in advance of the 2017 legislative session. *Foster et al. v. Ecology*, No. 14-2-25295-1, King County Superior Court (Order on Petitioners’ Motion for Relief Under CR 60(b)) (May 16, 2016) (Exhibit E) at 3 (“Ecology shall provide a recommendation to the 2017 legislature on greenhouse gas limits for the state of Washington as provided in RCW 70.235.040.”).

³⁰ *Id.* at 18.

court of law.

Furthermore, Ecology's claims that "[t]he proposed rule is intended to at a minimum achieve the statutory reductions in Chapter 70.235 RCW," is contradicted by information in the rulemaking record.³¹

It makes no sense for Ecology to promulgate a Clean Air Rule in advance of making its recommendation to the Legislature to revise the emission reductions in RCW 70.235.020. The science is clear as to what those reductions need to be, but Ecology continues to abdicate its moral and legal responsibility to tell Washingtonians how we collectively must reduce our GHG emissions to "do [our] part to reach global climate stabilization levels."³² Because Ecology is now court-ordered to make this legislative recommendation, it is imperative that Ecology target its Clean Air Rule towards achieving the science-based emission reductions contained in its recommendation, not the reductions set forth in RCW 70.235.020, which the agency acknowledge would lead to dangerous levels of warming and would jeopardize the rights of young people.

b. Ecology Must Use Its Authority To Protect Public Health

Ecology's proposed rule permits GHG emissions beyond levels that are safe for humanity. By legalizing emissions at dangerous levels, Ecology places the public's health at serious risk. As discussed above, Ecology is bound by law to "preserve, protect, and enhance the air quality for current and future generations."³³ Ecology's authority under the Washington Clean Air Act is quite broad. Under the law, the Legislature directs Ecology to "secure and maintain levels of air quality that protect human health and safety."³⁴ Furthermore, this protection is extended to plants, animals, and property.³⁵ Recognizing the serious consequences of air pollution in Washington, the Legislature called for immediate action to return air quality levels to "protect health and the environment" and to "prevent any areas of the state with acceptable air quality from reaching air contaminant levels that are not protective of human health and the environment."³⁶

Human-caused fossil fuel burning and the resulting climate change are already contributing to an increase in asthma, cancer, cardiovascular disease, stroke, heat-related morbidity and mortality, food-borne diseases, and neurological diseases and disorders.³⁷ Climate change has been called "the most serious threat to the public health of the 21st

³¹ Ecology, Cost Benefit Analysis at 51.

³² RCW 70.235.020(1)(a)(iii).

³³ RCW § 70.94.011.

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ See The Center for Health and the Global Environment, Harvard Medical School, *Climate Change Futures: Health, Ecological, and Economic Dimensions* (Nov. 2005), http://coralreef.noaa.gov/aboutcrcep/strategy/reprioritization/wgroups/resources/climate/resources/cc_future_s.pdf; USGCRP, *Climate Change Impacts*, *supra* note 102, at 221-28.

century.”³⁸ Droughts, floods, heat waves and other extreme weather events linked to climate change also lead to a myriad of health issues.³⁹ The World Health Organization has stated that “[l]ong-term climate change threatens to exacerbate today’s problems while undermining tomorrow’s health systems, infrastructure, social protection systems, and supplies of food, water, and other ecosystem products and services that are vital for human health.”⁴⁰ Climate change is not only expected to affect the basic requirements for maintaining health (clean air and water, sufficient food, and adequate shelter) but is likely to present new challenges for controlling infectious disease and even “halt or reverse the progress that the global public health community is now making against many of these diseases.”⁴¹ Children are especially vulnerable to adverse health impacts due to climate change.

Recent studies have highlighted the adverse mental health effects that result from climate change. One study noted that as many as 200 million Americans are expected to have mental health problems as a result of climate change impacts and added that mental health disorders are likely to be one of the most dangerous indirect health effects of climate change. The mental health effects can include elevated levels of anxiety, depression, PTSD, and a distressing sense of loss. The impacts of these mental health effects include chronic depression, increased incidences of suicide, substance abuse, and greater social disruptions like increased violence.⁴²

In Washington, most health effects associated with climate change are expected to be negative and will include increased respiratory diseases, including asthma, heart attacks, and cancer.⁴³ Moreover, as GHG emissions stay the same and continue to rise, Washingtonians can expect increased water shortages due to decreased snowpack and early snowmelt.⁴⁴ Water shortages affect the viability of native salmon species, which jeopardizes the mental health and welfare of the state’s tribal communities, who have relied upon these natural resources for time immemorial.

By authorizing the State’s top polluters to continue unsafe levels of GHG emissions that exceed both scientific and end existing statutory limits, Ecology actively puts Washingtonians’ health at risk, in violation of Ecology’s mandate under the Clean Air Act. The People entrusted Ecology to protect them from the harmful effects of air pollution and climate change. By allowing industry to continue to pollute beyond safe limits, the department breaches this trust.

³⁸ Casey Crandell, *Climate Action Holds Potential for Massive Improvements in Public Health*, Physicians for Social Responsibility (June 22, 2015), <http://www.psr.org/blog/climate-action-holds-potential-improvements-public-health.html>.

³⁹ *Id.*

⁴⁰ World Health Organization, *Atlas of Health and Climate* 4 (Oct. 2012), <http://www.who.int/globalchange/publications/atlas/report/en/>.

⁴¹ World Health Organization, *Protecting Health from Climate Change: Connecting Science, Policy, and People* 2 (2009), <http://www.who.int/globalchange/publications/reports/9789241598880/en/index.html>.

⁴² Nick Watts et al., *Health and Climate Change: Policy Responses to Protect Public Health*, *The Lancet* (June 23, 2015), <http://www.thelancet.com/commissions/climate-change-2015>.

⁴³ See Devra R. Cohen, *Forever Evergreen: Amending the Washington State Constitution for a Healthy Environment*, 90 Wash. L. Rev. (2015) 349, 391.

⁴⁴ *Id.*

c. The Clean Air Rule Must Protect the Waters of the State

By not developing a rule that is based on science and targeted to put Washington on a path to reaching global climate stabilization levels, Ecology is abdicating its responsibility as trustee of the waters of the state. The legislature has delegated a significant amount of authority to Ecology to act to protect the natural resources in the state, including air and water. In passing the Clean Air Act, the legislature explicitly recognized “air pollution control projects may affect other environmental media. In selecting air pollution control strategies state and local agencies shall support those strategies that lessen the negative environmental impact of the project on all environmental media, including air, water, and land.”⁴⁵ Ecology can and should implement this authority to fulfill its statutory mandate to protect both the air and waters of the state:

it is the purpose of this chapter to establish a single state agency with the authority *to manage and develop our air and water resources in an orderly, efficient, and effective manner and to carry out a coordinated program of pollution control involving these and related land resources.* To this end a department of ecology is created by this chapter to undertake, in an integrated manner, the various water regulation, management, planning and development programs now authorized to be performed by the department of water resources and the water pollution control commission, the air regulation and management program now performed by the state air pollution control board, the solid waste regulation and management program authorized to be performed by state government as provided by chapter 70.95 RCW, and such other environmental, management protection and development programs as may be authorized by the legislature.⁴⁶

“The legislature further recognizes that as the population of our state grows, the need to provide for our increasing industrial, agricultural, residential, social, recreational, economic and other needs will place an increasing responsibility on all segments of our society to plan, coordinate, restore and regulate the utilization of our natural resources in a manner that will protect and conserve our clean air, *our pure and abundant waters*, and the natural beauty of the state.”⁴⁷

Ecology is specifically charged with “the supervision of public waters within the state.”⁴⁸ “[A]ll waters within the state belong to the public” and “[t]he power of the state to regulate and control the waters within the state shall be exercised” in accordance with

⁴⁵ RCW 70.94.011.

⁴⁶ RCW 43.21A.020 (emphasis added).

⁴⁷ RCW 43.21A.010 (emphasis added).

⁴⁸ RCW 43.21A.064(1).

RCW 90.03.⁴⁹ Only Ecology has the authority to establish and protect minimum flows or levels.⁵⁰ Only Ecology has “the jurisdiction to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, salt waters, water courses, and other surface and underground waters of the state of Washington.”⁵¹ As part of that authority, Ecology has a mandatory duty to promulgate “rules and regulations relating to standards of quality for waters of the state and for substances discharged therein in order to maintain the highest possible standards of all waters of the state in accordance with the public policy as declared in RCW 90.48.010.”⁵² Given the devastating impacts our waters are, and will be, facing due to climate change, it is imperative that Ecology invoke its statutory authority as trustee of our state’s water resources and promulgate a Clean Air Rule that is based on science.

d. The Clean Air Rule Must Mitigate Against Ocean Acidification

Ecology has recognized that global warming is occurring and adversely impacting Earth’s climate.⁵³ At the same time, ocean acidification “has been observed,” due to the ocean absorbing approximately “30 percent of the emitted anthropogenic carbon dioxide,” thereby threatening Earth’s ocean life.⁵⁴ If immediate action is not taken to draw down carbon dioxide emissions, the costs of climate change and ocean acidification impacts to Washington are projected at \$10 billion per year by 2020.⁵⁵

As discussed above, Ecology is the agency with the authority to adopt “rules and regulations relating to standards of quality for waters of the state and for substances discharged therein in order to maintain the highest possible standards of all waters of the state in accordance with the public policy as declared in RCW 90.48.010.”⁵⁶ The State has previously acknowledged, “acidification near the coasts, and particularly in highly populated and developed areas, is often exacerbated by local sources of pollutants, such as nutrients and organic material, that generate additional carbon dioxide in marine waters.”⁵⁷ In spite of long-standing efforts by the Center for Biological Diversity,⁵⁸ Ecology still has not amended its water quality standards or taken other regulatory action

⁴⁹ RCW 90.03.010.

⁵⁰ RCW 90.03.247; RCW 90.22.010 (“The department of ecology may establish minimum water flows or levels for streams, lakes or other public waters for the purposes of protecting fish, game, birds or other wildlife resources, or recreational or aesthetic values of said public waters whenever it appears to be in the public interest to establish the same.”).

⁵¹ RCW 90.48.030.

⁵² RCW 90.48.035.

⁵³ *Foster, et al. v. Ecology*, King County Superior Court No. 14-2-25295-1 SEA (Ecology’s Answer) (filed October 6, 2014) at 3:3-5.

⁵⁴ *Id.* at 3:4, 14-16.

⁵⁵ Washington Executive Order 14-04 (April 29, 2014).

⁵⁶ RCW 90.48.035.

⁵⁷ Washington Executive Order 12-07 (November 27, 2012).

⁵⁸ The legal authority and obligation to use existing authority to address ocean acidification is set forth in the attached petitions, both of which are hereby incorporated by reference. Center for Biological Diversity, Petition to EPA for Additional Water Quality Criteria & Guidance Under Section 304 of the Clean Water Act, 33 U.S.C. § 1314, to Address Ocean Acidification (April 17, 2013) (Exhibit H); Center for Biological Diversity Petition to EPA for Revised State Water Quality Standards for Marine pH Under the Clean Water Act, 33 U.S.C. § 1313(c)(4) (October 18, 2012) (Exhibit I).

to address ocean acidification. This should be done forthwith and is an integral component of any attempt by Ecology to address climate change.

IV. THE PROPOSED CLEAN AIR RULE VIOLATES ECOLOGY'S STATUTORY & CONSTITUTIONAL OBLIGATIONS BECAUSE IT LEGALIZES DANGEROUS LEVELS OF GHG EMISSIONS & FAILS TO UTILIZE CURENT CLIMATE SCIENCE

The draft Clean Air Rule violates Ecology's constitutional and statutory responsibilities as outlined above because it legalizes dangerous levels of carbon dioxide emissions. No person or corporation has the legal right to emit unlimited amounts of carbon dioxide in a manner that abridges the constitutional rights of young people and violates the existing statutory laws. Ecology's historic inability to regulate emissions of carbon dioxide does not somehow confer upon an entity the right to continue to pollute, because that right never existed. By promulgating a Clean Air Rule that regulates only a very small segment of entities that emit GHG gases over a certain threshold (beginning at 100,000 metric tons of CO₂e starting in 2017, and leading to 70,000 metric tons of CO₂e in 2035), Ecology has implicitly authorized continued emission of GHGs by all entities that fall under those thresholds, including non-covered entities. Ecology is without authority to do so because the science is clear that action violates the constitutional rights of young people.

- a. Ecology Must Base Its Rule On The Best Available Climate Science to Protect Young People & Future Generations
 - i. The Best Available Climate Science Provides a Prescription for Restoring the Atmosphere, Stabilizing the Climate System & Protecting the Waters of the State: Atmospheric CO₂ Levels Must Be Reduced to Below 350 ppm By 2100

In order to protect our planet's climate system and vital natural resources on which human survival and welfare depends, and to ensure that young people's and future generations' fundamental and inalienable human rights are protected, the Clean Air Rule *must* be based on the best available climate science. There are numerous scientific bases for setting 350 parts per million ("ppm") as the uppermost safe limit for atmospheric CO₂ concentrations. Ecology continues to shirk its responsibility to inform the public what GHG emissions are necessary to fulfill its constitutional and statutory obligations. Notably, the agency has presented no science that contradicts this scientific prescription first presented by youth in Washington State in 2011.⁵⁹

There are three main reasons why Ecology must adopt the scientific prescription described in these comments. First, returning CO₂ concentrations to 350 ppm would restore the energy balance of Earth and allow as much heat to escape into

⁵⁹ *Svitak, et al. v. State*, King County Superior Court No. * (Amended Complaint) (filed May 18, 2011) (Exhibit J).

space as Earth retains, which has kept our planet in the “sweet spot” for humans and other species to thrive.

Second, CO₂ levels exceeding 350 ppm are creating a planet warmer than humans have ever lived in and are disrupting the physical and biological systems in which human civilization has evolved. The consequences of even 1 degree Celsius of warming will be significant for humanity, but scientists believe we can preserve our ice sheets and for the most part our shorelines and ecosystems, if we limit long-term warming to 1 degree Celsius (short-term warming will inevitably exceed 1 degree Celsius but must exceed 1 degree Celsius for a minimal amount of time). If we allow sustained global average temperature increases of more than 1 degree Celsius we will suffer irreversible climate destabilization and a planet largely inhospitable to human civilization.

Third, marine animals, including coral reefs, cannot tolerate the acidifying and warming of our ocean waters that results from increased CO₂ levels, 30% of which is absorbed by the oceans. At 400 ppm CO₂, the coral reefs of the world and shellfish are rapidly declining and will be irreversibly compromised if we do not quickly reverse course. The economic and cultural consequences of the loss of marine resources, including salmon and shellfish, are exponential and cannot be quantified.

All government policies, including the Clean Air Rule promulgated by Ecology, regarding greenhouse gas/CO₂ pollution and de/reforestation worldwide should be aimed at 350 ppm by 2100. Fortunately, it is still not only technically and economically feasible to get there, but transitioning to renewable energy sources will provide significant economic and public health benefits and improve the quality of lives. But time is running out. We cannot continue to base life and death policies on politics rather than science.

1. Restoration of the Earth’s Energy Balance

To protect Earth’s climate for present and future generations, we must restore Earth’s energy balance. By burning fossil fuels and deforesting the planet,⁶⁰ which results in an increase in greenhouse gases in the atmosphere, especially CO₂, humans have altered Earth’s energy balance.⁶¹ The best climate science shows that if the planet once again sends as much energy into space as it absorbs from the sun, this will restore the planet’s climate equilibrium.⁶² Scientists have accurately calculated how Earth’s energy balance will change if we reduce long-lived greenhouse gases

⁶⁰ Intergovernmental Panel on Climate Change, *Summary for Policymakers, Climate Change 2014: Impacts, Adaptation, and Vulnerability* 5 (2014).

⁶¹ James Hansen et al., *Assessing “Dangerous Climate Change”: Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, PLOS ONE 8:12, 3763 (2013) (“Assessing Dangerous Climate Change”).

⁶² John Abatzoglou et al., *A Primer on Global Climate Change and Its Likely Impacts, in Climate Change: What It Means for Us, Our Children, and Our Grandchildren* 11, 15-22 (Joseph F. C. DiMento & Pamela Doughman eds., 2007).

such as CO₂.⁶³ We would need to reduce atmospheric CO₂ concentrations by at least 50 ppm, from their 2015 level of 400 ppm in order to increase Earth's heat radiation to space, if other long-lived gases do not continue to increase.⁶⁴

2. Stop Global Surface Warming that Will Disrupt the Physical and Biological Systems on Which Humans Depend

In order to protect the physical and biological systems on which humans rely for their basic needs and the stability of their communities, we must reduce atmospheric CO₂ concentration to no more than 350 ppm and stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.⁶⁵

Current science shows that while global surface heating may rise as much as 1.5 °C above pre-industrial temperatures because of warming already locked into the pipeline from existing CO₂ pollution, to protect Earth's natural systems, long-term average global surface heating should not exceed 1°C this century. In other words, even 1.5 °C of heating is unsafe, and we must stabilize at no more than 1°C of heating over pre-industrial temperatures. *According to current climate science, to prevent global heating greater than 1°C, concentrations of atmospheric CO₂ must decline to 350 ppm or less by the end of this century.*⁶⁶ However, today's atmospheric CO₂ levels are over 400 ppm and rising.⁶⁷

3. Targeting Reductions to Allow More than 2° Warming is Unlawful

A target of keeping global surface heating to 2°C above pre-industrial temperatures, which approximately equates to an atmospheric CO₂ concentration of 450 ppm, cannot be considered a safe target for present or future generations, and is not supported by current science of climate stabilization or ocean protection, nor is it accepted by the IPCC.⁶⁸ Notably, Ecology has admitted that “the Washington state

⁶³ James Hansen, *Storms of My Grandchildren* 166 (2009) (“Also our best current estimate for the planet's mean energy imbalance over the past decade, thus averaged over the solar cycle, is about +0.5 watt per square meter. Reducing carbon dioxide to 350 ppm would increase emission to space 0.5 watt per square meter, restoring the planet's energy balance, to first approximation.”).

⁶⁴ James Hansen, *Storms of My Grandchildren* 166 (2009); see also James E. Hansen et al., *Target Atmospheric CO₂: Where Should Humanity Aim?* 2 *The Open Atmospheric Science Journal* 217, 217-31 (2008), http://www.columbia.edu/~jeh1/2008/TargetCO2_20080407.pdf [hereinafter *Where Should Humanity Aim?*].

⁶⁵ See Hansen, *Where Should Humanity Aim?*, 217 (2008) (“If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, Paleoclimate evidence and ongoing climate change suggest that CO₂ will need to be reduced from its current 385 ppm to at most 350 ppm.”).

⁶⁶ See *id.*; James Hansen, *Storms of My Grandchildren* (2009).

⁶⁷ NASA, *Facts, Carbon Dioxide*, <http://climate.nasa.gov/vital-signs/carbon-dioxide/> (last visited May 2, 2016).

⁶⁸ United Nations, *Framework Convention on Climate Change, Conference of the Parties, Paris Agreement*, Article 2 (“1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average

emission reductions currently required by RCW 70.235.020 are not sufficient to keep the rise in surface temperature below 2°C.”⁶⁹ Earth’s paleoclimate history demonstrates that climate impacts accompanying global warming of 2°C or more would be irreversible and catastrophic for humanity. For example, the paleoclimate record shows that warming consistent with CO₂ concentrations as low as 450 ppm may have been enough to melt almost all of Antarctica.⁷⁰ The warming of the past few decades has brought global temperature close to if not slightly above the prior maximum of the Holocene epoch. Human society must keep global temperature at a level within or close to the Holocene range to prevent dangerous climate change. Global warming of 2°C would be well above Holocene levels and far into the dangerous range and has been described as “an unacceptably high risk of global catastrophe.”⁷¹

The widely used models that allow for 2°C temperature increase, and therefore advocate for a global CO₂ emission reduction target aimed at a 450 ppm CO₂ standard, do not take into account significant factors that will compound climate impacts. Most importantly, they do not include the slow feedbacks that will be triggered by a temperature increase of 2°C.⁷² Slow feedbacks include the melting of ice sheets and the release of potent greenhouse gases, particularly methane, from the thawing of the tundra.⁷³ These feedbacks might show little change in the short-term, but can hit a point of no return, even at a 2°C temperature increase, that will trigger further warming and sudden catastrophic impacts. For example, the Greenland and Antarctic ice sheets “required millennia to grow to their present sizes. If ice sheet disintegration reaches a point such that the dynamics and momentum of the process take over, reducing greenhouse gases may be futile to prevent major ice sheet mass loss, sea level rise of many meters, and worldwide loss of coastal cities—a consequence that is irreversible for practical purposes.”⁷⁴

These slow feedbacks are part of the inertia of the climate system, where “[t]he inertia causes climate to appear to respond slowly to this human-made forcing, but further long-lasting responses can be locked in.”⁷⁵ Thermal inertia is primarily a result of the global ocean, which stores 90% of the energy surplus, and therefore perpetuates increased global temperature even after climate forcings, or emissions, have declined.⁷⁶ Thus, the longer we wait to reduce global CO₂ concentrations, the

temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5° above pre-industrial, recognizing that this would significantly reduce the risks and impacts of climate change.”).

⁶⁹ *Foster, et al. v. Ecology*, King County Superior Court No. 14-2-25295-1 (Department of Ecology’s Response to June 23, 2015 Court Order) (filed August 7, 2015) (Exhibit K) at 4.

⁷⁰ Dec. of Dr. James E. Hansen, *Juliana et al., v. United States et al.*, No. 6:15-cv-01517-TC, 14 (D. Or. Aug. 12, 2015).

⁷¹ *Id.* at 17.

⁷² Hansen, *Assessing “Dangerous Climate Change,”* 15.

⁷³ *Id.*

⁷⁴ *Id.* at 13.

⁷⁵ *Id.* at 1.

⁷⁶ *Id.* at 4-5, 13.

more thermal inertia will already be in play and climate impacts will continue to escalate.

Furthermore, 2°C targets would lead to an increase in the use of fossil fuels that are more difficult to extract, and thus are compounded with the expenditure of greenhouse gases due to the transport and intensive mining process resulting in “more CO₂ [emissions] per unit useable energy.”⁷⁷ The 2°C target also reduces the likelihood that the biosphere will be able to sequester CO₂ due to carbon cycle feedbacks and shifting climate zones.⁷⁸ Under the allowable emissions with this target, other greenhouse gases, such as methane and nitrous oxide would continue to increase, further exacerbating climate change impacts.⁷⁹ These factors are missing from the 2°C scenarios, which have been widely accepted and used in the creation of climate policies and plans.

A temperature rise of 2°C will not only lock in a further temperature increase due to thermal inertia, but it will also trigger irreversible impacts, including rapid, nonlinear sea level rise and species loss described above.⁸⁰ Most models look at sea level rise as a gradual linear response to melting ice sheets. However, “it has been argued that continued business-as-usual CO₂ emissions are likely to spur a nonlinear response with multi-meter sea level rise this century.”⁸¹ This sea level rise would occur at a pace that would not allow human communities or ecosystems to respond.

An emission reduction target aimed at 2°C would “yield a larger eventual warming because of slow feedbacks, probably at least 3°C.”⁸² Once a temperature increase of 2°C is reached, there will already be “additional climate change “in the pipeline” even without further change of atmospheric composition.”⁸³ Dr. James Hansen warns that “distinctions between pathways aimed at 1°C and 2°C warming are much greater and more fundamental than the numbers 1°C and 2°C themselves might suggest. These fundamental distinctions make scenarios with 2°C or more global warming far more dangerous; so dangerous, we [James Hansen et al.] suggest, that aiming for the 2°C pathway would be foolhardy.”⁸⁴ This target is at best the equivalent of “flip[ping] a coin in the hopes that future generations are not left with few choices beyond mere survival. This is not risk management, it is recklessness and we must do better.”⁸⁵ Thus, a global average atmospheric concentration of CO₂ of 450 ppm, or a concentration of CO₂e between 450 and 550 ppm, would result in dangerous anthropogenic interference with the climate system and would threaten all

⁷⁷ *Id.* at 15.

⁷⁸ *Id.* at 15, 20.

⁷⁹ *Id.* at 20.

⁸⁰ *Id.* at 6.

⁸¹ *Id.*

⁸² *Id.* at 15.

⁸³ *Id.* at 19.

⁸⁴ *Id.* at 15.

⁸⁵ Matt Vespa, *Why 350? Climate Policy Must Aim to Stabilize Greenhouse Gases at the Level Necessary to Minimize the Risk of Catastrophic Outcomes*, 36 *Ecology Law Currents* 185, 186 (2009), http://www.biologicaldiversity.org/publications/papers/Why_350.pdf.

public natural resources around the world and the health and well-being of all Earth's inhabitants.

*Importantly, the Intergovernmental Panel on Climate Change (“IPCC”) has not established nor endorsed a target of 2°C warming above the preindustrial period as a limit below which the climate system will be stable.⁸⁶ The 2°C figure was reached as a compromise between the emission reduction scenarios and associated risks summarized by Working Group I of the 2007 IPCC Fourth Assessment Report,⁸⁷ and because policy makers felt that it was politically achievable.⁸⁸ As the IPCC makes clear, “each major IPCC assessment has examined the impacts of [a] multiplicity of temperature changes but has left [it to the] political processes to make decisions on which thresholds may be appropriate.”⁸⁹ *Two degrees Celsius warming above pre-industrial levels has never been universally considered “safe” from either a political or scientific point of view.* As the United Nations Framework Convention on Climate Change (“UNFCCC”) stated: “The ‘guardrail’ concept, in which up to 2°C of warming is considered safe, is inadequate and would therefore be better seen as an upper limit, a defense line that needs to be stringently defended, while less warming would be preferable.”⁹⁰ And according to a Coordinating Lead Author of the IPCC’s 5th Assessment Report, the 2°C “danger level” seemed:*

utterly inadequate given the already observed impacts on ecosystems, food, livelihoods, and sustainable development, and the progressively higher risks and lower adaptation potential with rising temperatures, combined with disproportionate vulnerability.⁹¹

The most recent IPCC synthesis of climate science confirms that additional warming of 1°C (we already have 0.9°C warming above the preindustrial average) jeopardizes unique and threatened systems, including ecosystems and cultures.⁹² The IPCC also warns of risks of extreme events, such as heat waves, extreme precipitation, and coastal flooding, and “irreversible regime shifts” with additional warming.⁹³

⁸⁶ See Dec. of Dr. James E. Hansen, *Juliana et al., v. United States et al.*, No. 6:15-cv-01517-TC, 5 (D. Or. Aug. 12, 2015).

⁸⁷ See IPCC, *Summary for Policymakers*, Climate Change 2007: The Physical Science Basis (Solomon, S., D. Qin,

M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)) (2007) (Table SPM.3).

⁸⁸ See Dec. of Dr. Richard H. Gammon, *Foster v. Wash. Dep’t of Ecology*, No. 14-2-25295-1 SEA 1 (Wash. Super. Ct. Aug. 24, 2015).

⁸⁹ IPCC, *Climate Change 2014: Mitigation of Climate Change, Contribution of Working Group III to the Fifth Assessment Report*, 125 (2014), http://report.mitigation2014.org/report/ipcc_wg3_ar5_chapter1.pdf.

⁹⁰ UNFCCC, *Report on the structured expert dialogue on the 2013–2015 review*, 18 (2015), <http://unfccc.int/resource/docs/2015/sb/eng/inf01.pdf>.

⁹¹ Petra Tschakert, *1.5 °C or 2 °C: a conduit’s view from the science-policy interface at COP20 in Lima, Peru*, Climate Change Responses 8 (2015), <http://www.climatechangeresponses.com/content/2/1/3>.

⁹² IPCC, Summary for policymakers at 13-14, Climate Change 2014: Impacts, Adaptation, and Vulnerability (2014), http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf.

⁹³ *Id.*

4. Protect Waters of the State & Marine Life From Deadly Acidification and Warming of Ocean Waters

Conveniently, oceans have the same scientific standard of protection as the atmosphere and climate system. Marine organisms and ecosystems are already harmed and will increasingly continue to be harmed by the effects of ocean acidification. Critically important ocean ecosystems, such as coral reefs, are severely threatened by present day CO₂ concentrations of approximately 400 ppm and it is vitally important that atmospheric CO₂ levels are reduced to below 350 ppm in order to protect ocean ecosystems.⁹⁴ The IPCC never concluded that 2°C warming or 450 ppm would be safe for ocean life.⁹⁵ According to Dr. Ove Hoegh-Guldberg, one of the world's leading experts on ocean acidification and the Coordinating Lead Author of the oceans chapter of the 5th Assessment Report of the IPCC:

Allowing a temperature rise of up to 2°C would seriously jeopardize ocean life, and the income and livelihoods of those who depend on healthy marine ecosystems. Indeed, the best science available suggests that coral dominated reefs will completely disappear if carbon dioxide concentrations exceed much more than today's concentrations. Failing to restrict further increases in atmospheric carbon dioxide will eliminate coral reefs as we know them and will deny future generations of children from enjoying these wonderful ecosystems.⁹⁶

Even the 2015 Paris Agreement backed off of making any assumptions that 2°C is a safe level of warming though it did not state a maximum safe level of long-term warming, instead committing to pursue efforts to limit the temperature increase to 1.5°C.⁹⁷ To prevent further degradation or the eventual depletion of the oceanic resources, it is imperative that atmospheric CO₂ concentrations be returned to below 350 ppm by the end of this century.

5. The Clean Air Rule Must Be Aimed at 350 ppm and Mandate Annual Reductions of 8% Per Year

It is imperative that all states and governments around the world, including the Washington Department of Ecology, set GHG emission limits targeted at 1°C temperature change, or a maximum of 350 ppm in global CO₂ levels, in order to avoid the cascading impacts that will occur with a 2°C or 450 ppm default policy based on political feasibility rather than scientific necessity. *To reduce global atmospheric CO₂ to 350 ppm by the end of this century, this target would require that if global CO₂ emissions had flatlined with a peak in 2016, Washington emissions be reduced by 8% per year beginning in 2017, alongside Washington's share in*

⁹⁴ See Dec. of Dr. Ove Hoegh-Guldberg, *Foster v. Wash. Dep't of Ecology*, No. 14-2-25295-1 SEA, 1 (Wash. Super. Ct. Aug. 24, 2015) (Exhibit M).

⁹⁵ *Id.* at 2.

⁹⁶ *Id.*

⁹⁷ Paris Agreement, Article 2, Section 1(a).

*achieving 100 GtC of global CO₂ sequestration through reforestation and soil protection.*⁹⁸ Continued delay makes it harder and harder for youth and future generations to protect a livable world. It is imperative to establish emission limits to put states and sovereigns around the world on a trajectory aimed for 350 ppm.

Atmospheric CO₂ levels are currently on a path to reach a climatic tipping point.⁹⁹ Absent immediate action to reduce CO₂ emissions, atmospheric CO₂ may reach levels so high that life on Earth as we know it is unsustainable at these levels. Governments have the present ability to curtail the environmental harms detailed above. Atmospheric CO₂ concentrations will decrease if states stop (or greatly reduce) their burning of fossil fuels.¹⁰⁰ The environmental harms and threat to human health and safety as described above can only be avoided if atmospheric CO₂ concentrations are immediately reduced. Any more delay risks irreversible and catastrophic consequences for youth and future generations.

Fossil fuel emissions must decrease rapidly if atmospheric CO₂ is to be returned to a safe level in this century.¹⁰¹ Improved forestry and agricultural practices can provide a net drawdown of atmospheric CO₂, primarily via reforestation of degraded lands that are of little or no value for agricultural purposes, returning us to 350 ppm somewhat sooner.¹⁰² However, the potential of these measures is limited. Immediate and substantial reductions in CO₂ emissions are required in order to ensure that the youth and future generations inherit a planet that is inhabitable.

6. An Additional 100 gtC Must Be Sequestered Through Reforestation & Soil Protection Measures¹⁰³

The scientific prescription for climate recovery requires both emission reductions *and* sequestration of 100 gigatons of carbon through reforestation and soil protection.^{104,}
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⁹⁸ Hansen Decl. at *; Pushker Kharecha Declaration at *.

⁹⁹ James Hansen, Storms of My Grandchildren 224-30, 260 (2009).

¹⁰⁰ Harvey Blatt, America's Environmental Report Card xiii (2005) ("How can we stop this change in our climate? The answer is clear. Stop burning coal and oil, the sources of nearly all the carbon dioxide increase.").

¹⁰¹ Hansen, *Where Should Humanity Aim?*, 217 (discussing the need to reduce the atmospheric CO₂ concentration to 350 ppm).

¹⁰² *Id.* at 227.

¹⁰³ For an overview of the carbon cycle and sequestration potential of forests and soil, see Expert Declaration of Thomas Crowther, Ph.D., in support of Western Environmental Law Center and Our Children's Trust's comments on proposed Clean Air Rule, WASH. ADMIN. CODE § 173-442 (July 22, 2016) ("Crowther Decl.").

¹⁰⁴ Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, PLOS ONE, Dec. 2013, at 1, 1, <http://journals.plos.org/plosone/article/asset?id=10.1371%2Fjournal.pone.0081648.PDF>.

¹⁰⁵ It is important to note that reforestation and sequestration efforts are not a replacement for emission reductions of at least 8% per year (2016 baseline); they are in addition to emission reductions.

We cannot halt the rise in global surface temperatures without addressing forest and vegetation loss and degradation of soil. Furthermore, since the concentration of CO₂ in the atmosphere is currently over 400 parts per million (ppm) and the safe level is no more than 350 ppm, we need to draw down this excess CO₂ out of the atmosphere.¹⁰⁶

Specifically, Washington must sequester at least 9,393,160 metric tons of CO₂ per year between 2012 and 2050 in order to proportionally contribute to the global prescription of 350 ppm.¹⁰⁷ In actuality, since Washington's forests have above average potential for carbon sequestration, Ecology should aim to sequester even more CO₂ than its average share. To comply with the scientific prescription for climate recovery, Ecology must promulgate regulations and policies that mandate sequestration *in addition* to reducing emissions.¹⁰⁸ Ecology's Rule fails to properly analyze sequestration in a number of ways: 1) it does not address deforestation or reforestation; 2) it does not provide for sustainable forest management practices to improve sequestration and reduce wildfires; and 3) it fails to properly consider soil carbon sequestration.

(a) Forest Carbon Sequestration is an Integral Component of Climate Recovery that Ecology Failed to Consider.

The Rule fails to properly consider possibilities for reforestation or for slowing deforestation. Washington is home to 20-21 million acres of forestland – half of its total land area.¹⁰⁹ State-conducted inventories report that Washington forests are net sinks of CO₂.¹¹⁰ About 29 MMtCO₂e are sequestered by Washington forest biomass every year.¹¹¹ Consequently, forest management is integral to any effective and enduring climate change mitigation strategy in Washington.

Washington forests are exceptional carbon sinks but deforestation poses a serious risk to their carbon storage capacity. Pacific Northwest (PNW) forests have the highest

¹⁰⁶ Crowther Decl. ¶ 5.

¹⁰⁷ This number is calculated by multiplying the annual carbon sequestration requirement per capita for 2012-2050 by the population of Washington. Based on a global annual carbon sequestration requirement of 1.31 Metric Tons CO₂ per person, EUGENE SUSTAINABILITY OFFICE, METHODOLOGY FOR ESTABLISHING A COMMUNITY CARBON BUDGET 6, at <https://www.eugene-or.gov/DocumentCenter/View/26229>, and Washington population estimates of 7,170,351 in 2015, *Washington*, UNITED STATES CENSUS BUREAU: QUICKFACTS, at <https://www.census.gov/quickfacts/table/PST045215/53,00> (last visited July 20, 2016).

¹⁰⁸ Crowther Decl., *supra* note *, at *.

¹⁰⁹ GORDON BRADLEY ET AL., THE RURAL TECHNOLOGY INSTITUTE, FOREST LAND CONVERSION IN WASHINGTON STATE, *in* FUTURE OF WASHINGTON'S FOREST AND FOREST INDUSTRIES STUDY 260 (2007), http://www.ruraltech.org/projects/fwaf/final_report/index.asp.

¹¹⁰ CENTER FOR CLIMATE STRATEGIES, WASHINGTON STATE GREENHOUSE GAS INVENTORY AND REFERENCE CASE PROJECTIONS, 1990-2020 I-1 (2007), http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf; *See also* UNITED STATES GEOLOGICAL SURVEY, PROFESSIONAL PAPER 1797, BASELINE AND PROJECTED FUTURE CARBON STORAGE AND GREENHOUSE-GAS FLUXES IN ECOSYSTEMS OF THE WESTERN UNITED STATES 2 (Zhiliang Zhu and Bradley C. Reed, eds., 2012), http://pubs.usgs.gov/pp/1797/pdf/PP1797_WholeDocument.pdf.

¹¹¹ CENTER FOR CLIMATE STRATEGIES, *supra* note 7, at ES-4.

carbon stocks in the United States.¹¹² Forests in the western PNW are particularly effective carbon sinks due to the large presence of coniferous and old growth trees and historically infrequent fires.¹¹³ All of these factors allow significant amounts of carbon to accumulate in PNW forests.¹¹⁴ However, between 1988 and 2004, 17% of western Washington's forestland was converted to other uses.¹¹⁵ Every year, an additional 0.37% to 1.04% of Washington's forestland is converted into residential or commercial development.¹¹⁶ Such land use change reduces Washington's overall carbon storage capacity and thus impairs capacity for climate recovery.

Mandating carbon storage in Washington forests is vital to restoring a safe atmospheric balance of CO₂. In a report commissioned by Ecology in response to an executive order from Governor Gregoire, the 2010 Forest Carbon Workgroup expressed its belief that "conversion of forestland to non-forest uses represents one of the greatest sources of loss of forest carbon sequestration and storage, and therefore avoiding such conversion where feasible is a high priority means of reducing those losses and accompanying GHG emissions."¹¹⁷ Similarly, the United Nations has stated, "combating climate change without slowing deforestation is a lost cause."¹¹⁸ These conclusions are based on the scientific consensus that deforestation is "one of the largest anthropogenic sources of emissions to the atmosphere globally."¹¹⁹ Net deforestation is responsible for 20% of the increase of atmospheric CO₂ globally since the preindustrial era.¹²⁰ This amounts to an additional 100 gigatons of carbon in the atmosphere.¹²¹

To adequately heed current science, Ecology must include regulations aimed at increasing carbon sequestration by preventing any net forest loss immediately, then promoting reforestation and more sustainable forestry practices aimed at achieving the required 9,393,159 metric tons of CO₂ sequestration per year. These measures must be *in addition* to reducing overall emissions from other sectors.

¹¹² Crystal L. Raymond & Donald McKenzie, *Carbon Dynamics of Forests in Washington, USA: 21st Century Projections Based on Climate-driven Changes in Fire Regimes*, 22 *ECOLOGICAL APPLICATIONS* 1589, 1589 (2012).

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ BRADLEY ET AL., *supra* note 6, at 269.

¹¹⁶ *Id.* at 260.

¹¹⁷ 2010 FOREST CARBON WORKGROUP, WASHINGTON STATE DEPARTMENT OF ECOLOGY, PUB. NO. 11-10-006, FINAL REPORT 6 (2010), <https://fortress.wa.gov/ecy/publications/publications/1110006.pdf>.

¹¹⁸ Department of Economic and Social Affairs, *Reforestation: the easiest way to combat climate change*, UNITED NATIONS (2010), <http://www.un.org/en/development/desa/news/forest/reforestation-the-easiest.html>.

¹¹⁹ Environmental Protection Agency, *Land Use, Land-Use Change, and Forestry*, in *INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2014* 6-54 (2016), <https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Chapter-6-Land-Use-Land-Use-Change-and-Forestry.pdf>.

¹²⁰ Hansen et al., *supra* note 2, at 10.

¹²¹ *Id.*

(b) Ecology Failed to Properly Analyze Forest Health Management and Wildfire Alleviation as Methods to Improve Forest Carbon Sequestration.

Ecology has failed to properly consider forest health management or analyze the impacts of increasing intensity and frequency of forest fires on sequestration potential. Unhealthy forests increase the risk of extreme wild fires, which in turn reduce forest sequestration potential. With wildfires increasing in frequency and intensity across Washington State, managing forest health will be essential to protecting carbon storage processes.

The dangers of increased fire risk with regards to sequestration have been noted by numerous state-sponsored efforts in Washington.¹²² Forest fires release carbon sequestered in forests and reduce the carbon storage capacity across the state.¹²³ Forest fires reduce sequestration potential by “affect[ing] the land-atmosphere exchange of [carbon] directly by releasing CO₂ to the atmosphere . . . and indirectly by shifting forest age class distributions toward a greater proportion of young forests.”¹²⁴

As climate change worsens, “Washington’s forests are likely to experience significant changes in the establishment, growth, and distribution of tree species as a result of increasing temperatures, declining snowpack, and changes in soil moisture.”¹²⁵ Forests also face increased threats of fire, insect outbreaks, and diseases.¹²⁶ All of these factors result in hazardous amounts of excess fuel in forests,¹²⁷ which will result in an increased frequency and intensity of wildfires in Washington.¹²⁸ In fact, Washington is already experiencing its worst fire seasons in recorded history – more than 1,000,000 acres burned in 2015 and 400,000 acres in 2014.¹²⁹ Around 13.3 million acres – greater than half – of Washington forests are at moderate to high risk for fire.¹³⁰

Despite the huge importance of forest carbon sequestration in climate recovery, Ecology’s Rule fails to consider or recommend any methods for restoring and maintaining the health of Washington’s forests to avoid the detrimental impacts of severe wildfires on Washington’s sequestration potential. While Ecology does not directly

¹²² 2010 FOREST CARBON WORKGROUP, *supra* note 14, at 11.

¹²³ *Id.*

¹²⁴ Raymond & McKenzie, *supra* note 9, at 1589-90.

¹²⁵ WASHINGTON STATE DEPARTMENT OF ECOLOGY, PUB. NO. 14-01-006, WASHINGTON GREENHOUSE GAS EMISSION REDUCTION LIMITS 12 (2014), <https://fortress.wa.gov/ecy/publications/documents/1401006.pdf>.

¹²⁶ *Id.*

¹²⁷ 2010 FOREST CARBON WORKGROUP, *supra* note 14, at 11.

¹²⁸ CENTER FOR CLIMATE STRATEGIES, *supra* note 7, at I-5.

¹²⁹ WASHINGTON FOREST PROTECTION ASSOCIATION, ANNUAL REPORT 2015 (2015), <http://www.wfpa.org/workspace/resource/document/wfpa-2015-annual-report.pdf>.

¹³⁰ DUSHKU ET AL., WINROCK INTERNATIONAL, CARBON SEQUESTRATION THROUGH CHANGES IN LAND USE IN WASHINGTON: COSTS AND OPPORTUNITIES 4 (2005), <http://www.ecy.wa.gov/climatechange/twgdocs/agr/051707agrwestcarb2.pdf>.

manage state and private forest lands,¹³¹ Ecology is the agency established “to manage and develop our air and water resources in an orderly, efficient, and effective manner.”¹³²

(c) Ecology Failed to Mandate Soil Protection and Enhancement as a Means to Increase Washington’s Carbon Sequestration Potential.

Finally, the proposed Rule fails to require measures to increase and protect soil carbon sequestration. Through both organic matter and inorganic compounds, “soil is a large reservoir of carbon.”¹³³ Soil organic matter stores about three times more carbon than forests and other vegetation.¹³⁴ Every 1% increase in average soil organic carbon content has the potential to reduce CO₂ in the atmosphere by up to 2%.¹³⁵ Methods for improving soil carbon sequestration include the application of compost,¹³⁶ diversifying planting practices on farms, and adding biochar to soils.¹³⁷

In addition, agricultural soils in Washington store an estimated 1.4 MMtCO₂e per year¹³⁸ but have the potential to store much more with management aimed at improving sequestration.¹³⁹ The agricultural sector could improve soil carbon storage capacity through sustainable farming practices such as efficient fertilizer use and solid manure management.¹⁴⁰ Ecology must produce soil protection guidelines and encourage and incorporate such methods into the Rule to comply with the scientific prescription. Ecology is in the process of developing a general discharge permit for Concentrated Animal Feeding Operations on the state.¹⁴¹ As part of this permit, Ecology is able to mandate manure management practices that are designed to enhance the state’s sequestration potential. In its current form, the draft permit does nothing to do that, but measures can and should be incorporated into the final version of the permit. By failing to mandate soil carbon sequestration and sustainable agriculture practices, Ecology ignores processes pivotal to climate recovery in Washington.

Ecology has failed to properly consider the sequestration potential of forests and soil in the proposed Rule. To comply with the current scientific consensus that effective

¹³¹ The Washington Department of Natural Resources manages state trust lands, including forests, on behalf of the people of Washington.

¹³² RCW 43.21A.020.

¹³³ WASHINGTON STATE DEPARTMENT OF ECOLOGY, FOCUS ON SOIL CARBON SEQUESTRATION 1 (2013), <https://fortress.wa.gov/ecy/publications/publications/1307031.pdf>.

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ *What is Carbon Farming?*, MARIN CARBON PROJECT, <http://www.marincarbonproject.org/what-is-carbon-farming> (last visited July 15, 2016).

¹³⁷ WASHINGTON STATE DEPARTMENT OF ECOLOGY, *supra* note *, at 2-3; Crowther Decl., *supra* note *, at 5.

¹³⁸ CENTER FOR CLIMATE STRATEGIES, *supra* note *, at ES-4.

¹³⁹ WASHINGTON STATE DEPARTMENT OF ECOLOGY, PUB. NO. 15-07-005, SOIL ORGANIC CARBON STORAGE (SEQUESTRATION) PRINCIPLES AND MANAGEMENT vii (2015), <https://fortress.wa.gov/ecy/publications/publications/1507005.pdf>.

¹⁴⁰ *Sources of Greenhouse Gas Emissions*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, <https://www3.epa.gov/climatechange/ghgemissions/sources/agriculture.html> (last visited July 18, 2016).

¹⁴¹ Ecology, Concentrated Animal Feeding Operation General Permit, *at* <http://www.ecy.wa.gov/programs/wq/permits/cafo/index.html> (last visited July 22, 2016).

climate recovery initiatives must include sequestration improvements, Ecology must address factors such as reforestation, forest management, soil carbon sequestration, and sustainable agricultural practices in its Rule.¹⁴² These sequestration initiatives must be *in addition* direct reductions in Washington’s GHG emissions.¹⁴³ Forest and soil management are not an alternative to reducing emissions but rather a discrete, pivotal component of any effective climate recovery plan.

b. The Proposed Clean Air Rule is Not Targeted To Achieve 350 ppm By the End of the Century

i. Ecology’s Proposed Rule is Designed to Reduce Washington Emissions by Roughly 1% Per Year, Which Is Illegal

Ecology must fully analyze and disclose annual emission reduction rates relative to statewide emissions in order to understand the full impact of the rule on all of the emissions for which Washington must control and reduce. Because that analysis does not exist, our calculations show that for the first 3 years the rate of reduction relative to statewide emissions is only ~0.92% per year, gradually increasing through 2036, but still at rates far beneath the 8% required if emission reductions began in 2017 based on a 2016 flatline peak. However because Ecology’s rule delays actual emission reductions until 2018, and far later for many sectors, Ecology’s proposed emission reductions are even further off track from the best science, which by 2018 would require at least 8.5 percent annual reductions, coupled with carbon sequestration in soils and forests.¹⁴⁴

ii. The Proposed Rule Regulates An Insufficient Number of Sources

In the proposed Clean Air Rule, Ecology fails to regulate a sufficient number of greenhouse gas emissions sources. The proposed rule claims to cover only 66% of overall state greenhouse gas emissions.¹⁴⁵ By establishing an excessively high compliance threshold (starting at 100,000 MT of CO₂e dropping to 70,000 MT of CO₂e) and failing to regulate some of the state’s most significant emission sectors, the agency proposes a severely inadequate emissions reduction scheme. In *Foster v. Ecology*, the court found that Ecology’s current climate change policies did not “preserve, protect and enhance the air quality for current and future generations.”¹⁴⁶ Under the current proposed rule, Ecology continues to narrow the scope of the rule, to exclude some of the largest state emissions sources, including transportation, industrial forestry, agriculture, and corporations that emit less than 70,000 MT of CO₂e. *Ecology has the authority, and legal obligation, to create a comprehensive and more stringent rule and set standards for all*

¹⁴² See Crowther Decl., *supra* note 1, at 3.

¹⁴³ Hansen et al., *supra* note 2, at 1.

¹⁴⁴ See Hansen Decl. (Exhibit O), ¶¶ 70, 82, 84.

¹⁴⁵ See Department of Ecology, *SEPA Environmental Checklist - Clean Air Rule at 5*, available at <http://www.ecy.wa.gov/programs/air/rules/docs/173442sepacheck-2.pdf>. As discussed on p. * of the comments, Ecology’s claim that it actually regulates 66% of emissions is dubious.

¹⁴⁶ *Foster v. Wash. Dep’t of Ecology*, No. 14-2- 25295-1 SEA, 6 (Wash. Super. Ct. Nov. 19, 2015) (Exhibit D).

*emissions sources.*¹⁴⁷ In order to ensure the protection of current and future generations, Ecology must expand the rule to cover all major sources of GHG emissions in the state of Washington.

1. Ecology Must Regulate Transportation Emissions

In the proposed Clean Air Rule, Ecology does very little to require actual reductions of state transportation emissions. Washington’s transportation sector accounts for the largest percentage of greenhouse gas emissions, approximately 44%, and thus must be regulated in the proposed Clean Air Rule.¹⁴⁸ The state has recognized that “addressing [transportation] emissions is key to achieving Washington’s statutory greenhouse gas reduction goals (RCW 70.235.020).”¹⁴⁹ The *Foster* court noted that Ecology has not adequately addressed transportation emissions in existing policies and thus suggested that Ecology is obligated to address transportation emissions in the Clean Air Rule in order to protect the rights of young people.¹⁵⁰

The proposed rule provides an option for covered parties to obtain ERUs through existing commute trip reduction programs. However, this provision is of little value. Commute trip reduction program emission reductions are separate from the proposed rule, and are presumed to occur even without the rule. As a result, any ERUs generated under commute programs are non-additional to overall emissions reductions. It is illogical for emission reductions from the commute trip reduction generated ERUs to be counted in determining transportation sector emission reductions.

Ecology’s delayed regulation of petroleum fuel producers and importers does not suffice to address the state’s tremendous amount of GHG emissions from transportation. Ecology has essentially ignored the back end of the problem, i.e. the emissions from combustion of fossil fuels by vehicles. Within the transportation sector, “the consumption of gasoline in vehicles is the largest single source of emissions in Washington . . . accounting for over 23% of total emissions in 2010.”¹⁵¹ The bottom line is that Ecology does not explicitly set emissions standards for or regulate transportation sector emissions in the rule, leaving to our children the challenge of emission reductions in this significant sector. There is no question that Ecology has the existing legal authority to regulate emissions resulting from the sale of petrochemical products (gasoline, diesel, propane, etc.), or vehicle emissions specifically, as illustrated by its

¹⁴⁷ RCW § 70.94.331.

¹⁴⁸ “In Washington, the transportation sector is the largest source of emissions, accounting for over 44% of total emissions in 2011.” See Department of Ecology, *Washington Greenhouse Gas Emission Reduction Limits: Report prepared under RCW 70.235.040*, at 8 available at <https://fortress.wa.gov/ecy/publications/documents/1401006.pdf>.

¹⁴⁹ Life Cycle Associates, LLC for WA Office of Financial Management, A Clean Fuel Standard in Washington State, Revised Analysis With Updated Assumptions DRAFT (September 29, 2014), at http://www.ofm.wa.gov/initiatives/cleanfuelstandards/Documents/Carbon_Fuel_Standard_evaluation_2014_draft.pdf (last visited July 22, 2016) at 8.

¹⁵⁰ *Foster v. Wash. Dep’t of Ecology*, No. 14-2- 25295-1 SEA, 6-7 (Wash. Super. Ct. Nov. 19, 2015) (Exhibit D).

¹⁵¹ Leidos, Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State – Final Report (October 14, 2013) at 7.

development of a draft Clean Fuel Standard. The Legislature has not taken that authority away and it must be implemented as part of the Clean Air Rule. For example, all distributors of gasoline, diesel, or propane could be required to reduce the emissions resulting from the sale of those products by 8 percent per year.

4. Ecology Must Regulate Emissions from New and Retrofitted Buildings

Residential, commercial, and industrial greenhouse gas emissions represent 22-30% of Washington's GHG emissions.¹⁵² To address these emissions, Ecology must establish emissions standards for new or retrofitted buildings to ensure that new buildings are not locking in old energy-inefficient infrastructure and that the emissions for which they are responsible meet the limits set by Ecology, consistent with science-based standards. The new emission standards for buildings must put Washington on track to achieve a rate of reductions for this sector, which when combined with other sectors, will equal the total annual emission reductions required by the best science. We are not asking Ecology to change existing state law regarding energy-related building standards,¹⁵³ but rather that Ecology acknowledge the reality that buildings are sources of GHG emissions and should be regulated as such.

3. Ecology Must Regulate Industrial Forestry

Ecology must do more to limit industrial logging emissions by regulating the industrial forestry sector under the Clean Air Rule. At present, Ecology fails to properly disclose or analyze GHG emissions from the forestry sector, even though those emissions trigger reporting requirements under existing state law.¹⁵⁴ A recent study critiques the global accounting practice used in assessing forest sector GHG emissions, which lumps timber industry emissions with carbon sequestered on forest conservation land.¹⁵⁵ Ecology cannot fall into the same trap and assume that all GHG emissions from the forestry sector are counteracted by forest sequestration. Instead, Ecology must include GHG emissions from the forestry sector in its GHG inventory and regulate the forestry sector as part of its emission reduction regime.

4. Ecology Must Regulate Emissions from Agriculture

Ecology's proposed rule also fails to regulate agricultural activities (including manure management and fertilizer use), which are responsible for a sizeable amount of GHG emissions in the state.¹⁵⁶ The failure to regulate agriculture makes no sense,

¹⁵² See Department of Ecology, Climate Change, Frequently asked questions about the Washington Clean Air Rule (July 21, 2016), at <http://www.ecy.wa.gov/climatechange/CarbonRuleFAQ.html>; RCW § 19.27A.130.

¹⁵³ RCW 19.27A.

¹⁵⁴ RCW 70.94.151(5)(a).

¹⁵⁵ JOHN TALBERTH ET AL., CENTER FOR SUSTAINABLE ECONOMY, CLEARCUTTING OUT CARBON ACCOUNTS 1 (2015), <http://sustainable-economy.org/wp-content/uploads/2015/11/Clearcutting-our-Carbon-Accounts-Final-11-16.pdf>.

¹⁵⁶ *Sources of Greenhouse Gas Emissions*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, <https://www3.epa.gov/climatechange/ghgemissions/sources/agriculture.html> (last visited July 18, 2016).

especially in light of the fact that the agricultural sector seeks to benefit substantially from Ecology’s proposal to count agricultural activities as recognized as generating emission reduction units.¹⁵⁷ In 2012, agricultural soils in Washington emitted 1.7 MMTCO₂e and manure management was responsible for another 1.2 MMTCO₂e.¹⁵⁸ Together with emissions from livestock through enteric fermentation, the agricultural sector was responsible for around 5.4% of Washington’s total emissions in 2012.¹⁵⁹

Concentrated Animal Feeding Operations (CAFOs) are major contributors of greenhouse gas emissions (“GHG”) in the state of Washington. “Agricultural activities such as manure management, fertilizer use, and livestock (enteric fermentation) result in methane and nitrous oxide emissions that account for 6% of State GHG emissions in 2005.”¹⁶⁰ Worldwide, the livestock sector generates more GHG emissions as measured in CO₂ equivalent (18%) than the transportation sector.¹⁶¹ Livestock generates 65% of human-related nitrous oxide which has 296 times the global warming potential of CO₂, accounts for 37% of all human-induced methane¹⁶² and is responsible for 64% of ammonia emissions: devastating health effects. *Id.* Global greenhouse gas emissions from the agricultural sector totaled 4.69 billion tons of carbon dioxide (CO₂) equivalent in 2010 (the most recent year for which data are available), an increase of 13 percent over 1990 emissions. By comparison, global CO₂ emissions from transport totaled 6.76 billion tons that year, and emissions from electricity and heat production reached 12.48 billion tons, according to Worldwatch Institute’s Vital Signs Online service (www.worldwatch.org).¹⁶³ Manure management activities have been identified as a major contributing factor to increased GHG emissions:

Manure that is deposited and left on pastures contributes to global nitrous oxide emissions because of its high nitrogen content. When more nitrogen is added to soil than is needed, soil bacteria convert the extra nitrogen into nitrous oxide and emit it into the atmosphere—a process called nitrification. Emissions from manure on pasture were highest in Asia, Africa, and South America, accounting for a combined 81 percent of global emissions from this source.¹⁶⁴

¹⁵⁷ WAC 173-442-160(6).

¹⁵⁸ WASHINGTON STATE DEPARTMENT OF ECOLOGY, 2010 WASHINGTON STATE GREENHOUSE GAS EMISSIONS INVENTORY (2012), <http://www.ecy.wa.gov/climatechange/docs/2012GHGtable.pdf>.

¹⁵⁹ *Id.*

¹⁶⁰ WA Department of Community, Trade & Economic Development, Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2010 (December 2007), *available at* http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf (last visited March 31, 2014).

¹⁶¹ Livestock’s Long Shadow – Environmental Issues and Options, United Nations Food & Agriculture Organization (Nov. 29, 2006).

¹⁶² This assumes that methane causes 23 times as warming as CO₂, but as discussed below, this measure of warming is outdated. Methane is now estimated to cause 34 times the amount of warming of CO₂.

¹⁶³ Worldwatch Institute, “Agriculture and Livestock Remain Major Sources of Greenhouse Gas Emissions,” *available at* <http://www.worldwatch.org/agriculture-and-livestock-remain-major-sources-greenhouse-gas-emissions-1> (last visited March 31, 2014).

¹⁶⁴ *Id.*

In Washington, “[t]he manure management category [of emissions], which shows the highest rate of growth relative to the other categories, accounted for 11% [] of total agricultural emissions in 1990 and is estimated to account for about 25% [] of total agricultural emissions in 2020.”¹⁶⁵ The science is clear that livestock population is a critical component of any emissions calculation for the agricultural sector. *Id.* The GHG emissions calculations done in Washington for the agricultural sector explicitly recognize the need for more precise data because “[e]missions from enteric fermentation and manure management are dependent on the estimates of animal populations and the various factors used to estimate emissions for each animal type and manure management system (i.e., emission factors which are derived from several variables including manure production levels, volatile solids content, and CH₄ formation potential).” *Id.* at F-6.

In 2012, the leading source of methane in the United States was enteric fermentation, and manure management was the fifth largest source.¹⁶⁶ Activities associated with manure management are also the third largest source of nitrous oxide, another powerful greenhouse gas.¹⁶⁷ In Washington State, enteric fermentation was responsible for 2.0 million metric tons of CO₂ equivalents (“MMT CO₂eq”) and manure management was responsible for 1.1 MMT CO₂eq in the year 2010.¹⁶⁸

Methane is produced by ruminants during the digestion process. Furthermore, anaerobic conditions in manure holding areas and runoff lagoons lead to methane emissions. The EPA website estimates that one cow produces up to 110 kg of methane per year.¹⁶⁹ Nitrous oxide, a powerful greenhouse gas,¹⁷⁰ is also produced from combined manure and urine during storage. In addition, the farm equipment, generators and boilers used at the feedlot facility and heavy-duty diesel trucks transporting livestock and feed will produce carbon dioxide from fuel usage and from electricity usage. Diesel-powered engines and generators are also a significant source of black carbon. If Ecology wants to give the agricultural industry the economic benefit of generating emission reduction units, it must also treat agriculture as a covered party under the rule.

5. Ecology Must Regulate Consumption-based Emissions

Ecology must do a greenhouse gas emissions inventory that includes consumption-based emissions. A consumption-based emissions inventory is a greenhouse gas inventory including estimates of embedded emissions associated with the

¹⁶⁵ WA Department of Community, Trade & Economic Development, Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2010 (December 2007), *available at* http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf (last visited March 31, 2014) at F-4.

¹⁶⁶ USEPA, Inventory of US Greenhouse Gases and Sinks: 1990-2012 2-4 (Apr. 15, 2014).

¹⁶⁷ *Id.* at 2-5.

¹⁶⁸ WA Dept. of Ecology, WASHINGTON STATE GREENHOUSE GAS EMISSIONS INVENTORY 1990-2010 at 4 (2012).

¹⁶⁹ See <http://www.epa.gov/rlep/faq.html>, last visited May 21, 2014.

¹⁷⁰ Myhre et al, IPCC AR5 Chapter 8, *supra* note * at 714 (N₂O GWP = 298 over 100 years and 268 over 20 years).

life cycle of materials and services, including electricity and fuels, consumed in Washington. These emissions are included regardless of whether they physically originate in Washington. A consumption-based inventory uniquely counts out-of-state emissions associated with producing the products, services, and fuels consumed in Washington. It also counts emissions associated with producing fuels that are used to generate electricity consumed in Washington. Ecology has not provided a consumption-based inventory for CO₂ emissions, which would include all embedded CO₂ emissions for goods produced outside of Washington and consumed within Washington. Without this inventory and analysis, Ecology cannot accurately account for all of the State's emissions sources to ensure that it is fulfilling its constitutional and statutory mandate to protect the rights of young people and future generations.

Oregon is a model state for accounting for consumption emissions. The state has recognized that Oregon households' consumption affects the global environment and contributes to climate change.¹⁷¹ In order to assess more complete carbon footprint, the State developed a scheme to include out-of-state production emissions for products consumed within the state. Emissions are counted if they satisfy households' economic final demand.¹⁷² The inventory includes emissions associated with tangible commodities such as food, vehicles, appliances, furnishings and electronics. It also includes services, fuels, and electricity.¹⁷³ The inventory helps Oregon "design strategies that lower the carbon intensity of goods and services consumed by Oregonians and create incentives for Oregon's in- and out-of-state suppliers to shift to production methods that reduce their carbon footprint."¹⁷⁴ Ecology has failed to include emissions standards for consumption emission reductions into the rule. In order to effectively address all of Washington's GHG emissions, Ecology must 1) prepare a consumption-based inventory of Washington GHG gases and 2) set consumption emission reduction emission standards as part of the Clean Air Rule.

6. Ecology Must Lower the Threshold for Covered Parties

Ecology must lower the threshold for parties to be covered under the rule in order to adequately reduce atmospheric CO₂ levels. The current threshold schedule is arbitrary and not based on sound science. Under the proposed rule, the first compliance period includes covered parties with annual emissions greater or equal to 100,000 MT CO₂.¹⁷⁵ The compliance threshold gradually decreases by 5,000 MT CO₂ each compliance period until it reaches 70,000 MT CO₂ in 2035, after which the threshold remains at 70,000 MT CO₂. So in essence, Ecology is legalizing the emission of massive amounts of CO₂ and makes it impossible for the state to reduce its GHG emissions in the manner prescribed

¹⁷¹ See Oregon Department of Environmental Quality, Oregon Department of Energy, Oregon Department of Transportation, *Oregon's Greenhouse Gas Emissions Through 2010: In-Boundary, Consumption-Based and Expanded Transportation Sector Inventories* (July 18, 2013) at 9, available at http://www.oregon.gov/deq/AQ/Documents/OregonGHGinventory07_17_13FINAL.pdf.

¹⁷² *Id.*

¹⁷³ *Id.* at 29.

¹⁷⁴ *Id.* at 9.

¹⁷⁵ Clean Air Rule, Wash. Admin. Code § 173.442.110(3) (proposed May 31, 2016); WAC § 173.442.030(3).

by best available climate science. The thresholds selected by Ecology grossly deviate from current state and federal reporting requirements as well as other cap and trade programs. In Washington, facilities and transportation fuels suppliers emitting at least 10,000 MT CO₂ of greenhouse gases are statutorily required to report their emissions.¹⁷⁶ It follows, then, that Ecology has express legislative approval to regulate sources that exceed more than the 10,000 MT CO₂ threshold.

Additionally, the EPA reporting threshold is 25,000 MT CO₂.¹⁷⁷ California's reporting threshold is 25,000 MT CO₂, and the state also requires entities whose annual emissions equal or exceed 25,000 MT CO₂ of GHG emissions to comply with the state cap-and-trade program.¹⁷⁸ To date, Ecology has offered no justification for deviating from either the 10,000 MT CO₂ or 25,000 MT CO₂ thresholds or failing to connect its established thresholds to science-based levels of emission reductions. In order to be on track to adequately reduce statewide emissions, Ecology should lower the compliance threshold to at least match the GHG emission reporting threshold of 10,000 MT CO₂.

Washington's Clean Air Act provides Ecology broad authority to cover significantly more parties than what is proposed in the current draft of the rule.¹⁷⁹ Pursuant to the Washington Clean Air Act, Ecology is charged with securing and maintaining the ". . . levels of air quality that protect human health and safety. . ." ¹⁸⁰ In order to reduce atmospheric CO₂ emissions to 350 ppm by the end of the century, it is imperative that Ecology regulate a significantly larger segment of GHG emitters.¹⁸¹

iii. The Proposed Rule Illegally Delays Compliance & Contradicts Ecology's Own Findings that Urgent Action is Needed to Draw Down GHG Emissions

After detailing the devastating impacts all sectors of Washington will face in light of climate change, in December 2014 Ecology proclaimed:

If we delay action by even a few years, the rate of reduction needed to achieve these goals would have to be beyond anything achieved historically and could be very costly.

* * *

Climate change is not a far off risk. Globally, it is happening now and is worse than previously predicted, and it is forecasted to get worse.

¹⁷⁶ RCW § 70.94.151 (5)(a) ("The department shall adopt rules requiring persons to report emissions of greenhouse gases as defined in RCW 70.235.010 where those emissions from a single facility, source, or site, or from fossil fuels sold in Washington by a single supplier meet or exceed ten thousand metric tons of carbon dioxide equivalent annually.").

¹⁷⁷ 40 C.F.R. § 98.2.

¹⁷⁸ Cal. Code Regs. tit. 17, §§ 95812, 95101.

¹⁷⁹ RCW § 70.94.331.

¹⁸⁰ RCW § 70.94.011.

¹⁸¹ See Hansen, et al. *Assessing 'Dangerous Climate Change.'*

We are imposing risks on future generations (causing intergenerational inequities) and liability for the harm that will be caused by climate change that we are unable or unwilling to avoid.¹⁸²

In spite of this finding, which simply reiterates what the agency has been saying for years,¹⁸³ Ecology has arbitrarily allowed a twenty-year “phase-in” for covered parties to come into compliance with the requirements of the rule. It is unfathomable for Ecology to sanction such a long delay for implementation of the rule in light of its own findings regarding the urgency of the climate crisis. The Clean Air Rule must require immediate reductions of GHG emissions if we are to have any hope of contributing to the resolution of the climate crisis. We have a very small window of opportunity to achieve global concentrations of 350 ppm by the end of the century and Ecology’s “kick the can down the road” approach is unlawful.

iv. The Emissions Threshold Arbitrarily Does Not Continue To Decrease After 2035

Remarkably, Ecology does not decrease the emissions threshold after 2035, a time when the young people of today will be experiencing more severe impacts of living in a climate-changed world. Ecology offers no justification for this. Given the science that clearly demonstrates the need and feasibility of a achieving net-zero carbon economy in Washington state,¹⁸⁴ it is illegal for Ecology to sanction such dangerous levels of GHG emissions after 2035.

v. The Proposed Rule Arbitrarily Relies Upon A Flawed Washington GHG Reporting Program

The current GHG reporting program (GHGRP) rules does not cover all petroleum products, and appears to be limited to “liquid motor vehicle fuel, special fuel, or aircraft fuel.” This should be clarified and addressed by Ecology. Are liquefied petroleum gases and all other petrochemical products covered by the reporting program? If so, they should be regulated under the proposed Clean Air Rule.

Even under its current GHGRP, Ecology is 4 years behind in reporting emissions data. Our consultant has provided up to date emissions data for WA through 2015 based on the EPA Tool and EIA SEDS data.¹⁸⁵ This level of information on emissions and the trajectory are a major failing of the proposed rule.

¹⁸² Ecology, Washington Greenhouse Gas Emission Reduction Limits, Ecology Publication No. 14-01-006 (December 2014) at 18.

¹⁸³ See, e.g., Ecology, Path to a Low Carbon Economy, Ecology Publication No. 10-01-011 (December 2010) at 1 (“Global climate change is the economic and environmental issue of our lifetime. The science is clear that we must move forward quickly to reduce greenhouse gas (GHG) emissions in order to mitigate its effects. Without action, climate change will negatively affect nearly every part of Washington’s economy through changes in temperature, sea level, and water availability.”).

¹⁸⁴ See Jacobson Decl. (Exhibit P).

¹⁸⁵ See Exhibit Q (Washington Emissions Data Compared to Science-Based Emissions Reductions-OCT).

Further, Ecology intends to update the reporting methodology and requirements for GHG reporting in preparation for the Clean Air Rule implementation in a way that, when the updates take effect, expected emissions from individual fuel providers will change (based upon the new methodology) and entities that currently appear that they would be covered or not covered under the program based on old data may switch to being covered or not covered when the new reporting methodology comes into effect. However, none of this is clear in the proposed rule, which leaves a tremendous amount of uncertainty for the public and industry. Furthermore, an accurate reporting system is a necessary first step towards fulfilling Ecology's obligation to address climate change.

vi. The Rule's Reliance on Offsets is Flawed

- (a) The proposed Rule Allows Ecology to Delegate Responsibility for the Creation of Offsets and their Attendant Emissions Reductions to Other State Agencies and External Carbon Registries.

Ecology's strong reliance on the use of offsets is ill advised.¹⁸⁶ The proposed rule establishes a compliance obligation WAC 173-442-200(3) that must be met with emissions reductions by the end of each compliance period as measured in Emissions Reduction Units, which are equivalent to one metric ton of CO₂e WAC 173-442-020(1)(m). According to Ecology's cost-benefit analysis, covered parties may, individually or in combination:

- A. Reduce emissions on-site at the covered party, or obtain the equivalent of similar reductions from other covered or voluntarily participating parties.
- B. Offset emissions using an in-state emissions reduction project or program, including RECs, as allowed by the proposed rule.
- C. Purchase emissions allowances through existing carbon markets if allowed by the proposed rule.¹⁸⁷

In their analysis, Ecology forecast a range of compliance costs per MT CO₂e for each compliance option. The estimated costs are:

Emission reduction programs (Renewable Energy Credits): \$3 – \$11 per MT CO₂e

Emissions reduction projects: \$5 – \$29 per MT CO₂e

Market emissions reductions: \$13 – \$14 per MT CO₂e

On-site emissions reductions: \$23 – \$57 per MT CO₂e¹⁸⁸

The cost-benefit analysis acknowledged that:

¹⁸⁶ For a more thorough description of the problems associated with offsets, *see* the comments submitted by Food and Water Watch on the proposed Clean Air Rule.

¹⁸⁷ Preliminary Cost-Benefit and Least Burdensome Alternative Analysis, p. 13.

¹⁸⁸ *Id.* p. 14-15.

Actual costs depend on the method of compliance chosen, and Ecology assumes that covered parties will choose the lowest-cost option available to them. In order, these are RECs, in-state emissions reduction projects, market purchases, and on-site emissions reductions.¹⁸⁹

These projected results highlight the importance of offset projects and programs under the proposed rule, given that Ecology expects them to be preferred by covered parties given their more favorable economics. Further, as a centerpiece to the proposed rule, Ecology identifies a wide range of projects and programs that can generate offset credits, and indeed encourages polluters to take advantage of offsets rather than reducing their own emissions in the state. This is the wrong approach.

As the agency responsible for operating and enforcing any Washington GHG reduction program, Ecology is legally obligated to ensure that its verification criteria are met. However, the proposed rule shifts responsibility for determining projects and programs that generate offset credits to other state agencies and external registry programs, and provides contradictory provisions as to eligible programs, making Ecology's job of policing offsets criteria virtually impossible.

A key criterion for offset credit is that the emissions reductions must be “[a]dditional to existing law or rule” and cannot be used if “[i]f an emission reduction is required by another statute, rule, or other legal requirement.” WAC 173-442-150 Nevertheless, the proposed rule would allow emissions reductions from the following already-existing “policies” to create ERUs and be used for compliance: (1) The EPA Clean Power Plan; (2) The Washington GHG emissions performance standard; (3) The Washington CO₂ mitigation standard for fossil-fueled thermal electric generation facilities; and (4) Commute trip reduction programs.

To the extent that emission reductions are required by these programs, their use for the creation of offsets would lead to double-counting and violate the additionality criterion. To generate ERUs, sectors include transportation, combined heat and power, energy, livestock and agriculture, waste and wastewater, and industrial sectors. The proposed rule establishes exceedingly complicated and poorly specified processes to determine actual emissions reductions and the generation of ERUs from activities and programs within these sectors. WAC 173-442-160. They include protocols from established registries or state agency processes to establish the eligibility of activities and programs in each sector, and the ensuing emissions reductions that Ecology would rely on to assign ERUs. The sole responsibility for Ecology for offsets would be to “assign the appropriate quantity of ERUs.” WAC 173-442-160.

For each sector, other entities besides Ecology would be responsible for determining emissions reduction activities and programs and the resulting emission reductions. However, for each of these sectors, emissions reductions may also be determined through a methodology approved by Ecology, with Ecology assigning a value

¹⁸⁹ *Id.* p. 23.

for a quantity of ERUs. WAC 173-442-060. Ecology's ability to judge whether or not projects and programs meet established criteria, especially the critical criterion of non-additionality, would be highly compromised given that these offsets would be administered by separate agencies and held to the standards of different registry protocols.

Finally, nowhere in the proposed rule is it specified how covered parties can acquire offset credits or the ERUs deemed created by Ecology, by funding projects and programs, purchasing credits from the responsible parties, or other means. The failure of the proposed rule to spell out how the marketplace for offset credits would operate is an enormous and inexplicable gap in the design of the proposed offset program.

(b) The Excessive Role Envisioned for Allowances Would Impose Costs and Deny Benefits to Washingtonians.

The proposed rule establishes purchases of allowances from external multisector GHG emission reduction programs as a compliance option. WAC 173-422-110(3). The proposed rule sets limits on how much of a covered party's compliance obligation can be met through allowances, starting at 100% for the first two compliance periods and declining slowly over time. WAC 173-442-170. Ecology's focus should be on requiring polluters to install the technology needed to minimize the pollution. Ecology should not be legalizing the continued discharge of dangerous levels of GHG emissions. Such an approach puts those in close proximity to the polluting facilities in harms way. Those are precisely the people Ecology is supposed to be protecting.

As an initial matter, the proposed rule states that allowances must be "derived from methodologies congruent with chapter 173-441 WAC."¹⁹⁰ This chapter is Washington's GHG reporting rule. Allowances are not the same as activities that generate GHG emissions reductions reportable to the Washington system. Rather, they are officially-sanctioned authorizations by air quality regulators allowing a certain amount of GHG emissions to be emitted. It is unclear what this provision seeks to accomplish.

The ability of covered parties to use allowances for all or most of their compliance obligations prioritizes perceived market efficiencies over equally important non-market factors. Ecology's cost-benefit analysis acknowledges that there are trade-offs between in-state reductions and allowances. For example, the cost-benefit analysis identifies important pollution and environmental justice factors to weigh against the use of allowances. It acknowledges that reductions in associated emissions such as criteria pollutants and toxic air pollutants can have major public health benefits.¹⁹¹ Ecology identified a number of population groups living near GHG emissions facilities: children, the elderly, minorities, and low-income, linguistically-isolated, and less educated populations. While each of these groups living near covered facilities stand to benefit from on-site emissions reductions, Ecology declined to analyze the tradeoffs between

¹⁹⁰ Id. p. 18.

¹⁹¹ Id. p. 39

these. This is reflected in the proposed rule, which leaves it up to covered parties to decide which compliance options to use based on their monetary costs alone. Ecology's assumption that on-site emission reductions will be selected last by covered parties makes it highly likely that Washingtonians are not going to see the potential benefits of a rule that regulates actual GHG emissions.

(c) Ecology Must Create Opportunities for Public Involvement in the Implementation of Any GHG reduction Program.

Any offset program should be fully transparent and involve public participation in implementation, such as third-party verification of reductions, the assignment of emissions to entities that do not have reported emissions, and the assignment of ERUs to offset projects. We believe that a vehicle for public oversight should be established under the rule to provide the public with opportunities to participate directly in the state's efforts to reduce GHG emissions. In California, oversight committees were established during the initial operations of the CA Cap and Trade Program, including an Emissions Market Assessment Committee and an Economic and Allocation Advisory Committee. A public oversight committee should include representatives of groups interested in the achievement of GHG reductions in Washington and communities disproportionately impacted by GHG pollution and climate change.

V. ECOLOGY'S COST BENEFIT ANALYSIS IS FLAWED

a. The Social Cost of Carbon Estimates Require Reductions Based on Science

i. Ecology is Required to Consider the Real Costs & Benefits of the Proposed Clean Air Rule.

Under RCW 34.05.328, the Department of Ecology is required to “[d]etermine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.” Ecology assessed some costs in its Preliminary Cost-Benefit and Least Burdensome Alternative Analysis.¹⁹² In this analysis, Ecology estimates the value of reducing GHG emissions based on the social cost of carbon (SCC) developed by the federal government and the expected trajectory of GHG reductions as covered parties meet their GHG emission reduction pathways. The SCC developed and used by the federal government estimates economic damages expected from increases in carbon dioxide emissions, monetized as dollars per metric ton.¹⁹³ The damages from climate change assessed in the SCC include “changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning.”¹⁹⁴ The

¹⁹² Ecology Publication No. 16-02-008 (June 2016).

¹⁹³ EPA, “The Social Cost of Carbon,” (Last updated Feb. 23, 2016) available at <https://www3.epa.gov/climatechange/EPAactivities/economics/scc.html> (last visited July 7, 2016).

¹⁹⁴ *Id.*

purpose of the SCC, pursuant to Executive Order 12866, is to enable governmental agencies to include the social benefits of reducing CO₂ emissions when conducting cost-benefit analyses on regulatory actions that affect global emissions.¹⁹⁵ We applaud and support Ecology's use of the SCC as part of its rulemaking process, especially since the most significant social costs of climate change will be experienced by the young and future generations. It is important that those costs are weighed against the minimal costs imposed on the corporations who are to be primarily regulated under the rule. We also support Ecology's focus on global damage estimates as opposed to solely domestic estimates because of the inherent global nature of climate change. That being said, we offer the following comments to improve the accuracy of Ecology's analysis.

ii. The U.S. Social Cost of Carbon Analysis Undervalues the Rights of Children & Future Generations.

For 2015, the U.S. has estimated the SCC range as between \$11 and \$105 per metric ton; for 2020, the range is between \$12 and \$123.¹⁹⁶ When these estimates are viewed as "avoided costs," they represent the dollar value of the benefits from avoiding future damages caused by climate change. However, the U.S. (and now Ecology) erroneously uses unreasonably high discount rates as a key component of the SCC, which discounts future benefits more steeply than near-term benefits, thereby valuing adults of the present generation more highly than children and all future generations, in violation of long-standing principles of evolutionary biology¹⁹⁷ and morality, as well as legal rights of youth and future generations. Discount rates essentially are used to calculate the present value of future damages,¹⁹⁸ and are represented as percentages. The federal government uses four discount rates to calculate a range of present values for the average annual SCC forecast by three integrated assessment models. The discount rates are 5%, 3%, 2.5%, and the 95th percentile at 3%, the high end of the distribution of potential future damages.¹⁹⁹ Higher discount rates give less value to future damages and yield lower present values and, alternatively, lower discount rates give greater value to future damages and yield higher present values.²⁰⁰ The federal government uses a range of

¹⁹⁵ U.S. Interagency Working Group on Social Cost of Carbon, "Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866," at 3 (May 2013) available at http://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf (last visited July 7, 2016).

¹⁹⁶ U.S. Interagency Working Group on Social Cost of Carbon, "Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866," at 3, 13 (May 2013, Revised July 2015) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-tds-final-july-2015.pdf> (last visited July 8, 2016).

¹⁹⁷ Trivers, R.L. 1972. Parental Investment and Sexual Selection. In B. Campbell, ed. *Sexual Selection and the Descent of Man, 1871-1971*, Aldine-Atherton, Chicago, pp. 136-179, at http://roberttrivers.com/Publications_files/Trivers%201972.pdf (last visited July 20, 2016) (defining parental investment as "any investment by the parent in an individual offspring that increases the offspring's chance of surviving (and hence reproductive success) at the cost of the parent's ability to invest in other offspring.").

¹⁹⁸ EPA, EPA Fact Sheet, "The Social Cost of Carbon," at 1 (Dec. 2015) available at <https://www3.epa.gov/climatechange/Downloads/EPAactivities/social-cost-carbon.pdf> (last visited July 11, 2016).

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at 2

discount rates “because the literature shows that the [SCC] is highly sensitive to the discount rate and because no consensus exists on the appropriate rate to use for analyses spanning multiple generations.”²⁰¹ The 2.5% discount rate is not, as Ecology suggests, the most appropriate discount rate and the SCC values derived from a 2.5% discount rate should not be valued as the most likely SCC.²⁰² Rather, the range of costs produced by the SCC are simply meant to cover a range of future damage estimates. The 2.5% discount rate applied by Ecology is too high and, therefore, inappropriate for use in its cost-benefit analysis.

iii. Ecology’s Estimates Improperly “Discount” Children & Future Generations

Agencies using the SCC developed by the U.S. Interagency Working Group rely on estimates that do not adequately represent the costs of climate change to children and future generations.

According to the 2010 Technical Support Document of the Interagency Group:

With respect to the pure rate of time preference, most papers in the climate change literature adopt values for ρ [discount rate] in the range of 0 to 3 percent per year. The very low rates tend to follow from moral judgments involving intergenerational neutrality. Some have argued that to use any value other than $\rho = 0$ would unjustly discriminate against future generations (e.g., Arrow et al. 1996, Stern et al. 2006). However, even in an inter-generational setting, it may make sense to use a small positive pure rate of time preference because of the small probability of unforeseen cataclysmic events (Stern et al. 2006).²⁰³

Nevertheless, although estimates for appropriate discount rates of future generations ranged from 1% to 3%,²⁰⁴ the Working Group chose 3% as the central value. The Working Group “consistently chose relatively high discount rates available, without explaining its rejection of alternative lower ones.”²⁰⁵ Of the four major uncertainties that exist in applying economics to future climate change impacts, the Interagency Working Group selected “the option[s] that minimize[] estimates of climate risks and damages.”²⁰⁶

²⁰¹ *Id.*

²⁰² AIR QUALITY PROGRAM, WASHINGTON STATE DEPARTMENT OF ECOLOGY, PRELIMINARY COST-BENEFIT AND LEAST-BURDENSOME ALTERNATIVE ANALYSIS, CHAPTER 173-442 WAC, 1, 12, 60 (2016) at <https://fortress.wa.gov/ecy/publications/SummaryPages/1602008.html> (last visited July 19, 2016).

²⁰³ U.S. Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866” at 21 (February 2010) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf>

²⁰⁴ *Id.* at 21

²⁰⁵ Laurie T. Johnson and Chris Hope, *J Environ Stud Sci*, “The social cost of carbon in U.S. regulatory impact analyses: an introduction and critique,” at 8 (Sept. 2012) available at <http://www.ourenergypolicy.org/wp-content/uploads/2012/09/fulltext.pdf> (last visited July 11, 2016).

²⁰⁶ Frank Ackerman and Elizabeth A. Stanton, “Climate Risks and Carbon Prices: Revising the Social Cost of Carbon,” at 6 (2011) available at http://sei-us.org/Publications_PDF/SEI-Climate-Risks-Carbon-Prices-2011-full.pdf (last visited July 11, 2016).

By selecting these lower-risk options, the Working Group ignores “increasingly ominous scientific evidence about climate risks [that] impl[y] much greater losses at higher temperatures.”²⁰⁷ These risks must be considered when determining the SCC because “[b]y the time we know what climate sensitivity and higher temperature damages turn out to be, it will be much too late to do anything about it.”²⁰⁸

The EPA acknowledges that current SCC modeling does not account for all important damages.²⁰⁹ There is a noted absence in the models of many physical, ecological, and economic impacts predicted by current climate science.²¹⁰ In responding to comments on the development of the SCC, the Interagency Working Group acknowledged that two of the three models used to derive an average SCC do not account for variability in the climate that could affect agriculture.²¹¹ Additionally, the models used in the SCC do not accurately, or at all, account for feedback loops such as ocean circulation patterns, forest diebacks, sea ice melt, and permafrost melt.²¹² Experts with the Natural Resources Defense Council found the models “likely to understate impacts by excluding a large number of factors that would increase it while excluding only a very small number of countervailing forces.”²¹³ Moreover, the models used to develop the SCC omit climate change damages to fisheries, forests, and resource scarcity due to migration.²¹⁴ A 2014 study found that the SCC should be no lower than \$125 per metric ton based on an aggregate of studies using high and low discount rates, and even this value, which is marginally larger than federal estimates, was considered “realistic and conservative.”²¹⁵ Further, some studies find *negative* discount rates may be more appropriate for estimating the SCC.²¹⁶

²⁰⁷ *Id.* at 13

²⁰⁸ *Id.* at 19

²⁰⁹ EPA, “The Social Cost of Carbon,” (Last updated Feb. 23, 2016) available at <https://www3.epa.gov/climatechange/EPAactivities/economics/scc.html> (last visited July 7, 2016).

²¹⁰ *Id.*

²¹¹ Interagency Working Group on Social Cost of Carbon, United States Government, “Response to Comments: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, at 15 (July 2015) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/scc-response-to-comments-final-july-2015.pdf> (last visited July 11, 2016).

²¹² *Id.*

²¹³ Johnson and Hope at 3 (Sept. 2012) available at <http://www.ourenergypolicy.org/wp-content/uploads/2012/09/fulltext.pdf> (last visited July 11, 2016).

²¹⁴ Environmental Defense Fund, Institute for Policy Integrity, Natural Resources Defense Council, “Social Cost of Carbon Pollution Fact Sheet,” (April 2014) available at http://costofcarbon.org/files/Cost_of_Carbon_Fact_Sheet.pdf (last visited July 19, 2016); *See also* U.S. Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866,” 1, 11 (Feb. 2010) available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf> (last visited July 19, 2016).

²¹⁵ Jacobson et al., *Energy Environ. Sci.*, “100% clean and renewable wind, water, and sunlight (WWS) all-sector energy roadmaps for the 50 United States,” Supplement at 26 (2015) available at <https://web.stanford.edu/group/efmh/jacobson/Articles/I/USStatesWWS.pdf> (last visited July 11, 2016).

²¹⁶ *See, e.g.*, Fleurbaey, Marc and Zuber, Stephane, “Climate policies deserve a negative discount rate,” *Chicago Journal of International Law*: Vol. 13: No. 2, Article 14, 565, 592 (2013) available at <http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1381&context=cjil> (last visited July 15, 2016).

Ecology estimates the present value of avoided GHG emissions under the proposed rule over a 20-year period as \$14.5 billion, which is a vast underestimate.²¹⁷ Governor Inslee stated in Executive Order 14-04 that “the effects of climate change on water supplies, public health, coastal and storm damage, wildfires, and other impacts, will cost Washington almost \$10 billion per year after 2020” based on a study by the University of Oregon.²¹⁸ Governor Inslee also stated that “studies conducted for the Western Climate Initiative indicated that a program to limit carbon emissions, implemented through market mechanisms, would result in a net increase of 19,300 jobs and increased economic output of \$3.3 billion in Washington by 2020.”²¹⁹

Another indicator that Ecology’s estimate of the benefits of the rule is underestimated is its failure to take into account the Social Cost of Methane (SCM).²²⁰ Estimates of the SCM range from roughly \$490 to \$1500/MT in 2015 (in 2012 dollars) at discount rates of 5% and 2.5% respectively.²²¹ The SCM has been adopted by EPA in recent regulatory impact analyses.²²² In its cost-benefit analysis, Ecology failed to account for methane’s much greater impact on climate and its much higher social cost. According to the Washington GHG Inventory, methane emissions were estimated from the natural gas and wood products sectors at .9 MMTCO_{2e}, roughly 1% of total GHG emissions. As noted above, methane is highly likely to be emitted by other sectors and we expect actual methane emissions to be significantly higher than those reported in the Inventory. If roughly half of the methane emissions reported in the Inventory were eliminated by the CAR, it would add roughly \$32 million to the benefits under the rule.

Furthermore, Governor Gregoire, in Executive Order 12-07 stated:

Washington is the country’s top provider of farmed oysters, clams, and mussels. Our shellfish growers employ directly and indirectly more than 3,200 people around the state and provide an annual total economic contribution of \$270 million statewide. The increasing levels of acidification in Washington’s marine waters pose serious and immediate threats to our shellfish resources, and the revenue and jobs supported by the shellfish industry.²²³

The UW Climate Impact Group reports that “[b]y the end of the century, ocean

²¹⁷ AIR QUALITY PROGRAM, WASHINGTON STATE DEPARTMENT OF ECOLOGY, PRELIMINARY COST-BENEFIT AND LEAST-BURDENSOME ALTERNATIVE ANALYSIS, CHAPTER 173-442 WAC, at 39.

²¹⁸ Exec. Order No. 14-04: Washington Carbon Pollution Reduction and Clean Energy Action, 1 (2014) available at http://www.governor.wa.gov/sites/default/files/execute_order/eo_14-04.pdf (last visited July 19, 2016).

²¹⁹ *Id.* at 2

²²⁰ Marten *et al.*, Incremental CH₄ and N₂O mitigation benefits consistent with the U.S. Government’s SC-CO₂ estimates, *Climate Policy*, 15:2, 272-298 (2015).

²²¹ Regulatory Impact Analysis of the Proposed Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector, US Environmental Protection Agency, 2015 at 4-14. Available at https://www3.epa.gov/airquality/oilandgas/pdfs/og_prop_ria_081815.pdf

²²² *Id.*

²²³ Executive Order No. 12-07 (Nov. 27, 2012), at

http://www.ecy.wa.gov/water/marine/oa/MRAC_ExecutiveOrder_12-07.pdf (last visited July 20, 2016).

acidification is projected to result in a 40% reduction, globally, in the rate at which mollusks (e.g., mussels and oysters) for shells, as well as a 17% decline in growth, and a 34% decline in survival.”²²⁴ These numbers serve as examples that the estimated \$14.5 billion in avoided costs is much lower than the actual avoided costs of climate change. Many other Washington-specific costs (e.g. loss of forest land due to wildfires, loss of tidelands due to sea level rise, etc.), are incorrectly omitted from this equation.

Finally, the “pure discounting” approach taken by the federal government values harm and death to future generations as only a fraction of the value of harm and death to the present generation.²²⁵ Discounting has been criticized as violating intergenerational neutrality, favoring the present generation over future generations.²²⁶ Applying higher discount rates in determining the SCC diminishes future generations’ rights to life, liberty, due process, and equal protection. Thus, a social cost of carbon analysis that applies a discount rate to the lives of future generations is manifestly unconstitutional and will lead to unconstitutional policies that lock in dangerous levels of warming, such as the proposed Clean Air Rule in its current form.

iv. Ecology’s Estimates Are Inadequate

Ecology estimates the SCC for present and future generations of Washingtonians based on the SCC developed by the federal government, but many assumptions and parameters used in Ecology’s estimates equate to grossly inadequate values. First, Ecology is basing the SCC on a 20-year timeframe. This timeframe is not only shorter than that utilized by the federal government, but the most severe climatic damage will occur beyond the 20-year mark. Second, Ecology fails to account for many important damages that climate change will bring, including physical, ecological, and economic impacts on both the local and global scale. Last, as stated above, evidence suggests that the discount rate used by the federal government favors the present generation over future generations and that the actual SCC is much higher than current SCC estimates. While we support Ecology’s use of the SCC in its economic analysis, it requires revision for the reasons set forth above.

VI. THE RULE ARBITRARILY EMULATES CAP & TRADE PROGRAMS IN OTHER JURISDICTIONS THAT ARE NOT WORKING & FAILS TO DIRECTLY REGULATE EMITTERS AND SAFEGUARD AGAINST LEAKAGE AND MARKET INSTABILITY

The ERU system, the centerpiece of Ecology's Proposed Clean Air Rule, is modeled on cap-and-trade programs, such as California's, that do not adequately reduce emissions and, if pursued, must be accompanied by strong, direct regulation of emission

²²⁴ UW Climate Impacts Group, State of the Knowledge Report – Climate Change Impacts & Adaptation in Washington State: Technical Summaries for Decision Makers (2013), at <https://cig.uw.edu/resources/special-reports/wa-sok/> (last visited July 20, 2016) at 8-4.

²²⁵ John E. Davidson, Amicus Curiae Brief, *Juliana v. United States*, at 29 (Feb. 24, 2016)

²²⁶ David A. Weisbach & Cass R. Sunstein, "Climate Change and Discounting the Future: A Guide for the Perplexed," 27 Yale Law and Policy Review 433, 435 (2009).

sources. The Proposed Rule relies upon a market based system that will fail to result in anything near the reductions needed; an approach that actually risks market instability. To remedy this, Ecology must ensure that rule requires actual, on-site emission reductions, coupled with a cap-and-trade approach that incorporates safeguards not currently in place in this Proposed Rule's ERU program.

(a) Cap-and-trade programs alone do not result in the emissions reductions necessary to address the risks of climate change

Ecology's exclusive reliance on a cap-and-trade model as the primary component of its emissions reduction program ignores the fact that other jurisdictions, such as California, have not achieved clear emissions reductions from these types of programs. For example, while California's cap-and-trade program has been portrayed as the centerpiece of efforts to halt climate change, it only accounts for a small proportion of targeted emission reductions.²²⁷ In fact, to this point, it has not resulted in any measurable reductions in emissions.²²⁸ This is consistent with the results of other market-based programs, which tend to be aimed more at assuaging business concerns rather than actually reducing GHG emissions. We understand that corporations feel they need to continue to profit at the expense of young people and future generations, but Ecology's Proposed Rule is a giant corporate giveaway that does not make the covered parties pay into the ERU trading system created by the rule.

(b) Existing Cap-and-Trade Programs Suffer from Leakage

Ecology's Proposed Rule, in allowing offsets and failing to include safeguards, risks leakage and the negation of any real emissions reductions, as well as market instability. To protect against these issue, Ecology must include safeguards in the rule, such as tighter restrictions on offsets. Leakage occurs when the actual total amount of emissions are not reduced, but are rather shifted so as to make it appear that an entity has reduced emissions.²²⁹ Broadly allowing offsets risks, as the Proposed Rule does, risks widespread leakage and a failure to produce any reduction in emissions. To protect against this catastrophe, Ecology should review the language in AB32 in California which aimed to ensure leakage was minimal.²³⁰ Ecology must, however, avoid California's, subsequent mistake, where negotiations with industry resulted in a series of exemptions that now allow for carbon leakage that potentially matches the quantity of carbon in the market.²³¹ Not only does this negate any positive impact of California's

²²⁷ See, e.g., California Carbon Dashboard. *Cap and Trade*. <http://calcarbondash.org/>. Last accessed 007/21/16. Noting California Cap-and-Trade aims to result in 22% of the programs total emission reductions).

²²⁸ See, e.g., Food and Water Watch Comment Letter (July 22, 2016) at ¶ 11.

²²⁹ David Roberts. *California's Carbon Market is Leaking*. Grist. (Oct. 30, 2014).

²³⁰ *Id.* See California Health and Safety Code (2014: §§ 35852(b), (b)(8)).

²³¹ *Id.* See, also, Danny Cullenward. *How California's Carbon Market Actually Works*. 70 Bulletin of the Atomic Scientists 35, 39 (2015).

cap-and-trade program, it may be, in part, responsible for the reduction in demand for carbon credits in May's auction.²³²

Recently, California's carbon credit auction resulted in only 10% of credits available being purchased. Analysts suggest that the causes of this dismal auction outcome involved three primary issues, two of which are issues specific to California's tax structure and statutory guidelines.²³³ The third, however, overproduction of credits, results from leakage and emissions shuffling. Ecology's Proposed Rule must be modified to ensure that its ERU program does not suffer from the same sort of leakage that California's rule does. To do so, it must further limit reliance on offsets and ensure that the ERUs are allocated for true emission reductions and not as a result of shuffling or other activities that mask an industry's continued emissions.²³⁴

Ecology's proposed rule emulates aspects of the California cap-and-trade approach, without the additional regulations needed to reduce emissions and without sufficient safeguards, such as tight controls on offsets, to reduce leakage. It therefore fails to adequately cap emissions while risking instability greater than that that has occurred in California. In promulgating this rule, Ecology not only ensures that Washington's attempt to combat climate change is minimal and unlawful, but that this state will not lead in the effort to reduce emissions as envisioned by the Legislature and Governor Inslee. In addition, the destabilization and failure of the ERU program will result in and reinforce anxiety in other states about the risks of diverse approaches to emissions reduction. By creating a rule that directly acts to reduce emissions at the source and, for any cap-and-trade component of that rule, taking into considerations the lessons offered by California and other jurisdictions, Ecology has the opportunity to remedy this before this Proposed Rule becomes cemented as active regulation.

VII. ECOLOGY HAS THE LEGAL TOOLS IT NEEDS TO REDUCE WASHINGTON'S SHARE OF EMISSIONS ON A PATH TARGETED TO 350 PPM BY THE END OF THE CENTURY

In addition to Ecology's Constitutional obligation to protect public trust resources, Ecology has ample legal authority to require more stringent emission reductions targeted to achieving 350 ppm by the end of the century. Ecology has been entrusted with protecting Washingtonians' health and safety²³⁵ through the management

²³² See, Danny Cullenward and Andy Coghlan. *Structural Oversupply and Credibility in California's Carbon Market*. 29, *The Electricity Journal* 7, 14 (2016).

²³³ Commentators believe the current legal challenge, based on Proposition 13's requirement that new taxes be supported by a two-third vote of the legislature, will not be successful. While the original statutory authority to initiate the cap-and-trade program possibly ends 2020, the legislature recently released a series of amendment's that would continue the program through 2030. See Dan Walters, *Could California's 'cap-and-trade' auction meltdown happen again?* *The Sacramento Bee*. (June 13, 2016). <http://www.sacbee.com/news/politics-government/politics-columns-blogs/dan-walters/article83098292.html> Last accessed July 19, 2016.

²³⁴ See, e.g., Wara Comment Letter on Proposed Clean Air Rule ¶¶ 5, 6.

²³⁵ Wash. Rev. Code § 43.21A.010 (1970); Wash. Rev. Code § 70.94.011 (1991); Wash. Rev. Code § 34.05.328 notes (1995).

of air and water resources.²³⁶ Moreover, it must do its part to stabilize global climate levels.²³⁷ In order to achieve these goals, and comply with its other statutory obligations described above, Ecology has rulemaking authority to adopt rules and regulations that protect Washingtonians’ “fundamental and inalienable right . . . to live in a healthful and pleasant environment.”²³⁸ In addition, Ecology has a specific mandate to promulgate rules “establishing air quality objectives and air quality standards.”²³⁹ The department must fulfill its duties by managing and developing air and water resources,²⁴⁰ providing sound science to facilitate development of state electric power resources,²⁴¹ limiting GHG emissions by complying with state law and regularly providing scientifically-informed recommendations to the Legislature,²⁴² and mitigate harmful pollution and ocean acidification impacts to Washington’s waters.²⁴³ Additionally, Ecology has been entrusted with the protection of air quality for current and future generations and securing air quality levels to protect Washingtonians’ health and safety.²⁴⁴ The department must adopt rules and emission standards²⁴⁵ “as expeditiously as possible”²⁴⁶ to ensure air quality contaminant levels do not reach levels that endanger human health and the environment.²⁴⁷ Ecology must leverage their current authority to implement policies to ensure Washington is on track to achieve an annual 8% GHG emissions reduction.

(a) 100% Renewable Energy System By 2050

A 100% renewable U.S. energy system can be achieved within the next thirty-five years without acquiring carbon credits from other countries. In other words, actual physical emissions of CO₂ from fossil fuels can be eliminated with technologies that are now available or reasonably foreseeable. This can be done at a reasonable cost by eliminating fossil fuel subsidies and creating annual and long-term CO₂ reduction targets. Net U.S. oil imports can be eliminated in about 25 years, possibly less. The result will also include large ancillary health benefits from the significant reduction of most regional and local air pollution, such as high ozone and particulate levels in cities, which is mainly due to fossil fuel combustion.²⁴⁸ Experts have:

²³⁶ RCW § 43.21A.020.

²³⁷ RCW § 70.235.020 (1)(a)(iii).

²³⁸ RCW § 43.21A.010.

²³⁹ RCW 70.94.011(2)(a).

²⁴⁰ RCW § 43.21A.020.

²⁴¹ RCW § 43.21A.600 (2009).

²⁴² RCW § 70.235.020; RCW § 70.235.040.

²⁴³ Wash. Rev. Code § 43.27A.90(8) (1988); Wash. Rev. Code § 90.48.30 (1987); Wash. Rev. Code § 90.48.80 (1987).

²⁴⁴ RCW § 70.94.011.

²⁴⁵ Wash. Rev. Code § 70.94.331(2)(a)-(c) (1991).

²⁴⁶ RCW § 70.94.011.

²⁴⁷ *Id.*

²⁴⁸ See Mark Z. Jacobson et al., *100% Clean and Renewable Wind, Water, and Sunlight (WWS) All-Sector Energy Roadmaps for the 50 United States*, 8 Energy & Env’tl. Sci. 2093 (2015) (for plans on how the United States and over 100 other countries can transition to a 100% renewable energy economy see www.thesolutionsproject.org); Arjun Makhijani, Carbon-Free, Nuclear-Free: A Roadmap for U.S. Energy Policy (2007); see generally Mark Z. Jacobson declaration, attached hereto as Exhibit P.

found transitioning by 2050 to be economically feasible for every state. Importantly, states on schedule to transition to 100% renewable energy by 2050 will also reduce their emissions on the “350 by 2100”-trajectory, the pace needed to return atmospheric CO₂ levels to 350 parts/million by the year 2100, in line with the prescription stated by Dr. James Hansen and other expert climatologists.²⁴⁹

Experts state that approaches to transition to a renewable energy system and to phase out fossil fuels by about 2050 include: A cap on fossil fuel use that declines to zero by 2050 or a gradually rising carbon tax with revenues used to promote a zero-CO₂ emissions energy system and to mitigate adverse income-distribution effects; increasingly stringent efficiency standards; elimination of direct and indirect subsidies and other incentives for fossil fuel extraction, transportation, and combustion; investment in a vigorous and diverse research, development and demonstration program; banning new coal-fired power plants and phasing out existing coal-fired power plants; adoption of a policy that would aim to have essentially carbon-free state and local governments, including almost all of their buildings and vehicles by 2030; and adoption of a gradually increasing renewable portfolio standard for electricity until it reaches 100% by about 2050.²⁵⁰ Products and services already exist for building or remodeling buildings to have zero GHG emissions; for generating sufficient electricity with zero carbon dioxide emissions; for zero-emission transportation and industrial processes; and agricultural and forest processes that can also decrease GHG emissions and increase CO₂ sequestration. Governments around the world, including Washington, must fully consider and implement these measures in achieving their own annual emissions reduction measures to transition off of fossil fuels.

Furthermore, experts have already prepared plans for U.S. states, including Washington, as well as for over 100 countries that demonstrate the technological and economic feasibility of transitioning off of fossil fuels toward 100% of energy, for all energy sectors, from clean and renewable energy sources: wind, water, and sunlight by 2050. It is time to put these plans into action.

(b) Transitioning to 100% Clean and Renewable Energy by 2050 in Washington Is Possible & Necessary

Ecology can lead and facilitate Washington’s transition to 100% clean and renewable energy by 2050. Expert-prepared plans are already available to ensure Washington can meet emission reductions required by the best climate science. All that is missing is a comprehensive regulatory program by Ecology to facilitate and compel the transition. Reforming the energy system (in all sectors, including transportation) is technically and economically feasible, and in fact will be beneficial to Washingtonians and the state economy. Mark Jacobson, of Stanford University, is an expert who has

²⁴⁹ Jacobson Decl. at ¶ 5.

²⁵⁰ *See id.*

prepared a detailed plan for Washington and has offered a declaration in support of these comments on behalf of youth and future generations.²⁵¹ The plan outlines the means by which solar, hydro and geothermal energy can take over the service now provided by fossil and bio-fuels across Washington State. See Figure 1. Additionally, the plan outlines policy measures needed to ensure Washington can transition to 100% renewable energy by 2050.

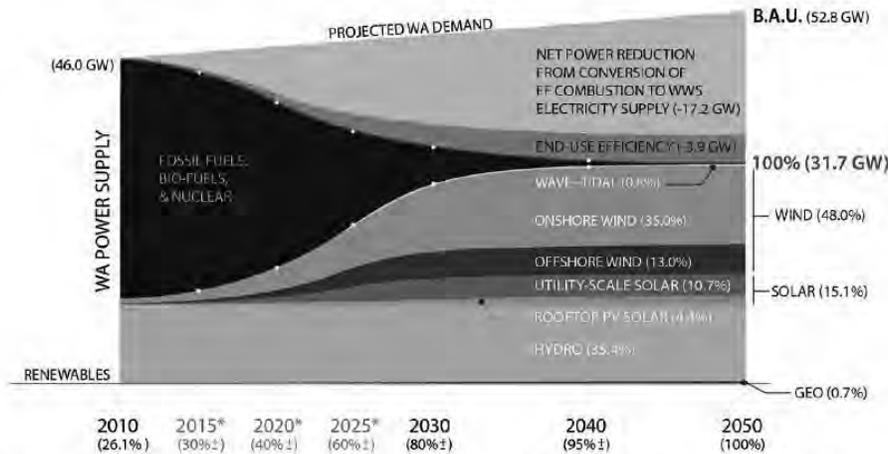


Fig. 4. Change in Washington State end-use all-purpose (electricity, transportation, heating/cooling, and industry) supply and demand over time with business as usual (BAU) versus WWS. Total power demand decreases upon conversion to WWS due to the efficiency of electricity over combustion and end-use energy efficiency measures. The 100% demarcation in 2050 indicates that 100% of all-purpose power is provided by WWS technologies by 2050, and the power demand by that time has decreased. The numbers in parentheses are values in 2050. The percent conversions assumed in the figure are 30% by 2015, 40% by 2020, 80% by 2030, 95% by 2040, and 100% by 2050. Karl Burkart (personal communication).

(i) Other Policy Options for Ecology

A wide array of emissions reduction policy options are available for Ecology to implement using its existing legal authority. We recognize the challenges the state has faced in light of our legislature’s recalcitrance to address climate change. But fortunately previous legislators, who took their job seriously as trustees of the state’s natural resources, gave us the tools we need to resolve this crisis. By implementing a combination of policies, instead of solely relying on the flawed Clean Air Rule, Ecology can more effectively and efficiently reduce Washington’s emissions. Furthermore, it is in both Ecology’s and the public interest for Ecology to collaborate with as many Executive agencies as possible and serve as a leader on the issue of climate change. An interdepartmental approach to climate change will result in the most robust and lasting change.

Much work has been done in regards to the policy measures that should be implemented to allow the state to reduce its GHG emissions.²⁵² What is missing from Ecology, however, is the implementation and enforcement of the recommended policies.

²⁵¹ Mark Z. Robinson Declaration, attached as Exhibit P.

²⁵² See, e.g., Ecology, Path to a Low-Carbon Economy: An Interim Plan to Address Washington’s Greenhouse Gas Emissions, Ecology Publication No. 10-01-011 (December 2010); Leidos, Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State – Final Report (October 14, 2013).

Ecology has the legal tools it needs to both require science-based emission reductions and to achieve them by setting emissions standards and implementing a wide array of complementary policies that when implemented will put Washington on a path to do its part to address global climate change and ocean acidification. Given the breadth of Ecology's authority under the Clean Air Act, it can regulate all sources of pollution in the state by establishing air emission standards and limitations for those sources, including the electricity sector, building sector, transportation sector, industrial sector, agricultural sector, consumption sector, etc. Ecology will need to work in tandem with and collaboratively with other agencies and authorities as well in order to shift the systemic reliance on a fossil fuel-based energy system in all sectors, towards a renewable-based energy system. But to be clear, only Ecology is specifically charged with regulating emissions and setting standards and limits for those emissions. It cannot evade that statutory mandate simply because other agencies have overlapping authority that also affect emission levels. Ecology must lead, as mandated by the legislature. Climate change cannot be somebody else's problem.

As examples, Ecology has the authority to implement all of the following policies and should thoroughly consider, evaluate and disclose the emission reduction potential of each of these policy mechanisms in its analysis of the proposed Clean Air Rule. Ultimately, it is up to Ecology to determine the appropriate policy make-up to achieve science-based emission reductions on track with the 350 ppm prescription. However, Ecology has not demonstrated that its current policy proposal, the Clean Air Rule, will be able to achieve emission reductions and thus these alternatives need to be considered. Thus, the following panoply should be considered:

1. Clean Energy Fund

Ecology should develop a Clean Energy Fund to offset costs of transitioning to renewable and clean energy and to administer a comprehensive regulatory scheme to reduce state emissions according to the best science and Ecology's legal mandate. Clean Energy Funds are typically comprised of fees from consumer electricity bills or from electric utilities.²⁵³ Here however, the Fund could include fees charged to industries that emit GHGs, such as the petroleum refinery, production, or fuel distribution sector. These funds can be used in research and development of clean energy technologies and training, infrastructure upgrades, as well as sponsoring energy efficiency programs. For example, Clean Energy Fund fees may be collected by charging electricity consumers or by collecting or charging contributions from electric utility companies or other companies responsible for GHG emissions.²⁵⁴

Any regulatory fee should be directly linked to the social costs associated with emissions, achieving appropriate science-based levels of emissions reductions, and

²⁵³ See Public Benefit Funds, Center for Climate and Energy Solutions, <http://www.c2es.org/us-states-regions/policy-maps/public-benefit-funds> (last visited July 5, 2016); U.S. Dept. of Energy, <http://energy.gov/savings/public-benefits-funds-renewables-and-efficiency> (last visited July 21, 2016); Open Energy Information, http://en.openei.org/wiki/Public_Benefits_Fund (last visited July 21, 2016).

²⁵⁴ *Id.*

funding the regulatory program. Based on a report from Oregon, a fee on carbon of \$150 a ton would only get Oregon about halfway to its (scientifically-inadequate) goal of reducing GHG emissions to 75% below 1990 levels.²⁵⁵ Even a regulatory fee on carbon of \$150 per metric ton is well below the estimated cost to remove one metric ton of carbon from the atmosphere, which is around \$600 per ton.²⁵⁶ Therefore, a regulatory fee on carbon is not likely to be sufficient on its own to meet Washington's required GHG emission reductions, but coupled with other efforts, is an important policy option for Ecology to consider.²⁵⁷

The Washington Clean Air Act, administered by Ecology, directs state and local agencies to “lessen the negative environmental impact of . . . project[s] on all environmental media, including air, water, and land” when choosing air pollution control strategies.²⁵⁸ Furthermore, the Act directs that “the costs of protecting the air resource and operating state and local air pollution control programs shall be shared as equitably as possible among all sources whose emissions cause air pollution.”²⁵⁹ In accordance with the Act’s policy to “safeguard the public interest,” the Washington Clean Air Act, administered by Ecology, “provide[s] for the use of all known, available, and reasonable methods to reduce, prevent, and control air pollution.”²⁶⁰ The Department is “authorized to adopt such rules and regulations as are necessary and appropriate to carry out the provisions of this Chapter,” RCWA 43.21A.80, and as to the development of electric power resources, the Director “may represent the state and aid and assist the public utilities therein to the end that its resources shall be properly developed in the public interest insofar as they affect electric power”²⁶¹ Ecology has full authority to impose regulatory fees in administering a comprehensive program to reduce GHG emissions without infringing on the taxation power of the legislature.²⁶² Accordingly, Ecology should do the following:

- Impose regulatory fees on electric utilities and other industries directly emitting or responsible for emissions from the sale of their products

²⁵⁵ Oregon Legislative Revenue Office, *Economic and Emissions Impacts of a Clean Air Tax of Fee in Oregon (SB306)* 5 (Dec. 2014), available at <http://www.pdx.edu/nerc/sites/www.pdx.edu/nerc/files/carbontax2014.pdf>.

²⁵⁶ Earth Challenge, *The Implications of Demonstrating the Economic Removal of Carbon Dioxide* (Nov. 4, 2015), <http://www.pdx.edu/nerc/sites/www.pdx.edu/nerc/files/carbontax2014.pdf>.

²⁵⁷ The passage of a carbon tax (e.g. Initiative 732) can also be used to facilitate the transition to clean energy and reduce the amount needed to be charged by a regulatory fee. Because that requires the passage of new law, we have not included a carbon tax on the list of policy options Ecology can and should implement.

²⁵⁸ RCW § 70.94.011.

²⁵⁹ *Id.*

²⁶⁰ RCWA 70.94.011.

²⁶¹ RCWA 43.21A.605.

²⁶² In Washington, a regulatory fee is distinguished from a tax if the following conditions are met 1) the primary purpose of the fee “is to pay for a regulatory scheme, a particular benefit conferred, or mitigation of the burden created;” 2) “the money allocated [is] only to an authorized purpose;” and 3) “there is a direct relationship between the fee charged and the service received by those who pay the fee or between the fee charged and the burden produced by the fee.” *Storedahl Properties, LLC v. Clark County*, 178 P.3d 377, 382-5 (Wash.App. Div. 2, 2008). The Clean Energy Fund and its fees would clearly meet the test and qualify as a regulatory fee.

- greater than 10,000 mtC, where the funds go into a Clean Energy Fund and are used for energy efficiency and clean energy projects.
- Provide permits to emit that include costs for GHG emissions, which feed into the Clean Energy Fund.
- Develop funding projects that allow utilities, property owners, businesses, and individuals access to Clean Energy Fund funds to assist their emission reduction efforts, with special consideration to low-income and disadvantaged communities.

2. New Building Emission Reductions and Green Building

Residential, commercial, and industrial greenhouse gas emissions represent 22% of Washington’s GHG emissions.²⁶³ As discussed earlier, Ecology must establish emissions standards for new or retrofitted buildings to ensure an expansion of energy efficiency measures. Additionally, technology already exists to implement Zero Energy Building (ZEB) standards. A ZEB is defined as “an energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy.”²⁶⁴ Thus, Ecology should consider the following in its proposed rule:

- Establish building emissions standards for new construction or retrofits to ensure expansion of energy efficiency measures that result in 100% carbon neutral buildings.
- Require all non-permitted businesses, including landlords, to do a carbon footprint audit that results in energy efficiency recommendations and make the Clean Energy Fund available for qualified projects.
- Provide support to the State Building Code Council, as needed, to ensure building codes are consistent with new emission standards and the legislature’s goal that by at least the year 2031, new homes and buildings will have zero fossil-fuel emissions.²⁶⁵ The legislature has found that energy efficiency is the “cheapest, quickest, and cleanest way to meet rising energy needs, confront climate change, and boost our economy.”²⁶⁶

3. Electricity Sector Emission Reductions

The electricity sector represents 20% of Washington’s GHG emissions. Direct electricity production emissions can be addressed through the transition from fossil fuels to renewable energy. Washington’s electricity sector must eliminate coal, petroleum, and natural gas and transition to a 100% wind, water, and solar energy plan. In order to do

²⁶³ See Department of Ecology, Climate Change, Frequently asked questions about the Washington Clean Air Rule (July 21, 2016), at <http://www.ecy.wa.gov/climatechange/CarbonRuleFAQ.html>.

²⁶⁴ See United States Department of Energy, *A Common Definition for Zero Energy Buildings* (September 2015) at 4, available at http://energy.gov/sites/prod/files/2015/09/f26/bto_common_definition_zero_energy_buildings_093015.pdf.

²⁶⁵ RCW § 19.27A.020.

²⁶⁶ RCW § 19.27A.130.

this, utilities must enhance the current infrastructure to more efficiently generate, store, and distribute renewable energy electricity. These efforts can be facilitated by a Clean Energy Fund, which can provide funds for projects to increase generation capacity and storage and to ensure the most efficient electricity transmission. Ecology has the authority to establish a fund, to set emissions standards, and to provide guidance to utilities in transitioning to a 100% renewable energy system.

Renewable Portfolio Standard

Washington currently has a Renewable Portfolio Standard that “requires large utilities to obtain fifteen percent of their electricity from new renewable resources.”²⁶⁷ The current statutory renewable energy targets are nine percent by 2016 and fifteen percent by 2020.²⁶⁸ Ecology does not need to wait for the Legislature to enact new statutory targets. Rather, the department must utilize its existing authority to expand the standard to require utilities incorporate 80% renewable energy by 2030 and 100% renewables by 2050, which are technically and economically feasible.²⁶⁹ Accordingly, Ecology must do the following:

- Expand Washington’s Renewable Portfolio Standard to require large utilities to obtain 80% of their electricity from new renewable resources by 2030 and 100% by 2050.

Renewable Energy Funding Projects

In order to efficiently transition to a 100% renewable energy sector, systems must be in place to create a robust energy infrastructure. The Clean Energy Fund provides a way for Ecology to offset the costs associated with transitioning to renewable energy. Ecology should develop multiple avenues for utilities, property owners, businesses, and individuals (especially from low-income areas and with special consideration of communities of color who are facing environmental injustice issues) to access funds to support renewable energy projects. Energy project funds may support energy efficiency improvements, sequestration activities, transitioning to 100% renewable energy sources, the elimination of diesel and gas backup generators, and other projects that reduce GHG emissions. Ecology should consider establishing the following funding projects:

- Develop a Property Assessed Clean Energy Program (PACE) that uses Clean Energy Fund funds to provide energy efficiency improvements loans for residential, commercial, and industrial facilities that are transferable to subsequent property owners.

²⁶⁷ RCW § 19.285.010.

²⁶⁸ Wash. Rev. Code § 19.285.040(2)(a)(ii)-(iii) (2014).

²⁶⁹ See Jacobson Decl.; Mark Z. Jacobson et al., *A 100% Wind, Water, Sunlight (WWS) All-sector Energy Plan for Washington State*, Renewable Energy 86 (2016) 75, 86.

- PACE programs are administered by local governments and provide loans to property owners for energy improvements.²⁷⁰ The financing mechanism allows owners to repay the loan with a 20-year term property tax-like assessment.²⁷¹ If the property owner sells their property before the end of the loan term, the loan can be paid off or transferred to the new property owner.²⁷²
 - Develop a fund specific to land use that allows landowners to apply for grants and incentives for sequestration activities and avoiding conversion.
 - Sequestration activities may include but are not limited to programs to encourage reforestation, improve forest management, reduce deforestation, conservation, and manage agricultural soils.²⁷³
 - Develop an environmental justice fund to assist non-homeowners in low-income and disadvantaged communities to make their homes more efficient and lower their energy costs.
 - Develop a fund for utilities transitioning to 100% renewable energy sources.
 - Increase the capacity factor of existing hydropower.²⁷⁴²⁷⁵
 - Encourage the use of heat pumps and constant energy use.²⁷⁶
 - Infrastructure upgrades.
 - Develop plan to implement home and community energy storage and eliminate diesel and gas backup generators by 2030.²⁷⁷
 - Develop incentive and rebate programs, including but not limited to energy efficiency measures in buildings, including appliances and processes; weatherization; landlord efficiency investment;²⁷⁸ efficient city street and building lighting; commercial and personal electric vehicles;

²⁷⁰ See State of Washington, Climate Legislative and Executive Workgroup, *Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State - Final Report* (October 14, 2013) (“Evaluation”) at 35, available at http://www.governor.wa.gov/sites/default/files/documents/Task_4_Final_Report_10-13-2013.pdf.

²⁷¹ *Id.*

²⁷² *Id.*

²⁷³ Managed agricultural soils have the potential store and reduce GHG emissions. Ecology should develop a grant program that encourages landowners to adopt recommended farming practices that result in GHG sequestration. Several of the recommended agricultural processes, including land application of biosolids and compost, have high accompanying costs. A grant program can help offset these costs to encourage better land practices while reducing overall GHG emissions. See Department of Ecology, *Soil Organic Carbon Storage (Sequestration) Principles and Management: Potential Role for Recycled Materials in Agricultural Soils of Washington State*, at vi (January 2015) available at vi, 68-9 <https://fortress.wa.gov/ecy/publications/publications/1507005.pdf>.

²⁷⁴ Washington produces more hydropower than any other state. Currently, there is an oversupply of energy from other sources, causing hydropower to operate at less than its maximum capacity. Washington does not need to install any new hydropower plants. Instead, it must increase the capacity to utilize all current energy waste. *Id.* at 79-80

²⁷⁵ *Id.*

²⁷⁶ *Id.*

²⁷⁷ See Jacobsen et al. at 86.

²⁷⁸ *Id.*

alternative and public transportation; and the development of hydrogen fuel vehicle fleets.

Work with the Washington Utilities and Transportation Commission (UTC)

Ecology has the authority to aid and assist the public utilities to ensure that its resources are developed in the public interest.²⁷⁹ The health, environmental, and economic benefits of clean energy are in the public's interest. Ecology should work with UTC to adjust electricity rate schedules, remote long-term renewable energy contracts, eliminate coal and natural gas from electricity sector, reduce overall power production, upgrade electricity transmission lines, streamline renewable energy permitting, and develop other actions that will lead to a 100% renewable energy system by 2050. As such, Ecology should aid and assist the UTC with the following:

- Adjust the rate schedule to encourage energy use when wind, water, and solar power generation is abundant or during traditionally low-use times.²⁸⁰
- Require long-term, feed-in-tariff (FIT) contracts with providers of renewable energy at levelized rates for generation with optimal project siting requirements.
 - FITs are long-term fixed price renewable energy contracts between utilities and energy producers. They provide certainty to energy producers, and thus encourage the use of renewable energy. Currently, Washington utilizes a combination of net metering and a tax incentive mechanism. These policies can be replaced with a FIT.²⁸¹
- Eliminate coal and natural gas from the electricity sector, including both in-state generation and electricity purchased from out-of-state.
- Require new permits from fossil fuel burning power plants that collectively result in a net power reduction of 17.2 GW by 2050.²⁸²
- Collaborate with the Western Interconnection states to develop plan to transition power lines to high-voltage direct current (HVDC) lines.
 - The current electricity transmission system utilizes high-voltage alternating current (HVAC) lines.²⁸³ HVDC lines are more efficient and less expensive.²⁸⁴ A network of HVDC lines reduces dependence on costly storage technologies to manage the intermittency of renewable energies.²⁸⁵

²⁷⁹ RCW § 43.21A.605

²⁸⁰ *Id* at 87.

²⁸¹ *See* Evaluation at 36-7.

²⁸² Jacobson Decl, Exhibit P at 87.

²⁸³ *See* A. Kalair et al., *Comparative Study of HVAC and HVDC Transmission Systems*, Renewable and Sustainable Energy Reviews 59 (2016) 1653-1675.

²⁸⁴ *See* Alexander E. MacDonald et al., *Future Cost-competitive Electricity Systems and their Impact on US CO₂ Emissions*, Nature Clim. 6 (2016) 526-531, 527.

²⁸⁵ *Id* at 526.

- Develop plan to streamline renewable energy permitting that will prioritize and fast track wind, water, and solar power generation and transmission lines permit applications;²⁸⁶ incorporate environmental review process in permit process; and establish a fund from Clean Energy Fund funds for easy small scale solar and wind permitting.

4. Transportation

Transportation emissions represent 44% of overall GHG emissions in Washington.²⁸⁷ Ecology must establish new transportation emissions standards to ensure the reduction of transportation emissions. Ecology can create a schedule to phase out fossil fuel vehicles and transition to 100% zero emissions by 2050. In the interim, Ecology should implement a program that encourages the use of low-carbon clean fuels. Additionally, Ecology should develop a plan to transition all public transportation fleets to 100% zero emissions by 2050. In an effort to slash transportation emissions, Ecology should consider the following:

- Implement a zero emissions vehicles (ZEV) goal that requires 50% of all vehicles sold by 2025 to be electric (zero-tailpipe emissions) with the elimination of fossil fuel-vehicle sales by 2050.²⁸⁸
- Implement a low carbon fuel standard, which includes a low-carbon full lifecycle analysis (LCFS)²⁸⁹ to encourage the use of low-carbon clean fuels until fossil fuel vehicles are completely phased out.
 - A LCFS regulates fuel producers and importers selling gasoline and diesel fuel. It generates credits for lower carbon intensive transportation fuels, including ethanol, natural and bio-based gases, biodiesel, and electricity.²⁹⁰
- Enhance public transportation fleets and infrastructure:
 - Develop a plan to transition to 50% land and water electric vehicle fleets by 2025 and 100% by 2050
 - Provide assistance to local planning departments to develop a more robust and efficient public transportation infrastructure that encourages the use of public and alternative transportation.

(ii) Policies Ecology Should Recommend to the Legislature to Reduce the Burden on Ecology

²⁸⁶ *Id* at 85.

²⁸⁷ See Department of Ecology, *Washington Greenhouse Gas Emission Reduction Limits: Report prepared under RCW 70.235.040*, at 8 available at <https://fortress.wa.gov/ecy/publications/documents/1401006.pdf>.

²⁸⁸ See Evaluation at 31-2.

²⁸⁹ See Department of Ecology, *Path to a Low-carbon Economy: An Interim Plan to Address Washington's Greenhouse Gas Emissions* (December 2010) at 15, available at <https://fortress.wa.gov/ecy/publications/publications/1001011.pdf>.

²⁹⁰ In 2010, Ecology analyzed the effectiveness of a LCFS and found that it “would reduce covered transportation GHG emissions by up to 12 percent above the policies the state currently has in place” and “provide a clear, long-term market for biofuels, electricity, and other alternative fuels in the state and promote investment in the infrastructure to deliver the low-carbon fuels of the future to Washington consumers.”*Id.*

Ecology has a mandate to act now to reduce state GHG emissions. Ecology must do all it can to ensure the reduction of atmospheric CO₂ levels and ensure the protection of current and future generations. All of the policies listed in the previous section can be accomplished without additional Legislative approval. However, it may benefit the agency to make legislative recommendations, which, if enacted, could facilitate state efforts in mitigating the harmful effects of climate change. Regardless, the agency must act urgently and not wait for the Legislature to respond to recommendations. In an effort to collaboratively address climate change, Ecology should recommend the Legislature do the following:

1. Tax Credits

- Implement a carbon tax, and use funds for clean energy transition incentives and rebates programs, environmental justice programs, forest and soil protection programs and adaptation plans.²⁹¹
 - Carbon taxes can help policymakers, individuals, and firms prepare for GHG emissions costs by providing price certainty to the market.²⁹²
- Create tax credits for emission reduction initiatives, including but not limited to green building initiatives, solar production projects, and industrial on-site wind, water, solar electricity generation.
- Provide state funding to support on-site industrial wind, water, and solar electricity generation.

2. Greenhouse Gas Emission Limits and Renewable Energy Standard Targets based upon best available science.

- Increase renewable energy targets for all sectors under RCW 19.285.040 to 80% by 2030 and 100% by 2050.²⁹³

3. Green Building Standards

- Mandate that all new construction meet green building standards.
 - Washington Revised Code 39.35D currently mandates that projects receiving state funding must meet green building standards. The statute extends to all of Ecology's building projects. Ecology should recommend that this statute be expanded to all new construction.²⁹⁴
- Provide tax exemptions for landlords' energy efficiency projects in rental properties.

²⁹¹ See Evaluation at 29-30.

²⁹² *Id.*

²⁹³ See Mark Z. Jacobson et al., *A 100% Wind, Water, Sunlight (WWS) All-sector Energy Plan for Washington State*, *Renewable Energy* 86 (2016) 75, 86.

²⁹⁴ Wash. Rev. Code § 39.35D.030 (2011).

4. Electricity Sector

- Require energy grid storage of 1.3 GWh by 2020.²⁹⁵
- Impose fines for excess wind, water, and solar energy bleeding.

5. Incentives and Rebates

- Pass enabling legislation to remove barriers to local Property Assessed Clean Energy (PACE)²⁹⁶ programs administration that support energy conservation and renewable energy.²⁹⁷
- Establish a fund for electric utilities, property owners, industries, and individuals to incorporate renewable energy technologies into electric sector. Projects may include but are not limited to heat pump utilization, solar panels, and electric vehicles.

There are many other policy options that Ecology can and should implement in order to reduce GHG emissions in a manner that protects the rights of young people and future generations.

VIII. CONCLUSION

We recognize that Ecology is currently under court order to finalize the Clean Air Rule by the end of the year. That order is in place in light of the urgency of the climate crisis and Ecology's historic inability to take regulatory action to reduce the state's GHG emissions. In light of the significant flaws in the existing draft of the Clean Air Rule that have been described above, we encourage you to work with us, as petitioners in the *Foster* case, on developing a rule that is based upon science, not politics.

We hereby incorporate by reference all hyperlinked and cited documents throughout these comments into the administrative record for this project. They are all publicly available. If you require PDF or hard copies of any of the hyperlinked or cited documents, please let us know and we will supply them; otherwise we will assume that Ecology can access them via the internet and will include them in the administrative record.

Respectfully Submitted,

s/ Andrea K. Rodgers

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Attorney

s/ Julia Olson

Julia Olson
Executive Director & Chief Legal Counsel

²⁹⁵ See Jacobson et al. at 86.

²⁹⁶ See State of Washington, Climate Legislative and Executive Workgroup, *Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State - Final Report* (October 14, 2013) ("Evaluation") at 35, available at http://www.governor.wa.gov/sites/default/files/documents/Task_4_Final_Report_10-13-2013.pdf.

²⁹⁷ *Id.*

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EXHIBITS:

- A. List of people and organizations that these comments are also submitted on behalf of
- B. Petition for Rulemaking (June 17, 2014)
- C. Ecology's Denial of Petition for Rulemaking (August 14, 2014)
- D. *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order Affirming the Department of Ecology's Denial of Petition for Rulemaking) (Nov. 19, 2015)
- E. *Foster, et al. v. Ecology*, No. 14-2-25295-1 SEA (King County Superior Court) (Order on Petitioners' Motion for Relief Under CR 60(b)) (May 16, 2016)
- F. Washington Executive Order 14-04 (April 29, 2014)
- G. Ecology December 2014 Report
- H. Center for Biological Diversity, Petition to EPA for Additional Water Quality Criteria & Guidance Under Section 304 of the Clean Water Act, 33 U.S.C. § 1314, to Address Ocean Acidification (April 17, 2013)
- I. Center for Biological Diversity Petition to EPA for Revised State Water Quality Standards for Marine pH Under the Clean Water Act, 33 U.S.C. § 1313(c)(4) (October 18, 2012)
- J. *Svitak, et al. v. State*, King County Superior Court No. 69710-2-I (Amended Complaint) (filed May 18, 2011)
- K. *Foster, et al. v. Ecology*, King County Superior Court No. 14-2-25295-1 (Department of Ecology's Response to June 23, 2015 Court Order) (filed August 7, 2015)
- L. Dec. of Dr. Richard H. Gammon, *Foster v. Wash. Dep't of Ecology*, No. 14-2-25295-1 SEA 1 (Wash. Super. Ct. Aug. 24, 2015)
- M. Dec. of Dr. Ove Hoegh-Guldberg, *Foster v. Wash. Dep't of Ecology*, No. 14-2-25295-1 SEA, 1 (Wash. Super. Ct. Aug. 24, 2015)
- N. Declaration of Thomas Crowther, Ph.D.
- O. Declaration of Dr. James Hansen
- P. Declaration of Mark Jacobson
- Q. Washington Emissions Data Compared to Science-Based Emissions Reductions

Comments of the Western Power Trading Forum
to the Washington Department of Ecology on its Proposed
Clean Air Rule
July 22, 2016

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The Western Power Trading Forum (WPTF) offers these comments to the Washington Department of Ecology on its proposed Clean Air Rule (CAR). WPTF is an organization of power marketers, generators, investment banks, public utilities and energy service providers, whose common interest is the development of competitive electricity markets in the Western United States. WPTF has over 80 members participating in power markets within the western states, as well as other markets across the United States and Canada.

As participants in electricity markets throughout the United States, and as regulated entities under California's Greenhouse Gas (GHG) cap and trade program and the Regional Greenhouse Gas Initiative, WPTF members wish to ensure that state-implemented carbon regulations do not distort wholesale electricity markets or impair electrical system operations or grid reliability, and produce measurable emissions reductions at the lowest overall cost. We believe these objectives are best achieved through the development of harmonized and linked emission trading programs for the electric sector across as large a footprint as possible.

WPTF is concerned that the CAR under consideration in Washington would not be compatible with existing GHG trading programs or future programs that may arise under the Clean Power Plan (CPP). As a result, the CAR will be inefficient and prone to emissions leakage across the regional power market. Additionally, the program design is unlikely to facilitate the development of a viable carbon market for Washington alone. For these reasons, we recommend the Department of Ecology modify the CAR to establish a true allowance trading program. We provide additional detail on these comments below.

The CAR emission trading model is not compatible with the California program or options under the CPP

The emissions trading approach taken by the CAR is characterized as a baseline and reduce program: covered entities are assigned individual emission targets and may create tradable emission reduction units (ERUs) by reducing emissions below the level of their individual targets. This approach is in contrast to a true a cap and trade, or allowance, program where entities are subject to an aggregate program cap and may trade allowances to ensure compliance with the cap. Because the CAR does not establish an overall program cap denominated in allowances, the CAR cannot be bilaterally linked to other cap and trade programs, including existing programs in California and RGGI.

The CAR's baseline and reduce trading model is also not compatible with the trading options provided for in the CPP. Although the CAR anticipates that the regulation of emissions from electric generators will transition to the CPP once the CPP is in effect¹, how this transition will occur and what form the state's implementation of the CPP will take is not clear.

If the CPP survives legal challenge, then all states will be required to reduce emissions from electric generation. WPTF expects that many states will give serious consideration to allowance trading programs to comply with the CPP, providing for the possibility of a regional trading system to reduce GHG emissions from the electricity sector. Ecology would need to adopt a completely different model for the electricity sector to take advantage of opportunities for trading under the CPP.

¹ Proposed WAC 173-442-040(4)

The CAR will be ineffective in reducing state electricity sector emissions due to emissions leakage

The proposed CAR would impose carbon compliance costs on gas generators in Washington, but not on electricity imports. This disparate treatment of emissions will incentivize the displacement of in-state gas generation by imported electricity. Even if carbon costs are low (\$4-\$6/metric ton), imposition of these costs may well be sufficient to make the import of electricity from higher emitting resources more cost-effective than in-state gas generation. Thus, although the CAR may give the appearance of reducing emissions from electric generation in Washington, realistically it is more likely to simply shift emissions outside the state.

The CAR is unlikely to facilitate the development of a viable carbon market

Although the CAR allows for emissions trading, the small scale of the program, its inability to be bilaterally linked to other carbon markets, and other program design features will impair the formation of a robust and liquid carbon market. This means that the efficiency and cost reductions that normally result from emissions trading are not likely to be realized in Washington.

- The small number of entities covered by the program, prohibition of participation by third parties, and the inability to link with other state programs, means the number of market participants will be extremely low – 24 for the program’s first compliance period.
- Because the program requires covered entities to purchase emission reductions units (ERUs) only for the portion of emissions above their entity caps, rather than all emissions, the overall demand for ERUs will be low, and carbon will not be fully priced into emissions.
- Critical market infrastructure, such as the ERU registry, verification systems and procedures for Ecology approval of ERUs, will not be in place as of the program start date. Ecology has not provided guidance on any timeline or process to develop this infrastructure.
- The CAR anticipates that allowances from external programs, most likely the California cap and trade program, will be the source for a high proportion of ERUs during the first few compliance periods. Availability of California allowances for Washington entity compliance is uncertain, due to the likely objection of California entities to such use, and the fact that the California Air Resources Board would need to modify its program and formally approve such use before it could occur.

In closing, WPTF supports an allowance trading approach that would be a far more effective and efficient means of reducing emissions than the proposed approach in the CAR. For the electricity sector, eventual linkage of Washington’s program with similar programs in the west will be critical for ensuring a uniform carbon price signal to generators within the regional power market. This will ensure a level playing field for similarly situated resources, avoid electricity market distortions and mitigate emissions leakage across states. WPTF urges the Department of Ecology to make changes to its program as outlined here, in order to create a more effective regulation that will be cohesive with existing GHG trading programs and future programs under the CPP.



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July 22nd, 2016

Print This Page, Then...

After this page is printed examine closely the paper you print on. Can you tell if the paper you printed on came from a manufacturer who is a high level CO2 emitter, over the proposed maximum yearly CO2 emissions level?

Or was the paper produced from a manufacturing site that emits CO2 at a level lower than the proposed maximum?

In order for the "market place", Cap & Trade, to be successful in reducing planet earth's CO2 emissions from manufacturing sites we must have a "CO2 Footprint" labeling system included in proposed regulations.

Without such a labeling system the end results of a Cap & Trade market driven system will include the closure of Washington State manufacturing sites along with the loss of future investments and the loss of new "green field" manufacturing expansion in Washington State. While at the same time, worldwide we will have an increase in CO2 levels because of this shift of manufacturing to other States and/or to other Nations that will not have equivalent CO2 requirements.

Respectfully submitted,

Gregory A. Pallesen

Vice President

AWPPW

gpallesen@awppw.org



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Mr. Sam Wilson
Department of Ecology
P.O. Box 47600, Olympia, WA 98504-7600

E-mail: AQComments@ecy.wa.gov

RE: Chapter 173-442 WAC, Clean Air Rule

July 22, 2016

Dear Mr. Wilson,

Thank you for the opportunity to provide comments on the Department of Ecology's proposed Clean Air Rule (CAR) - Chapter 173-442 WAC, designed to cap and reduce greenhouse gases (GHG) in Washington.

WestRock is a leading global packaging company that aspires to be a premier partner and unrivaled provider of paper and packaging solutions in global consumer and corrugated markets. WestRock has operations in 39 states.

In Washington, WestRock's Tacoma containerboard mill will be subject to the proposed rule. The Tacoma Pulp and Paper Mill has been a part of the industrial backbone of Tacoma since it was built by the Union Bag Company in 1928. The mill currently employs 422 people with a total compensation of approximately \$48 million annually. In addition to over \$7 million in annual state and local taxes paid by the mill, WestRock spends over \$175,000,000 in the state across 781 in state suppliers.

WestRock's Tacoma mill is a member of the Northwest Pulp and Paper Association (NWPPA), the Association of Washington Business (AWB), the Industrial Consumers of Northwest Utilities (ICNU) and the Northwest Industrial Gas Users (NWIGU). WestRock supports the comments submitted by all of these organizations.

WestRock's comments focus on two issues: 1) the need for the proposed rule to recognize early action projects taken to reduce greenhouse gases, and 2) the need for appropriate crediting of GHG savings associated with the use of combined heat and power technology (CHP). WestRock supports the proposed Clean Air Rule's recognition of CHP projects as eligible to generate Emission Reduction Units (ERUs). Given that there is no detail provided in the proposed rule related to CHP ERU projects, we are providing some general comments regarding the GHG benefits of CHP, the considerations for crediting these benefits, eligibility criteria for projects, and the unintended consequences of not allowing existing CHP installations to generate ERUs.

Tacoma Mill's CHP System

One of the major capital projects that has helped to keep the mill profitable was the installation of a CHP facility comprised of a condensing steam turbine generator along with upgrades to the two biofuel boilers (Recovery Boiler #4 and Power Boiler #7). The project was completed in 2009 and cost close to \$100 million. Additional steam was needed to produce the 40 to 50 MW of power to be continuously generated every hour. The additional steam all comes from these two boilers through increased utilization of biomass, meaning that the power generated and sold into the energy grid is carbon neutral. In the forest products industry, at an individual mill, this type of major infrastructure upgrade typically only occurs once

every 30 to 40 years. As a result of this investment, the mill has gone from purchasing 100% of its electrical power requirements in 2008 to, in 2015, producing an amount of renewable electricity equivalent to over 90% of its electricity needs.

CHP technology is extremely efficient because it uses the same fuel to produce thermal energy used in the manufacturing process and electricity, which can be used on-site or sold to the grid. The use of biomass based CHP provides energy efficiencies in the range of 50 to 70 percent at forest products mills, far beyond the 33 percent energy efficiency found in non-CHP standalone steam and electrical stations such as utilities or merchant electrical generating facilities. Unlike the CHP commonly used by other manufacturers, most of the CHP facilities installed in the forest products sector use biomass residuals from the harvesting and manufacturing processes – e.g., bark, spent pulping liquor, sawdust, shavings, thinnings and paper residuals that cannot be recycled and used for products – as the primary fuel for these CHP facilities.

Because the additional steam requirements are met via biogenic sources and the reduction in GHG is in Scope 2 emissions, the GHG savings from the CHP facility is not reflected in the GHG numbers the mill reports to Department of Ecology or factored into its compliance obligation under the proposed rule. Instead, CO₂e emissions have been reduced in the regional electric grid due to the addition of the power supply from the Tacoma mill. The approximate 350,000 MWh of power per year generated at the mill displaces the non-baseload power supply, which according to Western Electricity Coordinating Council, produces 720 kg of CO₂e per MWh of power produced. Therefore, the Tacoma mill investment has led to approximately 252,000 metric tons of CO₂e reductions in 2015 and similar reductions per year since being installed in 2009.

Creating a Fair Program

CHP is appropriately included as a recognized activity generating emission reduction units in the proposed rule (WAC 173-442-160), but the language of the rule is unclear as to whether this is intended for all CHP units or only new installations. This lack of clarity puts existing installations at risk of not being allowed to take credit for their emission reductions. This raises an important policy question of whether rewarding only latecomers creates a fair market for Washington businesses who were early adopters of GHG reducing technologies. For example, if there were two identical facilities operating in calendar year 2000 that each generated 130,000 metric tons of fossil fuel CO₂e emissions and one installed a biomass-fired 50 MW CHP in 2009 while the other one installed the same plant in 2020, if only “new” installations were allowed to generate ERUs, the latecomer would potentially obtain approximately 252,000 metric tons¹ of carbon credit while the early mover would obtain no credit. Both facilities would need emissions to drop by 1.7% per year starting in 2020 and would each be below 70,000 mt/yr by 2048. If an ERU was sold for a conservative \$12/mt from 2020 through 2048, the early mover would have to pay \$11 million² over this 28 year period whereas the latecomer would have profited by \$77million³ over the same 28 year period by selling excess ERUs. Each mill would have identical carbon footprints from 2020 through 2048, but the one who made the investment later, and in reality was responsible for an additional GHG emission of 3,024,000 metric tons⁴ between 2009 and 2020, would be hugely rewarded for their delay. **Not providing the same treatment for existing CHP facilities as is provided to new CHP facilities creates a huge economic disadvantage to the facilities that, in fact, should be rewarded for their early actions.** It also sends a clear message to GHG emitting facilities that it is in their significant competitive advantage to wait and not proactively reduce emissions prior to the implementation of regulation.

California’s Cap and Trade program recognizes the importance of rewarding early movers and includes a provision for “Early Action Offset projects” for projects that reduced emissions from 2005 to 2014⁵. They

¹ 50MW * 24 hours/day * 365 days/yr * 0.8 availability * 720 kg/MWh * 0.001 mt/kg = 252,000 mt CO₂e/yr

² $\sum_{i=0}^{28} \left(130,000 \text{ mt} * \frac{1.7}{100} i * \frac{1}{\text{mt}} \right) = \11 MM

³ $\sum_{i=0}^{28} \left(\left(252,000 - 130,000 \text{ mt} * \frac{1.7}{100} i \right) * \frac{1}{\text{mt}} \right) = \77 MM

⁴ 252,000 mt/yr * 12 years = 3,024,000 mt

⁵ <http://www.arb.ca.gov/cc/capandtrade/offsets/earlyaction/projects.htm>

state that “recognizing existing projects supports the requirements of AB 32 to ensure that voluntary reductions receive appropriate credit and helps create an initial supply of offset credits for the Cap-and-Trade Program”⁶. We support the intent of California’s Early Action Offset project program but would like to make very clear that we are not interested in generating or receiving credit for ERUs associated with the GHG savings attributable to the mill’s CHP from 2009 to 2020 or for any period where our electricity is sold on a bundled basis with all environmental attributes to others. Rather, we would like to be able to generate ERUs post January 1, 2020 for bundled electricity (or the associated CHP savings attribute if unbundled) that is not committed for use in another program. **DOE should clarify that that existing CHP projects should be allowed to generate ERUs under the CAR.**

CHP helps mitigate costs to energy consumers due to projected shortage of ERUs.

An AWB analysis of the proposed CAR rule by Energy Strategies projects a significant shortage of available ERUs, highlighting the rule’s requirement that the majority of ERUs must be generated within the State of Washington. While livestock and transportation related projects are included in the proposed rule as potential sources for ERUs, it is important to note that scale is important. For example, calculations show that a 50 MW CHP facility powered by biofuel based steam provides the same carbon reduction benefit as collecting the manure from 129,000 dairy cows⁷ and converting the methane produced into electricity to displace an equivalent amount of electricity produced from natural gas⁸. That is equivalent to approximately 48%⁹ of all the dairy cows in Washington. Similarly, it would take 76,000 commuters effectively giving up their daily commute to offset the same amount of CO₂e reduction¹⁰. Furthermore, offset projects can take years to establish and verify. ERUs generated from existing CHP facilities through a properly designed offset program would create a more robust supply which would, in turn, moderate ERU prices. According to the US Department of Energy, there is approximately 1,061 MW of installed CHP capacity in the State of Washington (note this is capacity and not actual generation). Pulp and paper comprises 22% of this capacity and wood products an additional 12% for a total of 34%. Other sectors with installed CHP capacity in the state include, but are not limited to, agriculture, universities, district heating, and wastewater treatment. Capturing even a portion of this capacity for the generation of ERU credits would provide much needed relief to those covered sources such as fuel suppliers (and their customers) that cannot reduce emissions and are projected to be in desperate need of affordable ERUs for compliance.

The Forest Products Industry Is Part of the Solution.

The U.S. forest products industry makes recyclable products from renewable and recycled materials and is a leader in the use of CHP. Nationally, the industry produced 41,412 million kWh of electricity in 2010, and in Washington it comprises 34% of installed CHP capacity. In addition, the existence of a forest products industry contributes to improved forest health through its use of sustainable forestry practices. This is an important factor in reducing carbon stocks lost due to catastrophic wildfires, land conversions to non-forestry uses, and otherwise ensuring the long-term health and abundance of the nation’s forestlands.

Wildfires in particular are a growing source of GHG emissions in the Western U. S. releasing carbon stored in trees and vegetation. According to a recent study led by The Park Service and University of California, Berkeley¹¹, in California, “the carbon stock in aboveground biomass was 850 million metric tons in 2010, with forests and vegetation of state wild lands accounting for approximately 69 million tons of carbon emitted between 2001 and 2010. Wildfires on 6% of the state analysis area produced two-thirds of the live carbon stock loss”. Annual carbon losses due to wildfires on forests and wild lands in California represent as much as 5 to 7 percent of state carbon emissions from all sectors between 2001 and 2010, according to the study. Similarly, according to a recent article in the Lens, in Washington State, “one

⁶ <http://www.arb.ca.gov/cc/capandtrade/offsets/earlyaction/credits.htm>

⁷ <http://www.ers.usda.gov/data-products/dairy-data.aspx>

⁸ http://www.uwex.edu/uwmril/pdf/RuralEnergyIssues/renewable/Biogas_Economics_Mehta.pdf

⁹ USDA avg. between 2011-2015 is 268,000 dairy cows

¹⁰ https://www.fueleconomy.gov/feg/contentIncludes/co2_inc.htm Assuming 20 lbs CO₂e/gal of gasoline, 30 mile per day commute, 20 MPG fuel efficiency and 240 work days per year.

¹¹ Aboveground live carbon stock changes of California wildland ecosystems, 2001–2010, Patrick Gonzalez, John J. Battles, Brandon M. Collins, Timothy Robards, David S. Saahd, <http://www.sciencedirect.com/science/article/pii/S0378112715001796>.

million acres burned last year; releasing between 12 million and 46 million metric tons of carbon. This represents 13 to 50 percent of the 2011 total for the state¹².

California's Forest Climate Action team was established to address forest health issues that have contributed to these losses in carbon stocks. In their March 9, 2016 California Forest Carbon Plan Concept Paper: Managing our Forest Landscapes in a Changing Climate¹³, the positive role of "working forests" or those that are harvested frequently and supply the forest products industry is highlighted, as is the need to create strategies to maintain and expand working forests in the state.

Meanwhile, according to Northwest Pulp and Paper Association data, since 2002, 15 forest products mills have closed in California and current pulp and paper production is 44% of what it was in 2002. Since 1995, seven pulp and paper mills in Washington and seven in Oregon have closed. Clearly, the forest products industry is under tremendous competitive pressure. The Department of Ecology should be looking holistically at the carbon balance and the integral role the forest products industry plays in its maintenance. Allowing existing CHP projects to generate ERUs is part of that equation.

CHP and the baseline

In the case of Washington State, as we have indicated, the GHG reduction from CHP is not captured in the emissions the mill reports to Department of Ecology under Washington's GHG reporting rule (Scope 2 emissions). In addition, since Washington State is a net exporter of power and the vast majority of this power comes from hydroelectric facilities, as more carbon-neutral power comes online, fossil fuel power generation decreases in the regions where Washington State sells its power, not within the state. For this reason, the Washington GHG emissions inventory would be unchanged as a result of the Tacoma mill CHP coming online in 2009.

Furthermore, the Tacoma mill's renewable power is currently sold to a California utility. California's RPS program tracks the renewable origin and GHG intensity of the electrons flowing into the state, but it does not track whether the electrons were produced using highly efficient CHP technology, leaving the avoided emissions benefit from CHP unaccounted for.

Conclusion

WestRock believes effective climate change policy is more complex than simply reducing GHG emissions from a baseline. Policies must balance the benefit of reductions against cost, avoid unintended consequences, and be fair and equitable. Any policy that penalizes those who have taken early, voluntary measures to reduce GHG emissions prior to being required to do so by law or rule, is counterproductive at best and, as we have illustrated, creates gross inequities among those in the regulated community. Creating good GHG policy for Washington State means supporting early actions, highly efficient power generation like combined heat and power, renewable energy, forest health, recycling, local economies and high paying jobs. WestRock and the forest products industry have the ability to make significant contributions in all of these areas, if given the opportunity.

Once again, we appreciate the opportunity to share our views on the proposed rule. Thank you for your consideration.

Sincerely,

¹² <http://thelens.news/2016/07/11/reissued-carbon-cap-rule-under-fire/>

¹³ http://calfire.ca.gov/fcat/downloads/Forest_Carbon_Plan-ConceptPaper_Draft_PublicOutreach.pdf

A handwritten signature in black ink, appearing to read "Stephen Devlin". The signature is stylized with a large, looped 'S' and a long, sweeping tail.

Stephen Devlin
General Manager
WestRock Tacoma Mill



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July 22, 2016

Sam Wilson
Washington Department of Ecology
Air Quality Program
AQComments@ecy.wa.gov

Subject: Weyerhaeuser Comments on Draft Clean Air Rule (WAC 173-442)

Dear Mr. Wilson:

Enclosed are the Weyerhaeuser NR Company comments on this important proposed regulation.

Weyerhaeuser has been actively engaged with the Department of Ecology and Governor Inslee's policy team in the development of this proposed regulation. The Company is a member of both the Association of Washington Business and the Northwest Pulp and Paper Association. We endorse the very comprehensive comments being submitted by these organizations, and will intentionally not make any effort to duplicate all the topic areas in those comment packages.

These comments will focus on two subjects. First, the difficulty in confidently understanding what this draft regulation demands of EITE covered parties, and second, the well-intentioned but wholly inadequate regulatory relief provided for Energy Intensive/Trade Exposed industries.

Background

Weyerhaeuser operates a chemical pulp and paper manufacturing facility in Longview which produces coated paperboard for liquid packaging; i.e., milk and juice cartons. (NAICS 322130 Paperboard Mill). This mill also manufactures market pulp for second-party sale (NAICS 322110 Pulp Mills). The North Pacific Paper Company is located on the same Weyerhaeuser millsite. NORPAC is a 50/50 joint venture between Weyerhaeuser and Nippon Paper Industries. NORPAC is a very large newsprint (NAISC 322122) and writing papers (NAISC 322121) mill which utilizes thermomechanical pulp, recycled old newsprint, and market bleached pulp to manufacture many paper types/grades.

In support of these manufacturing facilities, the company operates a co-generation system to provide process steam for a variety of uses and customers. There exist five combustion units

which burn three types of fossil fuels and three types of biomass. High pressure steam is directed to turbine generators to produce electricity which is then sold by contract through Cowlitz PUD. Lower pressure steam is both used within the Weyerhaeuser chemical pulp mill, and sold to the on-site Weyerhaeuser sawmill, NORPAC, and second-party companies/customers including: Axiall (chlor-alkali manufacturing), HASA (sodium hypochlorite manufacturing), Solvay (hydrogen peroxide manufacturing), and Specialty Minerals (precipitated calcium carbonate manufacturing).

Understanding the EITE provisions in the CAR regulation

WAC 173-442-070 GHG emission reduction pathways and emission reduction requirement for EITE covered parties

- What constitutes a “sector”? (-070(1)) Is a “sector” an individual “covered party” or is the sector the collection of covered parties/facilities which identify the same primary NAICS code?
- If the sector consists of those covered parties claiming the same primary NAISC code, is the consideration of a sector limited to the covered party/facility presence in the state of Washington, or does it extend to the United States, or perhaps even include international facilities?
- How would an “EITE covered party” be expected to “report annual sector-specific production data”? (-070(1)) “Covered parties” would not have access to production data across a sector (however that term is defined). Does Ecology really expect that each covered facility in a sector would need to independently research and assemble “sector-specific production data”?
- The “output-based baseline” phrase would seem to be synonymous with the concept of GHG emission intensity. Is that correct? If so, and given the introduction of the “efficiency intensity” concept later in subsection -070(3), why not select one term to advance the concept and avoid some confusion?
- Per -070(2), Ecology intends for the “output-based baseline” factor to be constant. Subsection -070(2)(d) identifies two narrow exceptions to this “once set/never change” condition. But at least one other exception needs to be added to handle the inevitable exceptional/unique changes that will occur to “covered parties.” As an example, Weyerhaeuser has announced intentions to divest both pulp and paper mills on the Longview millsite. The emission intensity factors derived based on 2012-2016 performance information for the current integrated Longview facilities will be irrelevant for the multiple facility ownership configuration post-2016. There needs to be an administrative mechanism to make adjustments.

- Creating the “efficiency intensity distribution for each sector with an EITE covered party” will be a formidable challenge for Ecology (and not just because there are 23 EITE NAISC codes). The slotting of a “covered party” along this distribution has significant implications for the eventual magnitude and timing of CO₂e emission reductions. As such, the agency should expect a close examination of the information used to derive this distribution.
- Would primary NAISC code facilities that do not qualify as “covered parties” in 2017, i.e., less than 100,000 MT CO₂e/year, be included in the efficiency intensity distribution as the compliance thresholds are decreased in future compliance periods? If so, this has the potential to skew the distribution to the advantage/disadvantage of covered parties.
- The reality of “apple and oranges” (mis)comparison in creating the efficiency intensity distribution is very real. Within the pulp and paper NAISC code facilities, Ecology will soon recognize unique attributes which limit direct “covered party” comparisons (multiple products/NAISC codes, combustion units and fueling choices, co-generation internal use vs sales, integration with co-located facilities, etc.) As an example, Weyerhaeuser in Longview “over-produces” steam to support six co-located, independent process steam users. Co-generation electricity is sold to the local utility, thus unburdening that utility from having to generate or purchase electricity from another source (and likely from a natural gas-fired electricity generation unit). How can our Longview mill be compared on a GHG efficiency intensity distribution to a similar NAISC covered facility which produces process steam and perhaps self-generated electricity for internal use only?
- The assignment of the “efficiency reduction rate” in -070(3)(b) seems counter-intuitive. If an EITE covered party sits at less than the 25th percentile on the efficiency intensity distribution; i.e., low CO₂/production, that seems good. So why would Ecology set the “EITE covered party’s efficiency reduction rate at a level that would reduce emissions at a rate greater than required to meet the GHG emission reduction pathway...”? And vice versa for the 75th percentile distribution covered party having to reduce emissions at a lesser rate.
- How will Ecology determine the “RR” factor in the WAC 173-442-070(4) algorithm? The language in the regulation only mentions choosing “efficiency reduction rates” being set at “less than” or “greater than” to meet the GHG emission reduction pathway. That qualitative direction amounts to an arbitrary and capricious decision process and is simply not acceptable. Is Ecology looking to have the sector, in total, achieve a 1.7% reduction per “compliance period”; i.e., for example, one covered party is assigned 2.3% and another covered party receives 1.1%? Would the covered party position on the efficiency intensity distribution be reviewed with each compliance period, or is it static through 2035?

- Alternatively, in selecting the RR factor does Ecology have in mind a total GHG mass reduction that each sector (or all pulp and paper mills) needs to achieve? The agency certainly recognizes that a percent GHG reduction demand (the efficiency reduction rate) ultimately translates to CO₂e mass reduction requirements for a covered party. Will Ecology be working the numbers such that a sector achieves a pre-determined mass CO₂e reduction target? For example, does the agency consider that pulp and paper covered parties must reduce CO₂e by a certain mass by 2035 in order for the base objectives of WAC 173-442 to be achieved? If so, what are those numbers?
- Does the agency acknowledge that a facility placed above the median point on the “efficiency intensity distribution” may face a more aggressive GHG reduction demand vs. the -060 *GHG emission reduction pathway* (even considering the later starting compliance period)?

WAC 173-442-100 Emission reduction units

- Are “emission reduction units” and “allowances” effectively the same, a tonne of CO₂e? If so, why not use a single term?
- Ecology has proposed a CO₂e emission offset scheme that is very limiting, especially in the out years (post-2025). The policy choices behind the structure of the emission offset requirements will unnecessarily increase the cost of ERUs/allowances and thus further harm Washington’s economy. Here’s how:
 - o Climate change is reportedly a world-wide problem and ostensibly correlated to increasing CO₂e emissions. A tonne of GHG emission decrease, documented and verified, anywhere in the world has equal effect. The -100(2) requirement that ERUs must preferentially originate from emission reductions occurring in Washington will especially harm state interests. Washington is a low-carbon state, with a preponderance of electricity generation from hydro, nuclear, biomass CHP, and recent vintage and efficient natural gas-fired EGU’s. Proposed -100(2) will soon force covered parties to evaluate what will be very costly capital projects on combustion or process unit emissions.
 - o The -170 ratcheting limitations on access to outside-Washington “allowances” will unnecessarily create hardship and extra cost to Washington interests. Why would Ecology intentionally limit covered party access to (possibly) lower cost GHG emission reductions that are documented and verified?
 - o Limiting the use of banked ERUs to a ten year period is yet one more punitive restriction.
- The fundamental problem with the proposed offset scheme rests with the agency desire to compel GHG reductions within the state to (perhaps and ultimately) demonstrate

achievement of the RCW 70.235.020 goals.¹ But there is a practical limit on available ERUs in a growing state population and economy. To force this approach drives increasingly higher costs onto covered parties to reduce the next incremental tonne of GHG. Ecology should examine this inevitable outcome and make/explain policy choices to support broadening the basket of eligible ERUs/allowances.

- Ecology's APA cost/benefit analysis is especially weak in detailing where covered parties will find or create the many millions of tonnes of CO₂e reduction in Washington state to comply with this regulation, and what the escalating cost of those reductions will be. There are clearly "less burdensome" alternatives. The RCW 34.05.328 Significant Legislative Rule demands a more practical examination of the alternatives for accomplishing CO₂E reductions.

Inadequacies of EITE Relief

The agency can be commended for acknowledging and attempting to provide some relief for "Energy Intensive/Trade Exposed" covered parties. While the first section of comments above present questions on how the EITE provisions will work, it does seem that even with a generous reading of the EITE rule sections the relief actually available will be inconsequential. In fact, the "relief" may be limited to the three-year delay in the initial compliance period.

Our analysis is that this proposed regulation will ultimately demand CO₂e emission reductions of 25% +/- by 2035. There are no easy and inexpensive routes to achieve such significant reductions in a pulp and paper mill. Some "covered parties" may seek to purchase "allowances" to meet compliance obligations, but those opportunities dwindle in future years and the pricing of ERUs/allowances will certainly increase due to supply/demand realities. As the required GHG emission reductions increase, there will be a near certain need to modify existing combustion units to accept lower-C fuels or to install new process steam generating capacity. These will be very consequential capital investment decisions and will have fundamental effects on a mill operating cost structure. A shift to biofuels will be desirable, but again, the basket of biofuels is limited and supply/demand realities will push those fuel costs higher.

The pulp and paper industry in Washington generally sells commodity products into highly competitive national/international markets. The proposed Clean Air Rule will drive new costs

¹ "The state shall limit emissions of greenhouse gases to achieve the following emission reductions for Washington state:

- (i) By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels;
- (ii) By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;
- (iii) By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year."

on these mills that are not mitigated by the EITE provisions in this rule. Other jurisdictions (national and international) do not impose these incremental costs on the industry. A higher manufacturing cost structure makes Washington facilities less competitive and thus less attractive for the corporate investments needed to sustain the industry in the mid-term. Over time, investments to meet growing world demand for pulp and paper products will shift to the low cost regions/jurisdictions. An unintended but plausible outcome of the CAR will be a higher real-world GHG intensity for these commodity products as production capacity drifts away from Washington.

Ecology should re-think its approach for the pulp and paper EITE. Please consider that:

1. The pulp and paper industry is truly unique. The best information is that 70-80% of mill energy needs are sourced from renewable biomass.
2. The industry contributes less than 2% of the fossil fuel-derived GHG emissions in Washington.
3. Washington pulp and paper mills reduced GHG emissions by over 300,000 MT CO₂e in the 2004-2012 period.² These emission reductions were not mandated, but rather resulted from energy conservation, capital projects, and fuel-switching choices to gain operating efficiencies and lower production costs. These reductions are not credited to covered parties in establishing the “baseline CO₂e emission value,” yet will certainly be counted by the state of Washington as an accomplishment toward meeting the RCW 70.235.020 GHG emission reduction goals. Ecology should be willing to acknowledge these documented early reductions and provide an administrative mechanism in the CAR to credit the individual facilities.
4. Many Washington pulp and paper mills have steam/electricity cogeneration capability. Any electricity sold external to the mill effectively reduces the obligation for a utility to acquire off-setting baseload power. GHG emissions will have been “saved” from the environment if the next-up EGU resource was fossil-fueled.

Weyerhaeuser sees three “path forward” options for the pulp and paper EITE language in proposed WAC 173-442:

1. The uncertainty on intent and language in the EITE section is significant. Each of these issues need to be resolved and the proposed rule language shared for public review and comment. Proposed WAC 173-442-070 (especially) is not ready for adoption.
2. In the reconsideration of pulp and paper EITE, Ecology could simply acknowledge the industry has done its share and no additional GHG emission reductions will be required through WAC 173-442. Industry GHG performance, recent accomplishments, and the precarious cost/competitiveness status of the industry would support this policy choice.
3. In the reconsideration of pulp and paper EITE, another alternative (but less favored) would have CAR establishing for pulp and paper a 70% biomass-derived mill steam energy threshold beginning in 2020, with step increases to 80% by 2035. This approach

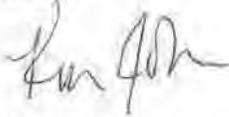
² About 12% of the direct CO₂e emission from the Washington industry.

is simple to understand/compute, offers some EITE protection, and requires conscientious attention to GHG reduction obligations out to 2035. Ecology could “reserve” the pulp and paper EITE section in WAC 173-442 and work with the industry over the next year to refine rule language.

Other Comments

1. In WAC 173-442-220 the requirement for third-party verification is excessive and lacks justification. This measure will impose significant cost for minimal environmental gain. As with every other submittal of a form or report under the federal Clean Air Act or Chapter 70.94 RCW, Ecology should be satisfied with the certification by a Responsible Official of a covered party as to the truth, accuracy, and completeness, after reasonable inquiry, of any submittal required by the CAR. The covered parties are sophisticated entities, with long histories of performance under the federal/state Clean Air Acts, and are certainly cognizant of the substantial civil/criminal sanctions should false information be submitted above a certification. Weyerhaeuser suggests the burden is on Ecology to present evidence of past problems, perhaps frequent and egregious misbehavior or mis-understanding by these sophisticated covered parties, that would then support a need for third-party verification. It is doubtful there is any such pattern, and as such Ecology lacks justification to adopt these -220 requirements.
2. The enforcement authority Ecology proposes to grant itself in WAC 173-442-340 is quite extraordinary. Each ton emitted in excess of a compliance obligation is a separate violation, and subject to the maximum Chapter 70.94 RCW civil penalty???? This is unreasonable. It is out-of-bounds with other Clean Air Act program enforcement provisions. Please change it.

Sincerely,



Ken Johnson
Regulatory Affairs Manager



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July 22, 2016

Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
SUBMITTED THROUGH ECOLOGY'S ONLINE COMMENT TOOL

RE: Comments Regarding Proposed Chapter 173-442 WAC – Clean Air Rule

Dear Mr. Wilson:

Williams Northwest Pipeline, an interstate natural gas transmission pipeline, respectfully offers these comments regarding Washington's proposed Clean Air Rule in Chapter 173-442 WAC.

Williams operates Northwest Pipeline, an approximate 3,900-mile transmission pipeline system extending from the San Juan Basin in northwestern New Mexico and southwestern Colorado through the states of Colorado, Utah, Wyoming, Idaho, Oregon, and Washington to a point on the Canadian border near Sumas, Washington. One of the natural gas compressor stations on Northwest Pipeline, Sumas Compressor Station, is expected to be subject to the Clean Air Rule in 2017. An additional 8 compressor stations on the pipeline have the potential to be included in future years based on currently permitted combustion capacity at the facilities.

COMMENTS:

1. Applicability section WAC 173-442-030 is unclear. Recommend clarifying section to indicate emission reduction requirements begin the first year a covered party's baseline GHG emissions or annual covered GHG emissions exceed the compliance thresholds listed in Table 1, whichever is first.
2. A facility's designed output level should be considered in the baseline calculations. Average emissions from 2012–2016 may not be representative of a facility's emissions in 2017+. Ecology should not assume a facility operated at its designed output level during the past 5 years and should seek company input regarding actual operations during baseline years. Ecology should allow for greater flexibility in determining the baseline years used. While GHG emissions were not reported to Ecology prior to 2012, operational data that could be used in GHG baseline calculations may available prior to 2012. Another possible solution would be to allow for shorter averaging periods within 2012-2016 that better represent a facility's designed output level.



NORTHWEST PIPELINE
ENVIRONMENTAL SERVICES
295 Chipeta Way
Salt Lake City, UT 84108-1220

3. Baseline calculation methods for Category 1 facilities do not account for modified operations that may have occurred within 2012-2016. In fact WAC 173-442-050 (3)(b)(i)(C) excludes modifications as reasons to omit calendar years in the baseline calculations. Ecology should provide additional baseline calculation method(s) for modified operations that may have occurred during the baseline averaging period for Category 1 facilities such as those allowed by Category 2 facilities under WAC 173-442-050 (4)(b). Also recommend clearly defining “modified operations” in the rule.
4. Oil and natural gas systems have a unique opportunity to reduce GHG emissions by decreasing the amount of methane that may be emitted to the atmosphere from process leaks and venting. Conversion of High-Bleed Pneumatic Controllers referenced in WAC 173-442-160 (8)(c) is one such example. While protocols may not exist for all reduction opportunities in oil and natural gas systems, the GHG reductions that may be achieved from decreasing methane emissions are real, specific, identifiable, and quantifiable. Williams encourages Ecology to use their discretionary approval process for methane reduction activities from oil and natural gas systems in Washington as viable ways to generate ERUs.

Thank you in advance for your consideration of these comments. Please do not hesitate to contact me at (801) 584-6288 or scott.peters@williams.com if there are any questions or comments regarding this submission or if you wish to discuss these issues further. Thank you.

Sincerely,

Scott Peters, P.E.
Environmental Engineer

From: [Dan Wilson](#)
To: [ECY RE AQComments](#)
Subject: Labor Ommitted from Announcement
Date: Thursday, June 02, 2016 3:20:26 PM

Thanks for sending the DOE release update on CR-102. In the announcement I noticed that you referenced business and environmental stakeholders but nothing regarding Labor's involvement. Not sure if that was intentional or a mistake. The USW was a part of the CERT here in Washington, as well as partnering with Kaiser and other businesses here in our state. As in California we have engaged early on over carbon emissions reductions and the preservation of our good paying middle class jobs.

Dan Wilson
President Local 338
United Steelworkers (509) 924-2650

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WASTE MANAGEMENT

Pacific Northwest-British Columbia
720 4th Ave, Ste 400
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July 21, 2016

Submitted via Email to: AQComments@ecy.wa.gov

Mr. Sam Wilson
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Subject: Waste Management of Washington, Inc. Comments to Washington State Department of Ecology's Clean Air Rule proposal

Dear Mr. Wilson:

Waste Management of Washington, Inc. ("WMW") appreciates the opportunity to provide solid waste management and recycling industry input and perspective to the Washington State Department of Ecology's ("Ecology") proposed Clean Air Rule ("CAR"). As WMW is an owner and operator of an active municipal solid waste ("MSW") landfill and a limited purpose landfill in Washington, we appreciate your careful attention and consideration of these comments and concerns.

WMW has taken great steps to reduce our environmental impact and footprint in the communities we serve across Washington State. For example, we have employed over 330 compressed natural gas ("CNG") powered trucks and expect to expand our fleet to 362 CNG trucks in Washington by end of the year. For every diesel truck we replace with natural gas, we reduce our use of diesel fuel by an average of 8,000 gallons per year along with a reduction of 22 metric tons of greenhouse gas ("GHG") emissions per year. Additionally, our vehicles fueled by CNG emit nearly zero air particulates. In the near future, we also plan to fuel our trucks with renewable natural gas powered by landfill gas ("LFG"), which provides at least a 90 percent reduction in carbon emissions than trucks utilizing diesel. Reducing carbon emissions has been an important tenet in meeting our sustainability goals both within the state of Washington and nationally. Although Washington has a laudable goal of capping and reducing GHG emissions, WMW believes MSW landfills are not an appropriate candidate for a cap and trade type program as proposed under the CAR.

Municipal solid waste landfills should be exempt from Washington's Clean Air Rule, as they have been excluded in other cap and trade regulatory programs.

MSW landfills should be fully excluded from a cap and trade type program such as established in the CAR. MSW landfills, and other sources in the waste sector, generally do

not lend themselves to regulation under cap and trade programs based on the difficulty in precisely measuring direct emissions.

Municipal solid waste landfill emissions are already successfully regulated and EPA has just strengthened the regulatory requirements.

Rather than a cap and trade regime, MSW landfills are better suited to be regulated under performance standards, as they are under the federal Clean Air Act (“CAA”) requirements, which regulate the collection and combustion of LFG from MSW landfills (40 CFR Part 60 Subparts WWW and Cf).

LFG collection and control systems and landfill cover are effective and important environmental control techniques that greatly reduce the GHG impact of landfills. The United State Environmental Protection Agency (“EPA”) has acknowledged this in its recent *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2013*. In its Inventory, EPA’s estimates of the annual quantity of waste placed in MSW landfills increased by 26 percent from 1990 to 2013, yet in the same period, methane emissions from landfills decreased by more than 38 percent to an estimated 114.6 million metric tons (“MMT”) of carbon dioxide equivalents (“CO₂e”) (Note: methane is reported as CO₂e in EPA’s Inventory). EPA concludes that these significant reductions are due to MSW landfills operating under the federal CAA requirements, which is a stringent Command and Control regulation as opposed to a market-based program such as cap and trade, as proposed by Ecology. In *Washington State’s Greenhouse Gas Inventory Report for 2012*, GHG emissions from the solid waste management sector have declined to 2.8 MMT CO₂e, which represents only 3 percent of the total GHG emissions for the entire state of Washington.

Furthermore, EPA just issued on July 15, 2016, final revisions to both the federal New Source Performance Standards (“NSPS”) (40 CFR Part 60, Subpart XXX) for new and modified landfills and equivalent revisions to the Emissions Guidelines (“EG”) (40 CFR Part 60, Subpart Cf) for existing landfills. According to EPA, the combined rules will reduce methane emissions by an estimated 334,000 metric tons, the equivalent of reducing 8.2 MMT of CO₂e in 2025. The rules also cut carbon dioxide (“CO₂”) emissions directly, yielding an estimated 303,000 metric tons of additional reductions. In the current NSPS and EG rules, a threshold of 50 Mg/year of non-methane organic compounds (“NMOCs”) emissions triggers an installation of a LFG collection and control system. However, this threshold has been decreased to 34 Mg/year of NMOCs resulting in more MSW landfills being required to install gas collection and control at an earlier point in time after waste placement, and the new thresholds will lengthen the duration of gas collection after a landfill has closed. These regulatory changes will control and shrink MSW landfill emissions to an even greater extent than already achieved. Washington State will have nine months to develop its plan to implement the new EG rule, which will allow the state to achieve additional emission reductions from the solid waste management industry.

To be clear, WMW is not opposed to GHG reduction regulation, but looks toward a regulatory system that appropriately fits MSW landfills. The revised NSPS and EG rules

under the CAA are that suitable regulation to continue to achieve GHG emissions reductions from MSW landfills.

Municipal solid waste landfills provide an environmentally sound and essential public service and experience waste acceptance fluctuations over the life of the landfill.

WMW provides a vital public service by collecting, handling, and disposing of certain types of wastes at its MSW landfills -- managing wastes is a *must* of society, making the waste industry an essential public service. However, it is important to recognize that MSW landfills only accept those materials that are not feasible to reuse, recycle, or recover, following Washington's solid waste hierarchy -- unless otherwise prohibited to dispose by law, such as hazardous waste.

MSW landfills are the management mechanism when no other diversion alternative exists, yet the public expects, and local governments must ensure that waste is disposed of at a secure and safe MSW landfill. There is a clear societal benefit in ensuring that waste is disposed in a regulated, highly engineered MSW landfill facility that protects the environment and public health, and avoids unlawful dumping in Washington communities, where public health and the environment would be adversely affected. MSW landfills are designed, constructed, regulated, and operated to fundamentally ensure protection of public health, safety, and the environment, including minimizing GHG emissions. Because access to and use of MSW landfills are a vital element of local governments' solid waste management plans, MSW landfills are not suitable candidate facilities for a cap and trade regulatory program, no more than other essential public services such as wastewater treatment facilities.

Moreover, a MSW landfill experiences fluctuations in the amount and type of waste it accepts over the lifetime of the landfill. Overall waste generation trends can increase or decrease and are influenced by factors such as population demographics, economics, consumer habits, and even the occurrence of large storms or natural disasters. The flow of waste to individual landfill sites is a function of economics and policy, such as Washington's legislatively driven diversion rates and local government recycling and diversion goals. The pattern of waste flow and acceptance is generally beyond the control of individual MSW landfill operators. Varying waste acceptance rates and the waste composition itself makes measuring emissions from MSW landfills challenging and emission levels can vary over time (discussed further in the next section).

As described above, since the flow of waste to any individual facility is beyond the control of a MSW landfill operator, any shifting to control GHG emissions is not possible and that operator cannot simply ratchet down production of LFG or even stop producing LFG altogether. As a result of these inherent constraints, if included in a cap and trade program, a MSW landfill operator would have no opportunity to further reduce GHG emissions and would have no choice but to continually purchase and use emission reduction credits ("ERUs"), rather than making any more substantial reductions in GHG emissions.

The solid waste management and recycling industry has accomplished steady and significant GHG reductions since the 1990's, far more reductions than any other sector. A cap and trade

regulatory system should be reserved for source categories that are well above their 1990 levels and have not been subject to significant Command and Control regulations, such as the NSPS and EG rules for MSW landfills.

Unlike stack emissions, actual landfill emissions are difficult to accurately measure and are based upon EPA models, which measure potential emissions ONLY and often overestimate emissions.

One of the basic elements of a cap and trade system is the ability to provide accurate measurement of emissions to assure accountability and integrity of allowances. As previously touched upon, a characteristic of MSW landfills is the difficulty in providing precise estimates of GHG emissions. Emissions are difficult to measure or model because MSW landfills are large, complex operations that often cover many acres of land, and their GHG emissions occur gradually for many years following waste disposal. Since 1996, to control those emissions, federal and state regulations require the collection and combustion of LFG. Since 2005, the recovery and combustion of LFG has grown by nearly 70 percent.

Unlike measuring GHG emissions from a facility stack, landfill emissions are more difficult to measure because landfills comprise large areas with fugitive, rather than point sources of emissions. As a result, emissions from landfills are most often modeled using national default assumptions to estimate the amount of LFG produced by degrading waste in place, gas collection system efficiency, and methane control by landfill cover. First Order Decay (“FOD”) models are used to estimate methane emissions and incorporate these default assumptions. However, FOD models are best used to estimate landfill methane emissions across many sites at the global or national level, but not to accurately assess and measure methane emissions at individual MSW landfills. Landfills are complex systems not easily represented by mathematical models and, hence, FOD models are not good predictors of site-specific landfill emissions. This is because most FOD models rely on default input parameters that, while considered adequate in aggregate, are rarely reflective of actual emissions of specific MSW landfills, and are instead arbitrary and unverifiable. EPA acknowledges there is significant uncertainty with its Landfill Gas Emissions Model (“LandGEM”) FOD model ranging from approximately 30% to 400% of measured values. Under a cap and trade program, GHG emissions must be measured with certainty, and FOD models simply do not provide the level of precision and accuracy required.

Additionally, the FOD Model, as embedded in EPA’s GHG Reporting Program, was meant to be used only as an applicability tool and is not utilized as a compliance measure. EPA has never used the results of the annual GHG reporting regime to set an applicability threshold and has used the FOD model for reporting purposes only. Using the FOD model as a method to measure a MSW landfill operator’s compliance under the CAR is an inappropriate application of the EPA FOD model.

Given these critical challenges in accurately measuring GHG emissions from MSW landfills, it is impossible to establish an accurate and meaningful regulatory cap on a source that has historically and significantly reduced GHG emissions and has complied with stringent performance standards (that is, Command and Control regulations like NSPS) to control

GHG emissions even further. Further, modeled landfill emissions are highly uncertain, and EPA's FOD model, like the LandGEM, incorporates conservative assumptions that overestimate emissions. Finally, Ecology should recognize that MSW landfills have a severely limited ability to *further* reduce GHG emissions.

If Ecology chooses to regulate greenhouse gas emissions from municipal solid waste landfills outside the Cap and Trade Program, it should treat biogenic carbon dioxide emissions from combustion of landfill gas as carbon neutral

WMW strongly recommends that Ecology treat combustion of LFG in the same way that RCW 70.235.030(3) treats CO₂ emissions from fuel wood, wood waste, and wood by-products and residuals. CO₂ emissions from combustion of LFG in flares, or combustion in engines, turbines or industrial boilers to produce renewable energy, should be considered carbon neutral. Failure to do so will create fundamental inconsistencies between the proposed CAR and many existing GHG reduction programs at the state, federal and international levels. For example:

- The proposed CAR's treatment of biogenic CO₂ from LFG directly *conflicts* with the State of Washington's Renewable Portfolio Standard (RPS) under Initiative 937, which considers landfill gas to be a renewable energy source.
- Treating biogenic CO₂ from LFG in the same manner as fossil CO₂ emissions is inconsistent with the U.S. EPA's annual GHG Inventory of Emissions and Sinks, and the United Nations protocol for GHG inventorying developed by the Intergovernmental Panel for Climate Change (UN IPCC), upon which EPA bases its inventory methods.
- Although the CAR references the U.S. EPA's GHG Reporting Program methodology for reporting GHG emissions (embodied in WAC 173-441), the CAR does not consistently follow the EPA's methodology for reporting GHG from MSW landfills, which considers combustion of LFG in flares, engines, turbines and boilers to be biogenic CO₂ and carbon neutral.
- EPA's GHG Reporting Program does not require reporting of emissions from LFG combustion in flares. Biogenic CO₂ emissions are not included in the facilities' GHG emissions inventory, but are separately reported.

Ecology's treatment of biogenic CO₂ emissions in the CAR will have very significant consequences for the economic and regulatory burden associated with achieving desired GHG reductions, both from the cap and trade program and from regulating power plants under the EPA's Clean Power Plan. The decision will also have enormous consequences for the State's priorities to promote production and use of renewable fuels and reliable, base-load renewable electricity. In addition to the programs mentioned above, Ecology has ample scientific justification and policy precedent to exclude biogenic CO₂ emissions from landfill gas from GHG regulation.

EPA's Office of Solid Waste conducted extensive lifecycle analyses of solid waste management emissions in its September 2006 *Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks*. EPA determined that because a large percentage of MSW comprises organic materials such as yard trimmings, food wastes, paper and harvested wood products, a significant proportion of the GHG emissions from safely managing MSW in landfills is biogenic. EPA concluded that these emissions are carbon neutral because, at the point of waste generation, GHG emissions due to harvesting wood or plant material and manufacturing consumer products have already been accounted for. The decision about how the discarded consumer product is disposed will not affect land use, carbon stored in soils, or the carbon stocks of virgin resources. (EPA 2006, Pg13)

EPA vigorously supports production of renewable energy from LFG. EPA's Landfill Methane Outreach Program ("LMOP") describes beneficial use of LFG to produce electricity or steam as a direct reducer of GHG emissions. EPA estimates "that an LFG energy project will capture roughly 60 to 90 percent of the methane emitted from the landfill, depending on system design and effectiveness. The captured methane is destroyed (converted to water and the much less potent CO₂) when the gas is burned to produce electricity." EPA further states that "carbon dioxide emissions from MSW landfills are not considered to contribute to global climate change because the carbon was contained in recently living biomass. The same CO₂ would be emitted as a result of the natural decomposition of the organic waste materials outside the landfill environment." (LMOP Website <http://www.epa.gov/lmop/basic-info/index.html#a04>) The EPA's LMOP website also describes LFG to energy projects as indirect reducers of air pollution through offsetting use of non-renewable energy resources. "Producing energy from LFG avoids the need to use non-renewable resources such as coal, oil, or natural gas to produce the same amount of energy. This can avoid gas end-user and power plant emissions of CO₂ and criteria pollutants such as sulfur dioxide (which is a major contributor to acid rain), particulate matter (a respiratory health concern), nitrogen oxides ("NO_x"), and trace hazardous air pollutants." It would be particularly problematic if Ecology regulated biogenic CO₂ emissions from these projects, as this would have a significant chilling effect on placing new LFG reuse projects in service.

EPA's Office of Transportation and Air Quality has also evaluated LFG as feedstock for the production of renewable transportation fuels. LFG is considered a cellulosic biofuel, the best performing renewable transportation fuel, that reduces lifecycle emissions of GHG at least 60 percent below the petroleum fuel it replaces. WMW is using this renewable fuel in approximately half of its 6,000 of its collection vehicles that run on natural gas, and is achieving 90 percent GHG reductions, on a life cycle basis, as compared to diesel fuel. If Ecology regulates biogenic CO₂ emissions from LFG in the same manner as fossil fuel CO₂, it will discourage production of renewable energy and fuels that could offer low-cost compliance options to the regulated entities in the cap and trade program.

Importantly, the proposed CAR directly conflicts with the scientific determinations made by EPA in developing its regulatory framework for biogenic CO₂. EPA has been working on developing an accounting framework for biogenic CO₂ emissions from stationary sources since 2011. The biogenic accounting framework is a critical technical document that will

enable states to develop biogas/biomass/MSW energy projects to support compliance with CO₂ reduction targets under the Clean Power Plan and State RPS programs.

WMW has supported EPA's adoption of an approach to waste-derived feedstocks and biogas that is anchored in science and the recommendations made by the EPA's Science Advisory Board ("SAB"). In September 2011, the EPA's Air Office initiated a review by the SAB of EPA's *Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources* (or "the Framework"). In the draft Framework, EPA proposed to assign different biomass feedstocks with a biogenic accounting factor ("BAF") of zero (0) to one (1), where a BAF of zero would indicate that the feedstock is essentially carbon neutral, and a BAF of one would indicate that the feedstock is essentially equivalent to combusting fossil fuels.

In its September 2012 report on the results of its review, the SAB concluded the following, with respect to feedstocks derived from MSW:

"For waste materials (municipal solid waste, manure, wastewater, construction debris, etc.), the Framework assigns a BAF equal to 0 for biogenic CO₂ released from waste decay at waste management systems, waste combustion in incinerators or combustion of capture waste-derived CH₄. ... The SAB concurs with the Framework that the CO₂ released from the decomposition of biogenic waste in landfills, compost facilities or anaerobic digesters could reasonably be assigned a BAF of 0."

Put simply, EPA proposed in the 2011 version of the Framework that biogenic CO₂ generated by the decomposition of MSW is essentially carbon neutral, and the SAB agreed. **The revised Framework finds that bioenergy projects which recover energy from MSW-derived materials and biogas are not only carbon neutral, but actually result in net CO₂ emission reductions.**

As the Agency described:

The EPA's biogenic CO₂ accounting framework is expected to provide important information regarding the scientific basis for assessing these biomass-derived fuels...this information should assist both states and EPA in assessing the impact of the use of biomass fuels in reaching emission reduction goals in the energy sector under state plans to comply with the requirements of the [Clean Power Plan].¹

In a memorandum to EPA's Air Division Directors, the Acting Assistant Administrator Office of Air and Radiation looked to the Framework in its approach to the treatment of biogenic emissions in both the Clean Power Plan and the Prevention of Significant Deterioration ("PSD") permitting program.² In the context of the Clean Power Plan and PSD

¹ US EPA, 79 FR 34925

² Janet McCabe, U.S. EPA Office of Air and Radiation, *Addressing Biogenic Carbon Dioxide (CO₂) Emissions from Stationary Sources*, Nov 19, 2014. <https://www3.epa.gov/climatechange/downloads/Biogenic-CO2-Emissions-Memo-111914.pdf>

program, EPA recognizes “the biogenic CO₂ emissions and climate policy benefits of waste-derived and certain forest-derived industrial byproduct feedstocks” as they are supported by technical and sound studies, including the Framework. This critical recognition, as it pertains to waste-derived feedstocks, let EPA “to propose exempting biogenic CO₂ emissions from GHG Best Available Control Technology (“BACT”) analyses and anticipates basing that proposal on the rationale that those emissions are likely *to have minimal or no net atmospheric contributions of biogenic CO₂ emissions, or even reduce such impacts*, when compared with an alternate fate of disposal (emphasis added).”

If Ecology fails to revise its proposed CAR, all sources of biogenic CO₂, except those specifically exempted in RCW 70.235.030(3), would be lumped together and treated like fossil fuel CO₂ emissions. For biogenic CO₂ emissions from MSW, such an approach would be scientifically incorrect, would stigmatize an environmentally beneficial energy source, and would make it harder for utilities to comply with the limits proposed under the EPA’s Clean Power Plan, as well as entities ultimately regulated under Ecology’s proposed CAR.

WMW’s comments voice several very significant policy issues that raise concerns about the application of a cap and trade regulatory program to MSW landfills, a stringently regulated sector of GHG emissions, which has already achieved great reductions in those emissions. The future of renewable energy in Washington could be also be impacted if biogenic emissions are not considered carbon neutral, as they are treated both federally and internationally.

WMW would also appreciate the opportunity to meet with Ecology staff to further discuss our concerns with the CAR, and we will reach out to you in the near future to schedule a meeting. If you have any questions or need additional information, please contact me at (425) 814-7841 or via email at kshanle1@wm.com.

Sincerely,



Kim Kaminski
Senior Government Affairs Manager
Waste Management of Washington, Inc.



Working Group on Seafood and Energy

July 21, 2016

Re: Clean Air Rule

Comments from the Working Group on Seafood & Energy

The Working Group on Seafood and Energy is a trade association (application for 501(C)(6) status pending) representing seafood producers, suppliers, tribes, fishing communities, and other people who depend on healthy oceans. The group helps leaders on the working waterfront evaluate and advance policies that reduce carbon pollution in order to maintain thriving fisheries and coastal economies. Currently, members are mainly in Washington state, where consequences of a high-CO₂ world threaten productive fisheries and marine foodwebs that support more than 42,000 jobs and \$1.7 billion in economic activity. Making a living from the sea is becoming more difficult due to climate change, ocean acidification, toxic algae blooms, loss of oxygen in seawater, and loss of viable habitat in rivers, estuaries and marine waters. Therefore, we support well-designed policies to reduce carbon pollution, and we recognize that states such as Washington can play a vital role in defining the toolkit for U.S. action to tackle this problem.

To the best of our knowledge, no Washington seafood companies or treaty tribes emit enough carbon to be regulated as emitters by the Clean Air Rule (CAR). However, all would benefit from a sound policy that delivers verifiable, cost-effective reductions in carbon emissions and (the ultimate purpose) lower CO₂ concentrations in the atmosphere and the sea. Many tribes and participants in the seafood industry are also potential producers of emissions-reduction projects. These comments are offered to help build a sound foundation to support development of functional future markets for verifiable emissions reductions.

We welcome the Department of Ecology's effort to develop a cap on carbon emissions in Washington; the revised version unveiled this spring is an improvement. This measure has potential to be a useful step toward an integrated system to cap and price carbon pollution and reinvest the proceeds to accelerate the transition to a cleaner economy. In particular, we appreciate the development of a cap that creates a framework for private-sector emissions trading; the gradually decreasing threshold for covered entities (from 100,000 tons in 2020 to 70,000 by 2035); the provision allowing emissions-reduction credits generated either in

Washington or out of state; and the inclusion of a reserve to ensure continuing reductions in emissions as business grows. We also applaud the decision to acknowledge early actions by businesses that have already made the effort to become more efficient, by requiring fewer reductions the more efficient a business already is.

The current draft of the CAR

1. **Avoid ruling out offsets derived from biosequestration of carbon either on land or in saltwater systems.** Biosequestration can be a powerful means of removing carbon from the atmosphere, which is the real goal of this measure. Some vegetated marine ecosystems (notably including certain saltmarsh and seagrass systems) can bury carbon at very high annual rates, producing high-quality, permanent offsets. The Verified Carbon Standard protocol for Tidal Wetlands and Seagrass (<http://database.v-c-s.org/sites/v-c-s.org/files/Methodology%20for%20Tidal%20Wetland%20and%20Seagrass%20Restoration,%207%20FEB%202014.pdf>) provides a robust framework for ensuring the integrity of these projects. Washington has extensive estuaries, forests, and farmlands that could significantly enhance carbon burial, and projects that provide this important service should be able to earn carbon-sequestration revenues under the CAR. Tribes and other participants in the Working Group have significant potential to generate offsets through estuarine restoration projects, which also provide many other benefits, including critical habitat for important marine species and other ecosystem services, making them ideal “added-value” offset projects. The CAR should be written carefully to avoid inadvertently or preemptively locking out such promising sources of sequestration in the future.
2. **Permit use of offsets from energy efficiency improvements** that deliver verifiable reductions in fuel consumption (e.g. where a fuel flow meter and fuel purchase records provide corroborating, redundant proof of genuine reductions in fuel burned). Energy efficiency improvements are often called the “low-hanging fruit” of carbon reduction: we feel it would be a mistake to forego the significant verifiable emissions savings available from efficiency improvements. Additionally, efficiency improvements in fuel-consuming enterprises can generate clean-tech jobs while reducing GHG emissions.

Thank you for this opportunity to provide comments on the proposed Clean Air Rule. Seeing the CAR enacted in its strongest and most effective form is important to the treaty tribes, seafood producers, and fishing communities that the Working Group represents. Please feel free to contact us for more information on the Working Group on Seafood and Energy, or for more details on the recommendations outlined herein.

Best Regards,

Working Group on Seafood and Energy
PO Box 30615
Seattle, WA 98103
(206)579-2407
Additional Signatories:

Scott Coughlin
27 years as a commercial salmon fisherman
Sustainable Fisheries Consultant
Seattle, WA

Terry Williams
Fisheries, Natural Resources, and Treaty Rights Office Commissioner for the Tulalip Tribes
Marysville, WA

Steve Minor
Co-Chairman of the Pacific Northwest Crab Industry Advisory Panel
AbundantOceans Partnership
Seattle, WA

Erling Skaar
Owner, F/V North American (commercial crab vessel and salmon tender), 50 years in fishing
Owner of GenTech, Inc
Seattle, WA

Larry Soriano
45 years in the commercial fishing industry
President of Western Pioneer
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Mark Phillips
Power Fuel Savers
Fitch Fuel Catalyst, Commercial Fishing Specialist
Shoreline, WA

Bob Allen
Owner, Marine Engine & Repair (MER Equipment)
Seattle, WA

Lars Matthiesen
Owner, Highland Refrigeration (supplier to commercial fishing vessels, 50 years)
Seattle, WA

Brad Warren
25 years as a commercial fishing journalist and consultant
Seattle, WA

Julia Sanders
Editor, Ocean Acidification Report
Seattle, WA

July 22, 2016

Mr. Sam Wilson
Washington Dept. of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Delivered by email: AQComments@ecy.wa.gov

**RE: Comments of the Washington PUD Association on the Draft CR 102 Rule 173-442,
Clean Air Rule and 173-441 WAC Reporting of Emissions of Greenhouse Gases**

Dear Ms. Rees,

The Washington Public Utility Districts Association (WPUDA) appreciates the opportunity to provide comments in the above referenced rulemaking on the Clean Air Rule (CAR) and Reporting of Emissions of Greenhouse Gases. WPUDA comprises 20 member utilities that provide electric service to approximately 20% of the state's electric customers and almost 30% of the state's retail electric load, along with joint operating agency Energy Northwest.

WPUDA electric utility members have a substantial interest in the outcome of this proposed rulemaking. WPUDA utility members own and operate or have a contractual interest in Natural Gas Combined Cycle (NGCC) electric generating facilities that are named entities subject to this rule, including River Road Generating Plant and the Fredrickson Power LP generating facility. In addition, WPUDA member Klickitat PUD owns the Harold W. Hill electric generating facility that utilizes the methane generated from the Roosevelt Regional Landfill to generate renewable energy. The above facilities are named by the Department of Ecology as entities potentially subject to regulation under this rule.

In addition, multiple WPUDA utility members own or have contractual interests in electrical generating units in the state including non-CO₂ emitting nuclear facilities and renewable energy facilities. Our members buy, sell, generate and retire renewable energy credits (RECs), both for compliance with RCW 19.285 and other purposes, and acquire energy efficiency and conservation measures, again both for compliance with RCW 19.285 and for other purposes. These measures may be eligible for use as emission reduction units (ERUs) by regulated entities.

PUDs also recently received legislative authorization to produce and distribute renewable natural gas for use as a transportation fuel that is given credit for carbon reduction in the federal renewable fuels program and other uses.

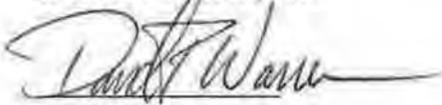
And finally, our members provide electric service to multiple parties listed as potential regulated entities, including: Alcoa Wenatchee Works; Longview Fibre Paper and Packaging, Inc/ Kapstone Kraft; REC Silicon; Wafer Tech; and Weyerhaeuser NR Company, and thus we have an interest in the impact to those entities from the proposed rule.

Our comments include redlined language in the text of the relevant sections of the above referenced documents and comments below relating to the suggested changes.

We appreciate your consideration of our comments. Please contact Dave Warren at dwarren@wpuda.org or Bill Clarke at bill@clarke-law.net.

Sincerely,

David P. Warren, P.E.

Handwritten signature of David P. Warren in cursive script.

Bill Clarke

Handwritten signature of Bill Clarke in cursive script.

Comments of the Washington PUD Association to the Department of Ecology's Proposed Adoption of Chapter 173-442 WAC

The Washington Public Utility Districts Association (WPUDA) has been participating in both the rulemaking proposing the new Chapter 173-442 WAC also known as the Clean Air Rule (CAR) and the proposed 111(d) rule proposed by the Environmental Protection Agency, also known as the Clean Power Plan (CPP) discussions in the state.

The final Clean Air Rule, including the interaction of the CAR and CPP will have a direct effect on our members through: the operation of the electric system and resulting costs of electricity, both wholesale and retail; the costs and benefits to our member utilities and their customers; whether or not greenhouse gas (GHG) emissions reductions will actually be achieved and, if so, to what extent; whether the CAR will effectively take the state's natural gas generating fleet out of the CPP's Building Block 2; and whether the provisions of this rule are consistent with the relevant provisions of RCW Chapter 34.05, and other statutes.

Our comments are organized as follows:

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6. Redline of WAC 173-442 with Recommended Language

1. Removing Limitations on Energy Generation Qualifying as Emissions Reduction Units (ERUs)

1.1 The Use of Renewable Energy Credits (RECs)

Proposed WAC 173-442-160(5) “**Energy measures**” provides that “alternative energy generation technologies located in Washington may generate ERUs.” But the proposed rule then goes on to limit those “alternative generation technologies” to only those defined as “eligible renewable resources” in RCW Chapter 19.285.030, then further restricts ERU eligibility to those “eligible renewable resources” that generate a renewable energy credit (REC). These limitations arbitrarily select a limited subset of a subset of energy generation technologies defined throughout state law as renewable or alternative energy resources and that displace fossil fuel fired generation resources, thus displace and reduce GHG emissions.

Ecology has not stated the analysis or justification as to why renewable resources that generate a REC are the only generating resources that reduce carbon, while those that do not generate a REC do not offset fossil fuel fired generating facilities. A REC was created in one state law (RCW 19.285) for a limited compliance and marketing purpose, while numerous other state laws define additional generating technologies as generate renewable energy and/or are carbon mitigation or carbon reducing resources (see statutory references in 1.3 and 3.1 below)

Limiting alternative generating technologies that are eligible for ERUs to only a subset of technologies defined throughout state law is arbitrary and without justification or analysis in this rulemaking, and discriminates against other alternative and renewable energy generation technologies that directly reduce GHG emissions when operating and delivering electricity to the electric grid, specifically hydroelectric and nuclear generation.

The current CAR language that restricts generation eligible to generate ERUs to only those that have an associated REC, in WAC 173-442-160(b)(i):

ERUs may only be generated if a sufficient quantity of renewable energy credits are retired ...”

removes **any and all** forms of hydroelectric generation, as well as nuclear generation, from eligibility for ERUs, because fresh water, that is the fuel for hydroelectric generation is excluded in the definition of a REC in RCW 19.285.030(20), which defines a renewable energy credit as (emphasis added)

*“... a tradeable certificate of proof of at least one megawatt-hour of an eligible renewable resource where the generation facility is **NOT power by freshwater**”*

In addition, only a very limited subset of hydroelectric generation is even included as an “eligible renewable resource” in RCW 19.285.030 (incremental hydro owned by a qualifying utility), yet, when hydroelectric facilities are generating electricity and operating as the marginal resource in the market, it is economically dispatched in place of fossil fuel fired coal or natural gas, both of which have fuel costs that places them behind hydro in the economic dispatch order in virtually all situations. Thus hydroelectric generation should be included as eligible for ERUs as GHG reducing electricity on a basis consistent and equal with other renewable resources listed in the rule. While RECs are a convenient accounting tool to track and verify renewable energy generation, renewable energy without a REC attached can also be tracked by the same system (WREGIS) or other accounting and tracking system with the same protections.

Nuclear generation is not defined as an eligible renewable resource and does not have a REC associated with its generation, however as an alternative generating technology that does not

emit any form of carbon in the generation of electricity, at the least any efficiency improvements in its generation capacity, given that the Columbia Generating Station is under contract to the BPA and will run to serve the region, should be recognized as eligible for ERUs.

1.2 Suggested Language to include hydroelectric generation consistent with other alternative generating technologies to be added in WAC 173-442:

In 160(5)(b)(i) and 160(c) in the attached WAC 173-442 redline (Section 6)

1.3 Basis for Including Hydroelectric Generation as a Renewable Energy Resource Eligible to Generate ERUs

Hydroelectric generation is defined and treated throughout Washington State law as a renewable resource or renewable energy should thus be eligible to produce ERUs. The CAR should provide that all renewable resources defined in Washington State law, that came into service after 1990 (the baseline year against which the state's carbon reduction goals are measured) or certainly after March 31, 1999 (the year that "eligible renewable resources" are defined as coming into service) and that generate electricity in the state, are available to displace fossil fuel fired generation resources and should be credited with emission reduction units.

RCW 19.280.020 (Electric Utility Resource Plans)

*(13) "Renewable resources" means electricity generation facilities fueled by: (a) **Water**; ... "*

RCW Chapter 19.280 is the Integrated Resource Planning statute and the definition of renewable resource in this statute is for planning purposes; in other words a utility can count hydro as a renewable resource when it is identifying its current and potential future resources in developing its resource acquisition strategy in its IRP.

RCW Chapter 19.285 (Energy Independence Act) - Also known as I-937 or the Renewable Portfolio Standard (RPS)

In RCW 19.285 there are three relevant definitions, the definition of a renewable energy resource, the definition of an *eligible* renewable resource (for compliance purposes), and the definition of a renewable energy credit.

*(18) "Renewable resource" means: (a) **Water**; ... "*

*(10) "**Eligible** renewable resource" means:*

*(a) Electricity from a generation facility **powered by a renewable resource other than fresh water** that commences operation after March 31, 1999, where: (i) The facility is located in the Pacific Northwest; or (ii) the electricity from the facility is delivered into Washington state on a real-time basis without shaping, storage, or integration services; or*

*(b) **Incremental** electricity produced as a result of efficiency improvements completed after March 31, 1999, to **hydroelectric generation projects owned by a qualifying utility** and located in the Pacific Northwest or to hydroelectric generation in irrigation pipes and canals located in the Pacific Northwest, where the additional generation in either case does not result in new water diversions or impoundments.*

*(17) "Renewable energy credit" means a tradable certificate of proof of at least one megawatt-hour of an eligible renewable resource **where the generation facility is not powered by fresh water**, the certificate includes all of the nonpower attributes associated with that one megawatt-hour of electricity, and the certificate is verified by a renewable energy credit tracking system selected by the department.*

It is relevant to note that even though hydro is defined as a renewable resource in RCW 19.285, it is then quickly removed from consideration as an **eligible** renewable resource for purposes of fulfilling the renewable energy requirements of I-937, with a limited exception. The only hydroelectric generation defined as an "eligible" renewable resource under I-937 is subsection (b) above, **incremental hydro** resulting from efficiency improvements to facilities **that are owned – and this is an important limitation on eligibility – by a qualifying utility**, i.e. "qualifying" under this Act, which is a Washington consumer-owned or investor owned utility with more than 25,000 customers.

This distinction removes from eligibility efficiency improvements to hydro facilities located in the state and owned by Douglas, Klickitat, and Pend Oreille PUDs, Energy Northwest, and BPA from eligibility under this act, as well as any new hydroelectric facilities built after March 31, 1999, regardless of ownership. While those facilities are not defined as "eligible" for compliance with RCW Chapter 19.285, they will always, when available as the marginal resource on the system, displace fossil fuel fired generation facilities that emit CO₂.

RCW 19.29A.010 - Voluntary option to purchase qualified alternative energy resources

*(26) "Renewable resources" means electricity generation facilities fueled by: (a) **Water**; ... "*

RCW 19.29A.090

*(3) For the purposes of this section, a "**qualified alternative energy resource**" means the electricity produced from generation facilities that are fueled by: (a) Wind; (b) solar energy; (c) geothermal energy; (d) landfill gas; (e) wave or tidal action; (f) gas produced*

during the treatment of wastewater; (g) qualified hydropower; or ... "

RCW 80.60 Net Metering of Electricity

(14) "Renewable energy" means energy generated by a facility that uses water, . . . "

We would also ask Ecology to note that the federal hydro system, whose generated electricity is marketed by the Bonneville Power Administration, and purchased by and delivered to many consumer-owned utilities in the state, is undergoing almost continual efficiency improvements. Those upgrades are paid for by the utility customers of BPA and those utility's customers, and most take place at hydroelectric facilities located in Washington State along the Columbia River, both in its course within the state and in its course along the state's common border with Oregon.

Any resulting efficiency upgrades at any hydro facility will increase the amount of electricity generated by those resources. That increased hydro generation is then available to and will displace gas or coal fired electricity. So, for the same reasons stated above, and, as the CPP specifically includes incremental hydro as a renewable resource that can displace those fossil resources, federal incremental hydro should be available in any offset, ERC or carbon credit market, adopted pursuant to the CAR or CPP.

1.4 APA Considerations

However, rather than being "coordinated" with other state laws, by excluding all generation that does not produce a REC, and not including hydroelectric generation with other sources of renewable energy as eligible for generating ERUs, Ecology's proposed CAR conflicts with state laws – namely, the numerous laws that define hydroelectric generation as renewable energy and as carbon mitigation or carbon reduction generation facilities.

Clearly, Ecology's proposed rule is inconsistent with the overall statutory scheme defining renewable energy and carbon reduction generating facilities. Limiting ERUs to only those limited generating technologies that produce a REC is in contradiction to numerous laws enacted that classify the hydroelectric energy as renewable and carbon reducing, is clearly unlawful under the "arbitrary and capricious" review standard of the APA.

Allowing only certain renewable energy facilities to be included in the rule as carbon reducing facilities that generate electricity and creates ERUs, while excluding others is discriminatory and inconsistent with existing law under the "arbitrary and capricious" review standard of the APA. An agency rule is arbitrary and capricious "it is willful and unreasoning and taken without regard to the attending facts or circumstances." *Rios v. Dep't of Labor & Indus.*, 145 Wash.2d 483, 501 (2002).

2. Harmonizing and Coordinating the CAR with the Clean Power Plan (CPP)

2.1 Administrative Procedures Act Issues between the CAR and CPP

The EPA's federal Clean Power Plan is based on "*state-specific rate-based goals for carbon dioxide emissions from the power sector, as well as guidelines for states to follow in developing plans to achieve the state-specific goals. This rule, as proposed, would continue progress already underway to reduce carbon dioxide emissions from existing fossil fuel-fired power plants in the United States.*" 79 Federal Register 34830. Ecology's proposed Washington Clean Air Rule includes the exact same purpose of reducing carbon emissions from natural gas combined cycle combustion turbines, as well as other sources of carbon emissions. As to the regulation or reduction of carbon emissions from power plants, the EPA's Clean Power Plan and Ecology's Clean Air Rule seek to regulate the exact same sources of emissions for the exact same purpose.

Where a state law duplicates the scope and purpose of a federal regulation, Washington's Administrative Procedures Act ("APA") requires the rulemaking process to include specific findings as to the relationship between the state and federal regulatory program.

Specifically, the APA requires Ecology to:
[RCW 34.05.328(1)(h)]

"Determine if the rule differs from any federal regulation or statute applicable to the same activity or subject matter and, if so, determine that the difference is justified by the following:

- (i) A state statute that explicitly allows the agency to differ from federal standards; or*
- (ii) Substantial evidence that the difference is necessary to achieve the general goals and specific objectives stated under (a) of this subsection; and*

In addition, the APA requires an agency to:
[RCW 34.05.328(1)(i)]

"[C]oordinate the rule, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter."

And then, after a rule is adopted, the APA requires Ecology to:
[RCW 34.05.328(4)(a)]

"Coordinate implementation and enforcement of the rule with the other federal and state entities regulating the same activity or subject matter by making every effort to do one or more of the following:

- (i) Deferring to the other entity;*

- (ii) Designating a lead agency; or*
- (iii) Entering into an agreement with the other entities specifying how the agency and entities will coordinate implementation and enforcement."*

2.2 Harmonization and Coordination of the CAR and CPP

First and foremost is our request to, and strong urging of, Ecology to combine this rulemaking and the development of the proposed federal 111(d) rule State Implementation Plan (SIP) (also known as the Clean Power Plan, CPP) into one forum, and adopt the CPP's proposed baseline of 207% of the state power sector's GHG emissions, and current initial compliance year of 2022.

The CPP covers both the exact same natural gas combined cycle (NGCC) facilities in the state as the CAR, and the CPP adds the lone coal steam generating facility located in the state. Combining all of the NGCCs into the CPP would provide clarity and consistency for operating those units, and ensure that GHG emission reduction actually occur.

The CPP and the CAR seek to regulate the same sources of emissions for the same purpose. In addition to the restrictions placed by the APA on dual rulemaking, we ask that you carefully consider the relationship between the two regulatory programs and determine if regulating the NGCCs under the CPP will achieve the long-term goals of carbon reduction from the electric sector.

If it is deemed necessary to move forward with the disparity between the CAR and CPP, then we ask that Ecology coordinate all federal, state and local laws to the maximum extent practical as is required under Washington's Administrative Procedures Act. In the event that the Department does not harmonize the two regulations we ask that there be a cost-benefit analysis and the cost-benefit analysis be made available according to the Washington State Administrative Procedures Act, and an additional SEPA analysis conducted to determine if emissions reductions actually occur when the CAR retains the exemption of the TransAlta coal-fired facility while capping and requiring reduction of the emissions from in-state natural gas-fired generating facilities 6 years before the CPP takes effect, or 3 and 8 years, respectively before the first and second unit of the TransAlta coal-fired facility are closed¹.

¹ These comments are written with the knowledge that the CPP is before the U.S. Supreme Court. The outcome of that case could generally fall within three outcomes: 1. The rule is upheld with its current compliance dates; 2. The rule is upheld, and the compliance dates are delayed, or; 3. The rule is overturned. Should the CPP be overturned, clearly harmonization with the CPP would not be relevant, but the argument about harmonizing the compliance dates for natural gas generation and closure of the TransAlta coal-fired facility are still relevant to ensure GHG emissions reductions. The economic disadvantage placed on in-state gas generation remains against in-state and out-of-state coal and out-of-state gas generation. The additional SEPA analysis should consider this scenario as well.

2.3 Baseline Levels and Date(s)

The CAR proposes to set the baseline for GHG emissions using a 5 year average from 2012 – 2016. WE have suggested previously and reiterate that using 5 data points to set an average is mathematically weak², particularly when it involves electric generation in the hydro heavy Northwest. Care should be taken in setting the baseline for the electric generating units in the CAR, and the variability of the “water years” and that variability’s impact on GHG emissions from fossil fuel fired generating units should be understood and damped by the method developed in this CAR to set the baseline emissions for NGC power plants.

As the EPA was informed in their comments to the proposed CPP, 2012, their original proposed “snapshot” baseline date, was a high water year in the Pacific Northwest (leading to high hydro and low fossil generation). The PNW is a hydroelectric heavy region, a high water year provides an ample supply of hydroelectric generation, which, as has been discussed earlier, leads to lower natural gas and coal-fired generation - as hydro is economically dispatched prior to either gas or coal. In lower water years, conversely, natural gas and coal-fired generation has to pick up the difference in lowered hydroelectric output. EPA took this variability into consideration in setting the baseline to 207% of 2012 emissions. Without yet knowing 2016 GHG emissions used to set the baseline in the CAR, nonetheless, including 2012 in that average will skew and substantially decrease what would otherwise be average emissions based on multiple water year data.

A more appropriate methodology to establish the GHG emission baseline for NGCC units would mirror that of the Bonneville Power Administration, which maintains and uses decade’s worth of water years to establish average, critical and other water level benchmarks that are used to gauge expected hydroelectric production (and thus average fossil generation). Ecology could work with BPA, the Northwest Power and Conservation Council staff and utilities in the state to normalize emissions from the fossil fleet using multiple years of existing emissions data against the annual variation from average or “critical” water - from at least the previous 10 years on a rolling average basis - to establish an annual baseline emissions amount. We point out that even this methodology would require additional analytical rigor to ensure that, for instance, variations such as a prolonged drought or short term extreme weather events are understood, modeled and allowed for.

² Hypothetically assume that the emissions from fossil fuel facilities in 2012 are half (assume 50 units) of what they would be in an average water year, then further assume that 2013 - 2016 perfectly met an average water year as established using BPA data from the last 50+ years (assume 100 units). Mathematically a five year average calculates out to $(100+100+100+100+50)/5 = 90$ units - or an “average” baseline 10% below the “actual” average. Having an outlier in 1 point data in a limited 5 point data set, as is not unusual in a hydro based electrical generation system, will skew an average calculated from that data set unnecessarily, particularly when there is a substantial existing data set that could be used by the CAR to normalize the baseline for the electric sector and remove any “skew” from the limited data setting the baseline proposed by the CAR.

2.4 CPP “Ramp up” of Gas Generation vs CAR Cap Requiring Reductions Leads to Outcomes in Conflict

The CPP proposes, under Building Block 2 to “ramp up” the natural gas generating fleet to a 75% capacity factor in order to displace coal generation, thus increasing emissions from gas generation but reducing overall GHG emissions from the electric sector, by displacing coal generation with more efficient gas generation. In fact, the substantial majority of emissions reductions required by the CPP are accomplished through this Building Block 2 strategy. Conversely, the CAR proposes to place an absolute cap on emissions from the listed in-state natural gas generation facilities, beginning 6 years before the CPP takes effect and beginning from a much lower baseline. **These two approaches, CPP vs CAR, are in direct contradiction to each other, but with ostensibly the same ultimate goal for those regulated facilities – to reduce carbon from fossil fuel-fired electric generation facilities.**

However, the CAR cap, beginning from the lower baseline and at a much earlier date, will likely cause the unintended, but none-the-less real consequence of plant operators economically choosing, instead, out-of-state gas, or out-of-state or in-state coal generation during the first 6 years of the CAR, and, beginning with the compliance period of the CPP, economically removing the state’s gas generation from participating in Building Block 2 of the CPP due to the unequal economic costs of having to purchase a substantial amount of ERUs and competing with out-of-state gas generation. The net result of lack of coordination and harmonization with the CPP will likely lead to increased GHG emissions from this rule. Ecology’s SEPA analysis should be expanded to analyze the operation of the regional electric grid to determine whether this disconnect between the CAR and CPP will lead to increased GHG emissions.

Further, if Ecology determines to not harmonize and coordinate the CAR with the requirements of the CPP (which would be a violation of APA requirements), which harmonization and coordination would, in essence and in fact achieve the emissions reductions anticipated over time by both rules, Ecology: “must place in the rule-making file documentation of sufficient quantity and quality so as to persuade a reasonable person that the determinations [not to coordinate the rule with federal requirements] are justified.” RCW 34.05.328(2)

Finally, aside from the clear requirements of the APA, the lack of coordination between the CAR and federal CPP directly contradicts ongoing efforts of Governor Inslee’s administration to make Washington’s government and regulatory system more efficient. The Governor’s Results Washington and LEAN management efforts have focused on efficiency and coordination in government to ensure better outcomes for Washington’s citizens and businesses. In contrast, the lack of coordination between the CAR and CPP impose additional regulatory costs – but without achieving any benefits in terms of carbon emission reductions.

2.5 Issues to Consider in Timing and Compliance Path for NGCCs

In the electric industry, when additional generation is needed at any given future minute (or hour or day), the generator that runs and provides power to the grid is decided by selecting the generators that are capable of generating on that future schedule, and then, of those available to generate, the one that can generate power most economically is “dispatched” to generate power. This operational protocol is called economic dispatch in the industry.

In Building Block 2, the CPP calls for “ramping up”, or dispatching, NGCC facilities to run 75% of the time - to displace coal, thus, as natural gas generation typically emits less than half the greenhouse gases per unit of electricity generated, lowering emissions from coal steam units across the grid.

BB2 of the CPP therefore asks the states to determine ways to make gas economical against coal, at all times, thus some type of incentive or mandate may be required to influence that dispatch order. Contrary to BB2 in the CPP, the CAR, with its stated intent to set a cap on emissions that reduces over time, and beginning from what appears will be a much lower baseline than the CPP, will presumably require those same NGCC facilities to either “ramp down” (curtail production), or purchase offsets or credits to meet the CAR compliance targets, beginning in 2017 - while conversely - the CPP expects NGCCs to “ramp up” beginning in 2022, i.e. to increase generation, – **a direct contradiction in operations of the NGCC facilities between the two regulations, but presumably with the same intent – to reduce greenhouse gas emissions.**

In addition, the CAR exempts the TransAlta coal fired generation unit while regulating natural gas-fired generation. Regardless of whether an NGCC has to curtail production or purchase offsets, the cost of electricity will increase against the cost of unregulated coal generation in this state and other states and against unregulated natural gas generation in other states. Ecology should include a SEPA analysis as to the relative CO2 emissions from this unequal regulatory treatment, both in time against the CPP differential regulatory timelines, and in space against coal and gas fired generation in other states unless and until the CPP applies a consistent regulatory treatment across all generation types.

Consequently, coal fired generation and out-of-state gas plants will retain their market advantage from the CAR cap being imposed on in-state NGCC units until CPP caps begin to take effect for coal, and possibly catch up sometime beyond 2022. In addition, the state CAR *exempts* the state’s only coal plant while placing the NGCCs under a state imposed cap. This contradiction will only place additional economic and operational burdens on gas generation against coal fired generation (both the in-state exempt coal plant *and* against out-of-state coal plants that are not covered by this state’s cap). The consequence from the CAR coverage of only NGCCs is that the

reduced or more expensive electric generation from NGCCs may very well be picked up through economic dispatch by market advantaged coal plants, leading to *increased* emissions, not decreased emissions counter to BB2 in the CPP and counter to the intent of the CART to reduce emissions of GHGs.

Coordinating the timing of the compliance dates, compliance trajectories, and closure dates for competing generating resources - at least - is crucial to achieving the goals of both the CAR and CPP, i.e. reducing emissions from fossil fuel-fired electricity generation. The timing of the two compliance dates will affect: whether; when; by how much; and for how long, emissions from coal plants may be increased from their market advantage or decreased from harmonization, and whether out-of-state gas plants are dispatched in place of in-state gas plants due to the market distortion of a partial regulatory structure.

For instance, if the CAR compliance cap is placed on NGCCs prior to 2022, the first compliance date for the CPP, coal plants throughout the west will not yet be subject to any emissions reductions. Consequently, coal fired generation and out-of-state gas plants will gain or retain their market advantage from the CAR cap being imposed on in-state NGCC units, until closure dates for TransAlta and CPP caps begin to take effect for coal. Even then, as the state's NGCC units are subject to a reducing cap that begins under the current rule 6 years before the CPP, they would never be able to participate in Building Block 2 under the CPP, and out-of-state dispatch would continue throughout the life of the regulatory disparity of the CAR.

Alternatively, we would support the alternative baseline, facility specific targets and ERU restrictions proposed for the capped electric sector generating facilities by the Public Generating Pool in their comments submitted to this rulemaking on July 22, 2016.

3. Treatment of Landfill Gas (LFG) Power Plant Emissions

Ecology lists the H.W. Hill Landfill Gas Power Plant as a covered party for purposes of this Clean Air Rule in the document titled "Clean Air Rule: Potentially Eligible Parties, June, 2016". Naming this source of CO₂ as a covered party subject to regulation under this rule is contrary to Washington law and is arbitrary and capricious under the APA. In fact the Washington Legislature has adopted a number of recent laws that have consistently treated the conversion (capture and destruction) of emitted landfill gas to renewable energy, i.e. electricity or renewable natural gas, as a carbon mitigation or carbon reduction process. In contrast, the proposed CAR would regulate the H.W. Hill Power Plant in the exact opposite manner – as a carbon emitting facility subject to regulation rather than as a carbon mitigation facility as done by the Legislature.

More specifically, the Legislature has clearly stated that the on-site capture and destruction of landfill gas for generating renewable electricity is separately marketable as a carbon reduction commodity and forbids the attribution of greenhouse gas emissions from electric generation using landfill gas (destruction of landfill gases) as a fuel:

Two very specific statutes should lead Ecology in their treatment of the H.W. Hill Landfill Gas Power Plant as a carbon reduction facility not subject to regulation as a GHG emitter in this rule, including the statute that Ecology uses to support parts of this rule:

RCW 70.235.030(3)(f):

(3) In addition to the information required under subsection (1)(b) of this section, the director . . . shall submit the following to the legislature by December 1, 2008:

*(f) Recommendations regarding the circumstances under which **generation of electricity or alternative fuel from landfill gas and gas from anaerobic digesters may receive an offset or credit in the regional multisector market-based system or other strategies developed by the department; and***

RCW 19.285.030(15)(b) (defining the non-power attributes of the generation of renewable energy as contained in a renewable energy credit [REC]) states (emphasis added):

*"Nonpower attributes" [of renewable energy credits] does not include any aspects, claims, characteristics, and benefits associated with the on-site capture and destruction of methane or other greenhouse gases at a facility through a digester system, landfill gas collection system, or other mechanism, **which may be separately marketable as greenhouse gas emission reduction credits, offsets, or similar tradable commodities.** However, these separate avoided emissions may not result in or otherwise have the effect of attributing greenhouse gas emissions to the electricity.*

This statutory provision clearly states that this facility is eligible for both: ERUs as a methane conversion ERU; and a separate, additional ERU for generating renewable energy.

3.1 Legislative History of Treatment of Energy Generated or Produced from LFG

Over the last 15 years, the Legislature has repeatedly defined generation of electricity or production and distribution of renewable natural gas from digesters and landfill gas as carbon mitigation or carbon reduction.

In 2001 the Legislature adopted HB 2247, which, among other provisions, added what has become commonly known as the “Green Price Option” codified as RCW 19.29A.090. In subsection (3) “qualified alternative energy resource” is defined as the type of electricity a utility customer can voluntarily agree to purchase separately from their normal supply. Included in “qualified alternative energy resource” is electricity produced from generation facilities that are fueled by “landfill gas.”

RCW 19.29A.090 - Voluntary option to purchase qualified alternative energy resources—Rates, terms, and conditions—Information maintenance.

“(3) For the purposes of this section, a “qualified alternative energy resource” means the electricity or thermal energy produced from generation facilities that are fueled by: (a) Wind; (b) solar energy; (c) geothermal energy; (d) landfill gas; (e) wave or tidal action; (f) gas produced during the treatment of wastewater; (g) qualified hydropower; or (h) biomass energy based on animal waste or solid or liquid organic fuels from wood, forest, or field residues, or dedicated energy crops that do not include wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenic.”

In 2004, the Legislature adopted amendments to the Energy Facility Site Evaluation Council’s statutory authority to require inclusion of an approved carbon dioxide mitigation plan for site certification of all new fossil fueled thermal generating plants. Included in the definition of eligible carbon dioxide mitigation projects are projects that include “qualified alternative energy resources” as defined in RCW 19.29A.090, which, as stated previously, includes electricity generated using landfill gas as a fuel.

80.70.010

(11) “Mitigation plan” means a proposal that includes the process or means to achieve carbon dioxide mitigation through use of mitigation projects or carbon credits.

(12) “Mitigation project” means one or more of the following:

*(a) Projects or actions that are implemented by the certificate holder or order of approval holder, directly or through its agent, or by an independent qualified organization to mitigate the emission of carbon dioxide produced by the fossil-fueled thermal electric generation facility. **This term includes but is not limited to the use of, energy efficiency measures, clean and efficient transportation measures, qualified alternative energy resources, demand side management of electricity consumption, and carbon sequestration programs;***

(15) “Qualified alternative energy resource” has the same meaning as in RCW 19.29A.090.

80.70.020 –

*(2)(a) A proposed site certification agreement submitted to the governor under RCW 80.50.100 and a final site certification agreement issued under RCW 80.50.100 shall include an **approved carbon dioxide mitigation plan.***

In 2006, the Legislature adopted HB 1010 which became RCW 19.280 addressing requiring resource planning from utilities and included electricity generated from landfill gas in the definition of renewable resources (also equating digesters and biomass generation in the same category):

*(13) "Renewable resources" means electricity generation facilities fueled by: (a) Water; (b) wind; (c) solar energy; (d) geothermal energy; (e) **landfill gas**; (f) biomass energy utilizing animal waste, solid organic fuels from wood, forest, or field residues . . ."*

In November, 2006, as referenced earlier, the voters of the state approved Initiative 937, referred to as the state's Renewable Portfolio Standard (RPS). First, I-937 included electricity from a generation facility fueled by a renewable resource, which renewable resources, include by definition landfill gas.

Among other provisions, I-937 created and made available as a compliance option a Renewable Energy Credit (REC) that attaches to the generation of all eligible renewable resources, including those generated by landfill gas. Originally, a REC was defined to include all non-power attributes of the megawatt-hour of electricity, including the "avoided emissions of carbon dioxide and other greenhouse gases."

RCW 19.285.030

Definitions.

(12) "Eligible renewable resource" means:

(a) Electricity from a generation facility powered by a renewable resource.

*(15) "Nonpower attributes" means all environmentally related characteristics, exclusive of energy, capacity reliability, and other electrical power service attributes, that are associated with the generation of electricity from a renewable resource, including but not limited to the facility's fuel type, geographic location, vintage, qualification as an eligible renewable resource, and avoided emissions of pollutants to the air, soil, or water, **and avoided emissions of carbon dioxide and other greenhouse gases.***

*(20) "Renewable energy credit" means a tradable certificate of proof of at least one megawatt-hour of an eligible renewable resource where the generation facility is not powered by freshwater. The certificate includes all of the **nonpower attributes** associated with that one megawatt-hour of electricity, and the certificate is verified by a renewable energy credit tracking system selected by the department.*

(21) "Renewable resource" means: (a) Water; (b) wind; (c) solar energy; (d) geothermal energy; (e) landfill gas; (f) wave, ocean, or tidal power; (g) gas from sewage treatment facilities; (h) biodiesel fuel as defined in RCW 82.29A.135 that is not derived from crops raised on land cleared from old growth or first-growth forests where the clearing occurred after December 7, 2006; or (i) biomass energy.

Then in **2013** in an amendment to RCW 19.285.030(15) that further strengthened the legislative intent that generation of electricity from landfill gas is a carbon reduction mechanism equivalent to anaerobic digesters, the Legislature adopted HB 1154, adding a subsection to the definition of "non-power attributes."

(b) "Nonpower attributes" does not include any aspects, claims, characteristics, and benefits associated with the on-site capture and destruction of methane or other greenhouse gases at a facility through a digester system, landfill gas collection system, or other mechanism, which may be separately marketable as greenhouse gas emission reduction credits, offsets, or similar tradable commodities. However, these separate avoided emissions may not result in or otherwise have the effect of attributing greenhouse gas emissions to the electricity.

This new subsection specifically and clearly calls out the collection and destruction (oxidation) of methane (landfill gas) as a greenhouse gas reduction mechanism that is separately marketable (specifically and only for digesters and landfill gas systems) as a greenhouse gas emission reduction credit, offset or similar tradable commodity, a characteristic not available to any other renewable resource. And further as stated earlier, the Legislature specifically stated that the **electricity so generated could NOT be attributed greenhouse gas emissions. Taken together, this legislative intent can only be read that electricity generated from landfill gas is clearly a greenhouse gas reduction mechanism, not a greenhouse gas emission to be regulated.**

In addition to the avoided greenhouse gas emissions acquired by the destruction of methane, the legislature further allowed separate marketing of the greenhouse gas reduction commodity and the renewable energy attribute, so RECs from this projects would still be eligible for a separate ERU from the generation of renewable energy, consistent with WAC 173-442-160(5).

Earlier, **in 2007**, immediately upon the heels of the voters approving I-937 in November of 2006 (see below), the Legislature adopted the state's emission performance standard, RCW 80.80. The Legislature found that the emissions performance standard will work in unison with the "state's carbon dioxide mitigation policy" which mitigation policy, as restated by the Legislature, includes generating electricity from landfill gas:

RCW 80.80.005 states:

(1) The legislature finds that: ...

*(e) A greenhouse gases emissions performance standard will work in unison with the state's carbon dioxide mitigation policy, chapter **80.70 RCW** and its related rules, for fossil-fueled thermal electric generation facilities located in the state;*

In RCW Chapter 70.235, adopted **in 2008** and the basis for many of Ecology's determinations in this CAR as stated earlier, the Legislature was very clear in their intent that any greenhouse gas reduction program adopted by the department includes electricity generated from landfill gas as a carbon offset or credit ... RCW 70.235.030(3)(f):

*(3) In addition to the information required under subsection (1)(b) of this section, the director and the director of the *department of community, trade, and economic development shall submit the following to the legislature by December 1, 2008:*

*(f) Recommendations regarding the circumstances under which **generation of electricity or alternative fuel from landfill gas and gas from anaerobic digesters may receive an offset or credit in the regional multisector market-based system or other strategies developed by the department; and***

Finally, Legislature passed **ESB 5424 in 2015**, which allowed Public Utility Districts to produce and sell renewable natural gas [see " or alternative fuel" in RCW 70.235.030(3)(f)], and defined as renewable natural gas, as originating equally from landfills, anaerobic digesters or wastewater treatment facilities.

RCW 54.04.190(2).

"Renewable natural gas" means a gas consisting largely of methane and other hydrocarbons derived from the decomposition of organic material in landfills, wastewater treatment facilities, and anaerobic digesters.

Such renewable natural gas is eligible for Renewable Identification Numbers (RIN) in the federal renewable fuel standard as a means to reduce greenhouse gas emissions from the transportation sector.

3.2 Administrative Procedures Act Application to the Regulatory Treatment of the H.W. Hill Landfill Gas Power Plant

The proposed CAR is defined as a significant legislative rule, subject to the regulatory reform provisions of the state's Administrative Procedures Act, Chapter 34.05 RCW. That law requires consistency between agency regulations and related state or federal laws – or, substantial evidence that there is a basis to deviate from related state or federal laws or regulations. Specifically, Ecology must “coordinate the rule, to the maximum extent practicable, with other

federal, state and local laws applicable to the same activity or subject matter.” RCW 34.05.328(1)(i).

However, rather than being “coordinated” with other state laws, by including emissions from the H.W. Hill Landfill Gas Power Plant within the definition of “covered stationary source GHG emissions,” Ecology’s proposed CAR conflicts with state laws – namely, the multiple laws passed that recognize renewable electricity generated from, or renewable natural gas produced from landfill gas as both a commodity that reduces carbon emissions, or as a renewable transportation fuel. Because Ecology, not the Legislature, established the definition of “covered stationary GHG sources,” there is no legislative history as to the meaning of this term. Therefore, it is necessary to determine whether Ecology’s definition is consistent with the related statutes:

If the meaning of the language is ambiguous or unclear, this line of cases directs that examining the statute as a whole, or a statutory scheme as a whole, is then appropriate as part of the inquiry into what the Legislature intended. See, e.g., *Addleman*, 107 Wash.2d at 509, 730 P.2d 1327; *Sebastian v. Dep’t of Labor & Indus.*, 142 Wash.2d 280, 285, 12 P.3d 594 (2000). Thus, some of our cases indicate that consideration of a statutory scheme as a whole, or related statutes, is part of the inquiry into legislative intent only if a court determines that the plain meaning cannot be derived from the statutory provision at issue and ambiguity necessitates further inquiry.

Ecology v. Campbell & Gwinn, L.L.C., 146 Wn.2d 1, 11 (2002)

Further, a term in a regulation should not be read in isolation but rather within the context of the statutory scheme as a whole. *ITT Rayonier v. Dalman*, 122 Wn.2d 801, 807 (1993).

Clearly, Ecology’s proposed rule is inconsistent with the overall statutory scheme regulating energy facilities generally, and landfill gas facilities specifically. Classifying the H.W. Hill Landfill Gas Power Plant as a carbon-emitting facility under the CAR, in contradiction to numerous recent laws enacted that instead classify the same facility as a carbon reduction or mitigation facility, is clearly unlawful under the “arbitrary and capricious” review standard of the APA. An agency rule is arbitrary and capricious “it is willful and unreasoning and taken without regard to the attending facts or circumstances.” *Rios v. Dep’t of Labor & Indus.*, 145 Wash.2d 483, 501 (2002).

Further, this is not a matter where there is “room for two opinions” or mixed treatment by the Legislature as to the nature or regulatory status of the landfill gas power plant. Ecology’s CAR clearly regulates the H.W. Hill Landfill Gas Power Plant in a manner opposite how it has been considered in multiple recent legislative enactments, including the very statute that Ecology uses to set the GHG reduction targets. See also *Washington Independent Telephone Ass’n v. UTC*, 148 Wn.2d 887, 904 – 906 (2003): (“reviewing court must consider the relevant portions of the rule-making file and the agency’s explanations for adopting the rule as part of its review in order

to determine whether the agency's action was willful and unreasoning and taken without regard to the attending facts or circumstances.”)

3.3 LFG Energy Generation Summary

In Ecology's June, 2016, webinar on the Clean Air Rule, Air Quality Program Manager Stuart Clark stated that investment in anaerobic digesters is an example of creating emission reduction units^{3,4}. Chemically and operationally, whether the methane is from biogenic sources such as manure or landfill waste, the oxidation/combustion of the gas results in the destruction or conversion of methane to CO₂. The Legislature in multiple occasions has legally equated the conversion of methane from landfill gas and anaerobic digesters in multiple state laws. This is consistent with the above legislative intent of treating energy from landfill gas and dairy digestion as methods of reducing or mitigating greenhouse gas.

In 2008, the Legislature directed Ecology to develop recommendations under which energy from landfill gas or anaerobic digesters would receive carbon offsets or credits, reemphasized that instruction in amendments to RCW 19.285.030(15) in 2013, and also specifically prohibited the regulation of GHG emissions from LFG and digester facilities in that same amendment.

Subjecting one type of methane conversion process (landfill gas electric generation) to regulation under the CAR, while stating that a different methane conversion process (dairy digesters) reduces carbon and accrues ERUs is arbitrary and inconsistent with and contrary to state law. This is especially the case when the statutes at issue clearly seeks equal regulatory treatment of both types of methane conversion facilities. See RCW 70.235.030(3)(f) and RCW 285.030(15)(b).

The Clean Air Rule should be consistent and treat the conversion (oxidation/combustion) of biogenic methane consistently, whether originating from landfills or digesters, and recognize energy produced from landfill gas as a net reducer of and not a contributor to greenhouse gas emissions.

In summary, the Legislature: directed Ecology to determine how “generation of electricity or alternative fuel from landfill gas” should receive carbon offsets or credits; prohibited regulation of GHG emissions from the electricity produced; and otherwise adopted an entire statutory structure concerning electrical generation and their resulting GHG emissions over at least the last fifteen years that defines such landfill gas energy generation or production projects as carbon reduction or mitigation facilities – not carbon emitting facilities and not subject to regulation as

³ Clean Air Rule Webinar June 23, 2016, time marker 9:48

⁴ Slide 20 of the slide deck accompanying the June 23, 2016 webinar

GHG emitting facilities – while Ecology’s proposed CAR defines the H.W. Hill Landfill Gas Power Plant as a covered party subject to regulation - a clear violation of these statutes.

3.4 Specific Language to WAC 173-442 to effect the suggested changes for LFG

Amended language to effect these comments is contained in appended WAC 173-442-XX: 020(r); 030 after (1); 040(d); 150(1)(ii)(new E); 160(7)(new d);

3.5 Comments Specific to Document Titled: Clean Air Rule: Potentially Eligible Parties, June, 2016 to effect the suggested LFG changes

For the reasons stated above, remove “H.W. Hill Landfill Gas Power Plant – Roosevelt” from the list of “Covered Parties” contained in this document. The facility is a CO₂e reduction/ mitigation facility throughout state law and naming it as a covered party for purposes of the CAR is contrary to state law - specifically RCW 19.285.030(15)(b), and in other referenced state laws and the APA.

The Roosevelt Regional Landfill is one of the facilities on Ecology’s “List of Entities with Greenhouse Gas Emissions Above 100,000 MT CO₂e in Washington State”, with a presumption that these entities will be subject to the cap to be imposed by this rule. However, we have pointed to multiple reasons that demonstrate that the H.W. Hill Landfill Gas Power Plant should not be subject to regulation under this rule, but instead should be a source of ERUs.

Clearly, the “destruction” of the methane generated from a non-fossil source, through oxidation (combustion) to CO₂ to generate electricity (or even flaring – the minimum requirement for the destruction of methane) is spelled out as “separately marketable as greenhouse gas emission reduction credits, offsets or similar tradeable commodities”.

For these reasons, the landfill gas that Klickitat PUD offtakes from the Roosevelt Regional Landfill and puts to statutorily defined beneficial use to reduce greenhouse gas emissions from other sources should not be subject to this rule as a covered party. It has been defined by both state legislation and federal programs as a commodity that reduces carbon emissions when used to generate electricity or as a renewable transportation fuel.

4. Administrative Clarity for Utilities Generating Energy Efficiency and Renewable Energy Based ERUs that are not Covered Parties.

We support the provisions in the CAR regarding ERUs that are allowed for energy efficiency measures and renewable energy generation beyond those used for compliance with RCW Chapter 19.285. However, in WAC 173-442-140, only “covered parties” are allowed to transfer ownership of ERUs, while many of the utilities that would generate energy efficiency and renewable energy ERUs will not be covered parties. Then sub(3) of the section states that third parties may not own (and thus not transfer) ERUs, thus negating the ability of non-covered party utilities to generate and own efficiency and renewable ERUs.

To remedy this, we have proposed language, in our redline attachment, to WAC 173-442-020 to create a definition called “participating party”, then added language in 173-442-140 to allow participating parties to own, transfer and document the transfer of ERUs, which is restricted in current language to only covered parties. Further, language proposed in WAC 173-442-160(5)(a) would register the participating party as a participant in the program without otherwise requiring that party to become a covered party.

Additionally, language suggested in 173-442-160(2)(d) would remove energy efficiency measures and renewable energy generation from the requirement that ERUs be subject to third party verification. The section already requires efficiency and renewable energy be reported pursuant to existing WAC, and it should not be subject to a second, costly third party verification.

In 173-442-160(5)(b)(i) language is added to clarify the difference between: “eligible renewable resources”, which is defined as “electricity” from a generating facility powered by a “renewable resource” in RCW 19.285.030(12); and “renewable resources”, which in RCW 19.285.030(21) is defined as “water; wind”, etc. The language in 5(b)(i) confuses the terms. This language also allows for renewable energy that does not have a renewable energy credit attached to it, per our previous comments.

4.1 Language clarifying ERU calculations and providing for ERUs for energy efficiency over the life of the EE measure

In amended (5)(d)(iii), suggested clarifying and additional language is added for calculating the ERUs from renewable energy, and importantly, to acknowledge that energy efficiency measures often persist in their energy savings over longer time frames than just one year, and ERUs should be generated for each year that the energy savings persist.

5. Miscellaneous Topics

5.1 EV Charging Stations

The CAR should add language WAC 173-442-160(3) “**Transportation measures**” to provide that investment in the capitalization and operation of electric vehicle charging stations should generate ERUs based on the number of kilowatt-hours sold each year using standardized formulas.

There are numerous data demonstrating that the single largest GHG source is the transportation sector, yet the CAR leaves out a significant opportunity to incent the construction and operation of EV charging stations deployed throughout the state to serve individual vehicles using our clean electricity. We encourage this addition.

5.2 Cost-Benefit

To ensure a continuing cost/benefit knowledge base from the rule, and to maintain an ongoing evaluation of the effectiveness of market tools established in this Rule, we request that Ecology, as part of the implementation of a final rule, provide a yearly report summarizing the cost/benefit of ERUs, carbon reduction investments made by those who are affected by the rule, and external carbon markets made available for compliance to covered parties in the rule. This summary should, at a minimum, provide the amount of the investment made in reducing carbon either through direct reduction or the purchase of ERUs and the amount of carbon removed from the atmosphere as a result of the investment.

5.3 Waiver for Reliability

In the federal Energy Policy Act of 2005, Congress required mandatory reliability standards be adopted by the electric industry. In the west, an organization named Peak Reliability, the North American Electric Reliability Council’s (NERC) Western Regions’ Reliability Coordinator, is charged with enforcing those reliability standards. Along with Peak Reliability, the Bonneville Power Administration or other reliability coordinator may issue orders to certain generating plants under certain conditions to operate to maintain reliability of the system. The CAR should exempt GHG emissions produced as a result of a reliability coordinator ordering any generating plant operation to maintain reliability.

6.1 WPUA Redlines to Accompany Comments Filed July 22, 2016 (Only Sections with Redlines Included)

Chapter 173-442 WAC Clean Air Rule

SECTION 1 OVERVIEW

NEW SECTION

WAC 173-442-020 Definitions. The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) Definitions.

(a) "**Actual emissions**" means GHG emissions reported under chapter 173-441 WAC except for emissions exempted under WAC 173-442-040.

(b) "**Baseline GHG emissions value**" means a value defined by WAC 173-442-050.

(c) "**Calendar year**" means January 1 through December 31.

(d) "**Carbon dioxide equivalent**" or "**CO₂ equivalent**" or "**CO₂e**" means a metric measure used to compare the emissions from various GHGs based upon their global warming potential. Ecology uses the global warming potential values listed in WAC 173-441-040 to determine the CO₂ equivalent of emissions.

(e) "**Compliance obligation**" means the value calculated using WAC 173-442-200(3).

(f) "**Compliance period**" means a consecutive three-year period beginning in 2017 (2017 through 2019), and continuing forward (2020 through 2022; 2023 through 2025; etc.).

(g) "**Compliance report**" means the report required by WAC 173-442-210.

(h) "**Compliance threshold**" means the emission levels in WAC 173-442-030(3).

(i) "**Covered GHG emissions**" means any of the following:

(i) "**Covered stationary source GHG emissions**" means GHG emissions from source categories listed in WAC 173-441-120. This includes emissions voluntarily reported under chapter 173-441 WAC using methods established in WAC 173-441-120.

(ii) "**Covered petroleum product producer or importer GHG emissions**" means CO₂ emissions that result from the complete combustion or oxidation of products covered under the Suppliers of Petroleum Products, 40 C.F.R. Part 98, Subpart MM, source category listed in WAC 173-441-120. This includes emissions voluntarily reported under chapter 173-441 WAC using methods established in WAC 173-441-120.

(iii) "**Covered natural gas distributor GHG emissions**" means CO₂ emissions that result from the complete combustion or oxidation of products covered under WAC 173-441-120. This includes:

(A) Natural gas and natural gas liquids listed under 40 C.F.R. Part 98, Subpart NN; and

(B) Emissions voluntarily reported under chapter 173-441 WAC.

(iv) Exemptions are listed in WAC 173-442-040.

(j) **"Covered party"** means the owner or operator of a:

(i) Stationary source located in Washington;

(ii) Petroleum product producer in Washington or importer to Washington; or

(iii) Natural gas distributor in Washington.

(k) **"Curtailement"** means the cessation of production at a stationary source greater than four consecutive months in a calendar year. Curtailement does not include the following activities:

(i) Cessation of production to:

(A) Perform routine maintenance;

(B) Perform nonroutine maintenance;

(C) Make capital improvements to the covered party's facility; or

(D) Perform facility life extension projects.

(ii) Electric generating units are ineligible for this provision.

(l) **"EITE covered party"** means a covered party with a primary North American Industry Classification System (NAICS) code included in the following list (removed): **"Emission reduction unit"** or **"ERU"** means one unit equivalent to one metric ton of CO₂e. An emission reduction unit is composed of any GHG listed in WAC 173-441-040, or, for the purposes of using WAC 173-442-160(6)(b), destroyed chlorofluorocarbons or hydrochlorofluorocarbons.

(m) **"Emission reduction pathway"** means the annual reduction requirement established in WAC 173-442-060 and 173-442-070.

(n) **"Emission reduction requirement"** means a covered party's limit in MT CO₂e for a compliance period based on the sum of the GHG emission reduction pathways for that period.

(o) **"Independent qualified organization"** means an organization identified by the energy facility site evaluation council as meeting the requirements of RCW 80.70.050.

(p) **"Participating party"** means a party that generates emission reduction units within the state of Washington that is not a covered party.

(q) **"Renewable energy credit"** means a tradable certificate of proof of an eligible renewable resource that is verified by the renewable energy credit tracking system identified in WAC 194-37-210(1) and which includes all of the nonpower attributes associated with that electricity as identified defined in RCW 19.285.030(15)(a)&(b).

(r) **"Reserve"** means an account established by ecology to ensure consistency with an aggregate emission reduction limit for the program and for purposes consistent with this chapter.

(s) **"Vintage year"** means the calendar year in which an ERU is first recorded, or, in the case of an allowance, the year designated as the vintage year for that allowance by the external program supplying the allowance.

(2) **Definitions from chapter 173-441 WAC.** If subsection (1) of this section provides no definition, the definition found in chapter 173-441 WAC applies.

(3) **Definitions from chapter 173-400 WAC.** If subsections (1) and (2) of this section provide no definition, the definition found in chapter 173-400 WAC applies.

(4) **Acronym list.**

CO₂ means carbon dioxide.

CO₂e means carbon dioxide equivalent.

EITE means energy intensive and trade exposed.

ERU means an emission reduction unit.
GHG means greenhouse gas.
MT means metric ton.
MT CO₂e means metric ton of carbon dioxide equivalent.
REC means Renewable Energy Credit.

SECTION 2 - APPLICABILITY REQUIREMENTS

NEW SECTION

WAC 173-442-030 Applicability. Who does this rule apply to?

Emission reduction requirements apply to a covered party when their baseline GHG emissions value is greater than or equal to the compliance threshold in the corresponding compliance period in Table 1 of this section. An EITE covered party's baseline GHG emissions for applicability under this section is established in WAC 173-442-070 (2) (c).

(1) Emission reduction requirements apply to a covered party when their baseline GHG emissions value is greater than or equal to the compliance threshold in the corresponding compliance period in Table 1 of this section. An EITE covered party's baseline GHG emissions for applicability under this section is established in WAC 173-442-070 (2) (c).

(1) Notwithstanding WAC 441-170-120, Table 120-1, Category HH, "Exceptions to Calculation Method or Applicability Criteria", a municipal solid waste landfill's baseline GHG emissions shall be calculated for the produced methane prior to conversion into renewable energy or renewable natural gas.

(2) Exception. Applicability to this chapter begins no earlier than 2020 for EITE covered parties and petroleum product importers, and the earlier of 2022 or the beginning of the first compliance period of the Clean Power Plan for electric generators fueled by natural gas.

(3) Compliance threshold. A covered party with covered GHG emissions that are greater than or equal to the compliance threshold in Table 1 must comply with their compliance obligation under WAC 173-442-200.

NEW SECTION

WAC 173-442-040 Exemptions. (1) Covered GHG emissions do not include:

(a) The following subparts referenced in Table 120-1 in WAC 173-441-120;

(i) Manure Management: Subpart JJ;

(ii) Suppliers of Coal-Based Liquid Fuels: Subpart LL;

(iii) Suppliers of Industrial Greenhouse Gases: Subpart OO;

(iv) Importers and Exporters of Fluorinated Greenhouse Gases Contained in Pre-Charged Equipment or Closed-Cell Foams: Subpart QQ.

(b) CO₂ from industrial combustion of biomass in the form of fuel

wood, wood waste, wood by-products, and wood residuals, as provided in RCW 70.235.020(3);

(c) CO₂ that is converted into mineral form and that is not emitted into the atmosphere;

(d) CO₂ emissions from the conversion of biogenic methane from municipal solid waste landfills, anaerobic digesters or wastewater treatment facilities that produce renewable natural gas or generate an eligible renewable resource as that term is defined in RCW 19.285.030; and

(e) Emissions from a coal-fired baseload electric generation facility in Washington that emitted more than one million tons of GHGs in any calendar year prior to 2008, as provided in RCW 80.80.040(3).

(2) Covered GHG emissions from petroleum product producer or importer do not include:

(a) CO₂ emissions that would result from the complete combustion or oxidation of the following products as specified in 40 C.F.R. Part 98, Table MM-1, as adopted by May 1, 2016:

- (i) Kerosene-type jet fuel;
- (ii) Residual fuel oil No. 5 (navy special);
- (iii) Residual fuel oil No. 6 (a.k.a. bunker C);
- (iv) Petrochemical feedstocks: Naphthas (< 401 °F);
- (v) Petrochemical feedstocks: Other oils (> 401 °F);
- (vi) Lubricants;
- (vii) Waxes; and
- (viii) Asphalt and road oil.

(b) CO₂ emissions that result from the complete combustion or oxidation of products when all of the following occur:

- (i) The products are exported from Washington;
- (ii) Final distribution of the product occurs outside of Washington; and
- (iii) The GHG emissions associated with exported petroleum products are voluntarily reported in compliance with chapter 173-441 WAC.

(c) Covered GHG emissions for a natural gas distributor do not include:

(d) Emissions from the combustion or oxidation of products supplied to a covered party that has an emission reduction requirement; or

(e) Units or processes exempted in subsection (4) of this section.

(3) Stationary sources included in the Clean Power Plan (40 C.F.R. Part 60 Subpart UUUU) will be considered to comply with the requirements of this chapter at the beginning of the first compliance period of the Clean Power Plan provided that:

- (a) EPA has approved Washington's implementation plan;
- (b) The approved implementation plan requires equal or greater GHG emissions reduction than required under 40 C.F.R. Part 60, Subpart UUUU; and

(c) When a unit within a covered party's facility is subject to the Clean Power Plan, then only the GHG emissions from that unit(s) are covered under this subsection.

NEW SECTION

WAC 173-442-050 Baseline GHG emissions value for non-EITE covered parties. (1) Ecology must assign a baseline GHG emissions value to each non-EITE covered party. Covered parties fall into two categories:

(a) **Category 1.** A covered party with covered GHG emissions averaging greater than or equal to 70,000 MT CO₂e per year during calendar years 2012 through 2016; or

(b) **Category 2.** A covered party which:

(i) Is a voluntary participant who chooses to participate in the program;

(ii) Did not operate between calendar years 2012 through 2016;

(iii) Had average covered GHG emissions less than 70,000 MT CO₂e per year during calendar years 2012 through 2016; or

(iv) Is a petroleum product importer. This only applies to covered GHG emissions associated with imported petroleum products.

(c) Ecology may adjust the baseline GHG emissions value for Category 1 or 2 covered parties based on:

(i) Reported GHG emissions data when the calculation methodology approved under chapter 173-441 WAC changes.

(ii) Updated annual GHG reports or an assigned emissions level under WAC 173-441-086.

Table 2 (removed)

(2) **Data sources for setting a Category 1 baseline GHG emissions value.** Ecology must use the following sources of data to set a Category 1 baseline GHG emissions value.

(a) Annual GHG emissions reports submitted under chapter 173-441 WAC; or

(b) An assigned emissions level established under WAC 173-441-086.

(c) Petroleum product producers and natural gas distributors must submit to ecology all emissions data submitted to EPA, or required to be retained by EPA, under 40 C.F.R. Part 98, Subparts MM and NN for calendar years 2012 through 2016. This submission to ecology must be complete by March 31, 2017, and consistent with the methods established in chapter 173-441 WAC.

(d) Ecology must use one of the following sources of information to adjust the baseline GHG emissions value of petroleum product producers that adjust their compliance obligation to account for exported petroleum products as specified in WAC 173-442-040 (2)(b):

(i) The petroleum products producer's GHG emissions for calendar years 2012 through 2016 associated with exported petroleum products voluntarily reported by October 31, 2017, using the methods established in WAC 173-441-120; or

(ii) An assigned GHG emissions level for the petroleum product producer's exported petroleum products based on methods established in WAC 173-441-086. Ecology may choose to base the assigned emissions level on either:

(A) GHG emissions data associated with exported petroleum products reported during calendar years 2017 through 2019 using the methods established in WAC 173-441-120; or

(B) Ecology's estimate of the petroleum product producer's GHG emissions data associated with exported petroleum products during calendar years 2012 through 2016.

(3) **Process to calculate a Category 1 baseline GHG emissions value.**

(a) Ecology must calculate the Category 1 baseline GHG emissions value based on the average (in MT CO₂e per year) of:

(i) Five years of covered GHG emissions data between 2012 through 2016, normalized, for electric generation GHG emissions, for weather and hydro system variability (or EPA 2012 baseline?); or

(ii) At least three years of covered GHG emissions subject to (b) of this subsection.

(b) Ecology may omit a specific calendar year from calculating the baseline GHG emissions value when the data meets at least one of the following criteria:

(i) The data represents a significant difference from the average data based on all of the following:

(A) Primarily caused by a change in the GHG emissions calculation methodology approved under chapter 173-441 WAC during the baseline period that is not correctable by adjusting the existing reported GHG data;

(B) The GHG emissions calculation methodology produced a fifteen percent or more difference between that calendar year's GHG emissions and the 2012 through 2016 average of GHG emissions using the methodology in (a) of this subsection; and

(C) The change is not the result of a process or production change regardless of how large, unusual, or outside of the control of the covered party; or

(ii) The calendar year contains a period of curtailment.

NEW SECTION

WAC 173-442-060 GHG emission reduction pathway. Ecology must assign a GHG emission reduction pathway to all covered parties with baseline GHG emissions values greater than or equal to 70,000 MT CO₂e, or when requested by a voluntary participant.

(1) For non-EITE covered parties, ecology assigns the GHG emission reduction pathway to the covered party based on their baseline GHG emissions value.

(a) The GHG emission reduction pathway for the first calendar year a covered party meets or exceeds the compliance threshold in WAC 173-442-030(3) is the baseline GHG emissions value for that covered party.

(b) Annual decrease.

(i) The GHG emission reduction pathway decreases annually by an additional one and seven tenths of a percent (1.7%) of the covered party's baseline GHG emissions value.

(ii) The additional one and seven tenths of a percent (1.7%) adjustment to a GHG emission reduction pathway does not apply to any calendar year that includes curtailment recognized by ecology.

(iii) Beginning in calendar year 2036, the emission reduction pathway remains constant at the value calculated for calendar year 2035.

(c) Ecology will issue a regulatory order as provided in WAC 173-442-200(6) to each covered party with its GHG emission reduction pathway in units of MT CO₂e for each calendar year in the compliance period.

(2) For EITE covered parties the GHG emission reduction pathway

is determined per WAC 173-442-070.

(3) For covered parties subject to the Clean Power Plan, the GHG emission reduction pathway will be consistent with the State Implementation Plan approved by the EPA

3 - COMPLIANCE OPTIONS

NEW SECTION

WAC 173-442-120 Recording emission reduction units. (1) ERUs exist solely as an accounting mechanism and are not property rights.

(2) Each covered party must keep a record for ten years in a manner prescribed by ecology of any ERUs generated or obtained.

(3) Any ERU generated must be recorded with its vintage year in the registry established in WAC 173-442-230 and the compliance report of the covered party.

(4) A covered party or participating party must report ERUs through the compliance re- port and accounts maintained in the registry established in WAC 173-442-230.

NEW SECTION

WAC 173-442-140 Exchanging emission reduction units. Covered parties and participating parties generating ERUs pursuant to WAC 173-442-160 may transfer ERUs under the conditions in this section.

(1) Required documentation.

(a) Documentation of an ERU transfer may consist of contractual arrangements, memoranda of understanding, or other similar records with sufficient detail to document the transfer of the ERU from one participating party or covered party to another.

(b) The transfer of ERUs occurs between accounts in the registry established in WAC 173-442-230.

(2) Tracking emission reduction units. The covered or participating party must document each transfer of an ERU in the compliance report in a format specified by ecology and in the registry established in WAC 173-442-230.

(3) Role of third parties.

(a) Third parties may only facilitate, broker, or assist covered parties to transfer ERUs recorded in accounts in the registry.

(b) Third parties may not own ERUs.

NEW SECTION

WAC 173-442-150 Criteria for activities and programs generating emission reduction units. (1) General criteria. An activity or program generating ERUs must meet all of the following criteria. Emission reductions from activities or programs must be:

(a) Real, specific, identifiable, and quantifiable;

(b) Permanent: The activity or program must result in an

irrevocable and nonreversible reduction in GHGs released to the atmosphere;

- (c) Enforceable by the state of Washington;
- (d) Verifiable as described by WAC 173-442-210; and
- (e) Additional to existing law or rule.

(i) If an emission reduction is required by another statute, rule, or other legal requirement, the emission reduction cannot be used in this program.

(ii) Emission reductions resulting in part or in whole from the policies below can be used to comply with the requirements of this chapter:

(A) The EPA Clean Power Plan (40 C.F.R. Part 60, Subpart UUUU) consistent with WAC 173-442-040(4).

(B) Washington's GHG emission performance standard (RCW 80.80.040);

(C) Washington's CO₂ mitigation standard for fossil-fueled thermal electric generation facilities (chapter 80.70 RCW); emission reductions must result from mitigation projects, as defined in RCW 80.70.010; or

(D) Commute trip reduction programs as established through RCW 70.94.527 per WAC 173-442-160(3).

(E) The on-site capture and destruction of methane or other greenhouse gases at a facility through a digester system, landfill gas collection system, or other mechanism, as established by RCW 19.285.030(15)(b)

(2) RCW 70.235.030(3) establishes that CO₂ emissions from the industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals are carbon neutral and result in zero CO₂ emissions.

NEW SECTION

WAC 173-442-160 Activities and programs recognized as generating emission reduction units. (1) Ecology will accept ERUs from the activities and programs described below, provided they comply with third-party verification under WAC 173-442-220, the requirements of this section, and WAC 173-442-150, and are generated by activities of either covered parties or participating parties:

- Transportation activities;
- Combined heat and power activities;
- Energy activities;
- Livestock and agricultural activities;
- Waste and wastewater activities;
- Industrial sector activities;
- Certain EFSEC recognized emission reductions; and
- Ecology approved emission reductions.

(2) To generate an ERU, the following must occur:

(a) If a protocol is listed from an external registry program, then the emission reduction must be registered on that registry along with the information necessary to establish eligibility to meet the criteria of this chapter.

(b) Where a process is listed instead of a registry-specific protocol, all steps of the process must be followed in a manner approved by ecology and any other departments referenced in the

applicable process.

(c) Project types must not be included in the methodologies used in the emission calculations that generate the covered GHG emissions for any covered party reporting as per chapter 173-441 WAC.

(d) Third-party verification must occur as per WAC 173-442-220, except for ERUs generated by energy efficiency measures and renewable energy reported per subsection 5 of this section.

(3) **Transportation activities.** Transportation activities must:

(a) Use less energy or different forms of energy for transportation through the application of:

(i) *Improved Efficiency of Vehicle Fleets* protocol from the American Carbon Registry (as of May 1, 2016); or

(ii) *Truck Stop Electrification* protocol from the American Carbon Registry (as of May 1, 2016).

(b) Exceed workplace goals for the commute trip reduction program as required by RCW 70.94.527 according to the following:

(i) Organizations that participate in commute trip reduction programs may generate ERUs if they provide data and surveys consistent with the requirements of their applicable program and those of the department of transportation.

(ii) Generation of ERUs will be derived from reductions in the drive-alone trip rate at workplaces participating in commute trip reduction programs, as tracked and reported by the department of transportation.

(iii) The drive-alone trip rate will be measured relative to a baseline maintained by the department of transportation consisting of the average of the 2013/2014 and 2015/2016 commute trip reduction program survey years. An imputed baseline will be used for organizations that enter commute trip reduction programs in years after 2016.

(iv) GHG emission reductions associated with reductions in the drive-alone trip rate will be calculated by the department of transportation.

(v) Ecology will assign the appropriate quantity of ERUs.

(c) Finance and operate electric vehicle charging stations in the state.

(i)

(4) **Combined heat and power activities.** Combined heat and power projects demonstrating GHG emission reductions through a methodology submitted to and approved by ecology.

(5) **Energy measures.** Energy efficiency measures and demand side management of electricity and natural gas consumption in Washington, and alternative energy generation technologies located in Washington may generate ERUs.

(a) Utilities or joint operating agencies, not otherwise a covered party, acquiring and reporting energy efficiency measures or report documentation demonstrating renewable energy generation or renewable energy credits per this section shall qualify as a participating party without further documentation or requirements to become a covered party, and ERUs so generated are not subject to further verification under WAC 173-442-220.

(a) The acquisition of conservation and energy efficiency in excess of the targets required by the Energy Independence Act per RCW 19.285.40 and any additional acquisition targets established by the utilities and transportation commission by rule or order may generate

ERUs.

(i) Eligible conservation and energy efficiency must be reported to the department of commerce or the utilities and transportation commission in accordance with its rules or orders, and consistent with RCW 19.285.070.

(ii) Utilities that are not qualifying utilities, as defined in RCW 19.285.030, may voluntarily submit data on their conservation and energy efficiency acquisitions to the department of commerce in accordance with its rules and in a manner consistent with RCW 19.285.070 to generate ERUs under this section.

(iii) Only conservation and energy efficiency that exceeds the targets established through RCW 19.285.040, targets for natural gas conservation put in place through order, and any additional targets established by the utilities and transportation commission by rule or order is eligible to generate ERUs.

(iv) Natural gas conservation and efficiency must be expressed in units of megawatt-hours using procedures established by the utilities and transportation commission.

(b) The acquisition and subsequent retirement of renewable energy credits that are not retired for purposes of complying with the Energy Independence Act or other regulatory or voluntary programs may generate ERUs.

(i) Electricity from R-renewable resources eligible for generating ERUs include eligible electricity generated using renewable resources as defined by RCW 19.285.030(12)(21) and generated in Washington state. except that only these eligible renewable resources electricity physically located generated in Washington may generate ERUs.

(ii) ERUs may ~~only~~ be generated if a sufficient quantity of renewable energy credits are retired in the renewable energy credit tracking system identified in WAC 194-37-210(1) and the following conditions are met:

(A) Each renewable energy credit retired must have the appropriate notation within the tracking system that the renewable resource is eligible for Washington compliance for the Energy Independence Act or this rule.

(B) Renewable energy credits must be retired consistent with the operating rules of the renewable energy credit tracking system and in the proper retirement account within the tracking system as designated by the Washington renewable energy credit tracking system administrator.

(C) Any renewable energy credit used for the purposes of generating ERUs must not have been retired or otherwise used for any other program or requirements.

(D) The renewable energy credit tracking system account holder must establish the department of commerce as a state program administrator with access to the account holder's compliance reports.

(c) ERUs may be generated by renewable resources that generate electricity, that do not generate a renewable energy credit, and that are not used for purposes of the Energy Independence Act, as follows:

(i) Incremental electricity, not used for compliance with RCW 19.285.040, produced as a result of efficiency improvements completed after March 31, 1999, to hydroelectric generation projects physically located in the state of Washington including projects located on the Columbia River where it is a common border with the states of

Washington and Oregon. Such incremental electricity shall be measured and documented per WAC 194-37-130.

(ii) Electricity from a hydroelectric generating facility physically located in Washington state brought into service after March 31, 1999 and that was not otherwise in service between January 1, 1990 and March 31, 1999.

(iii) Incremental electricity generated as a result of efficiency improvements completed after March 31, 1999 to a nuclear generation facility physically located in Washington state.

(iv) One ERU is produced from each two and one-quarter megawatt-hours of electricity generated from renewable resources that do not generate an associated renewable energy credit, and from incremental nuclear generation, and belong to the owner of the facility generating the electricity, or if the electricity is purchased from a federal agency, the ERU belongs to the utility purchasing such electricity from the federal agency and providing electric service in the state of Washington.

(c) (d) The quantity of ERUs generated from exceeding conservation targets as per WAC 173-442-170 (2)(a) or from retiring renewable energy credits as per WAC 173-442-170 (2)(b) is computed by assuming:

(i) The marginal resource for which the conservation or renewable energy generation is avoiding is a new combined-cycle natural gas thermal electric generation turbine sited in Washington.

(ii) The average rate of GHG emissions for such a turbine is nine hundred seventy pounds per megawatt-hour, as per the determination made in WAC 194-26-020.

(iii) That under these assumptions one ERU may be generated by retiring two and one-quarter renewable energy credits, generating two and one-quarter megawatt-hours of electricity using renewable resources; ~~or~~ and for exceeding a conservation target by a qualifying utility ~~by~~, or, for a utility that is not a qualifying utility, by acquiring, conservation measures equal to two and one-quarter megawatt-hours per year for each year that the energy savings from those measures persist.

(d) (e) Ecology will allocate the appropriate quantity of ERUs as determined in this subsection.

(6) **Livestock and agricultural activities.** GHG management activities addressing agricultural and livestock activities using:

(a) *Nitrous Oxide Emissions Reductions from Reduced Use of Nitrogen Fertilizer on Agricultural Crops* protocol from the American Carbon Registry (as of May 1, 2016).

(b) The enteric methane, manure methane, and nitrous oxide from fertilizer use modules from the *Grazing Land and Livestock Management* protocol from the American Carbon Registry (as of May 1, 2016). The biotic sequestration and fossil fuel modules of this protocol may not generate ERUs.

(c) The *U.S. Livestock* protocol from the Climate Action Reserve (as of May 1, 2016).

(7) **Waste and wastewater activities.** GHG management activities addressing waste and wastewater infrastructure and activities using:

(a) *U.S. Landfill* protocol from the Climate Action Reserve (as of May 1, 2016);

(b) *Organic Waste Composting* protocol from the Climate Action Reserve (as of May 1, 2016); or

(c) *Organic Waste Digestion* protocol from the Climate Action Re-

serve (as of May 1, 2016).

(d) GHG management activities addressing the conversion of methane to CO₂ by:

- (i) Generating eligible renewable resources per 19.285.030; or
- (ii) Producing and distributing renewable natural gas as that term is defined in RCW 54.04.190; or
- (iii) Anaerobically digesting organic waste.

(8) **Industrial sector activities.** GHG process and equipment management, operations, and changes affecting industry and manufacturing using:

(a) *Replacement of SF₆ with Alternate Cover Gas in the Magnesium Industry* protocol from the American Carbon Registry (as of May 1, 2016);

(b) *Certified Reclaimed HFC Refrigerants and Advanced Refrigeration Systems* protocol from the American Carbon Registry (as of May 1, 2016);

(c) *Conversion of High-Bleed Pneumatic Controllers in Oil and Natural Gas Systems* protocol from the American Carbon Registry (as of May 1, 2016); or

(d) *Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use* protocol from the American Carbon Registry (as of May 1, 2016).

(9) Emission reductions derived from one of the activity categories in subsections (3) through (§9) of this section and that are from an independent qualified organization recognized by the energy facility site evaluation council under RCW 80.70.050.

(10) Emission reductions derived from one of the activity categories in subsections (3) through (§9) of this section through a methodology approved by ecology.

SECTION 4 - DEMONSTRATING COMPLIANCE

NEW SECTION

WAC 173-442-210 Compliance report. (1) Each covered party must submit a compliance report:

- (a) In a format prescribed by ecology;
- (b) That includes verification complying with WAC 173-442-220; and
- (c) By the deadline in WAC 173-442-250.

(2) The covered party is solely responsible for ensuring that ecology receives its compliance report by the deadlines.

(3) The compliance report must contain the following information:

- (a) Record of ERUs generated.
 - (i) The record of each ERU generated must include:
 - (A) The source of each ERU(s).
 - (B) The source of the emissions data or computational method used to generate each ERU.
 - (C) The vintage year of each ERU.
 - (ii) The record may cover a distinct ERU or a block of ERUs from an identical source.
 - (b) Record of ERUs banked. The record of ERUs banked must include:
 - (i) Vintage year of the ERU.

- (ii) Origin of the ERU.
- (c) Record of ERU transactions. The record of each ERU transaction must include:
 - (i) The origin of any ERUs acquired.
 - (ii) The destination of any ERUs transferred.
 - (iii) The names and contact information of any third-parties who facilitated, brokered, or provided liaison services between the parties making the transfer.
- (iv) The vintage year of the ERUs.
- (d) Documentation that a third party verified the compliance report
- (e) Signature of the chapter 173-441 WAC covered party's designated representative or alternate designated representative.
 - (f) Statement attesting to the report's accuracy and validity.
 - (4) A covered party must retain records for ten years.
 - (5) **Compliance report corrections.**
 - (a) Covered parties must correct errors in their compliance report no later than forty-five days after discovery of an error.
 - (b) Ecology requires corrections regardless of whether errors are identified by:
 - (i) The third-party verifier;
 - (ii) The covered party; or
 - (iii) Participating party; or
 - (iv) Ecology.
 - (c) A covered party may request to have a submitted compliance report for the most recent compliance period reopened for corrective edits and resubmittal.
 - (d) The covered party must provide justification to ecology for the report correction(s) and indicate the specific corrections they will make to the report.
 - (e) Each submitted request is subject to ecology review and approval. Permissions to correct a report does not preclude enforcement based on misreporting.
 - (6) **Ecology denial of compliance report.**
 - (a) Ecology will determine if the compliance report contains errors that impact the verification status of the compliance report.
 - (b) Ecology may deny a compliance report regardless of verification. Ecology may deny for these reasons:
 - (i) Failure to submit a complete compliance report by the deadline;



WASHINGTON REFUSE & RECYCLING ASSOCIATION

July 22, 2016

Mr. Sam Wilson
Air Quality
Department of Ecology
P.O. Box 47600
Olympia, WA 98504

RE: Clean Air Rule WAC 173-442

Dear Mr. Wilson:

The Washington Refuse and Recycling Association (WRRA) is the oldest Solid Waste Trade Association operating on the West Coast of the United States, founded 69 years ago. WRRA member companies and the solid waste industry serve a vital role in public health, safety, and environmental protection. WRRA's members, individually and in combination are the solid waste collection companies and real recyclers in Washington, operate the largest landfill facilities, and service virtually every community in the state.

WRRA represents the private sector solid waste and real recycling industry in Washington, including curbside collection service, state of the art recycling facilities, and landfills which are the final destination for both solid waste and recycling residuals from innovative industry programs. WRRA members transport solid waste and recycling residuals to both publically and privately owned landfills, the result of a public-private partnership that makes Washington's waste system the best in the nation. As such, the Clean Air Rule is of great interest to the industry and our comments reference both public and private facilities.

The solid waste industry and landfills provide for safe and environmentally responsible disposal of most of the solid waste in Washington. The industry is proud to perform a vital public service which is necessary to protect human health and the environment. These facilities are the result of a successful and necessary regulatory system. These wastes are not generated by the solid waste industry itself. Rather, the industry is responsible for safely and proactively managing wastes generated by every other industrial, residential, and commercial source in Washington.

The solid waste industry has already made great strides in achieving emissions reduction, including methane capture, sequestration, and the transition to CNG vehicles on the transportation side of the industry. However, the solid waste industry is unique and landfills face unique challenges which WRRRA asks the Department of Ecology to consider while drafting the Clean Air Rule. WRRRA references and incorporates early comments submitted by the association regarding the Clean Air Rule. WRRRA appreciates the opportunity to comment on these rules still in development and offers these comments which are of great interest to the solid waste industry.

I. Landfills are Exempt under Leading Carbon Reduction and Cap-and-Trade Programs.

Landfills are unique facilities, necessary for public health and the proper disposal of all types of waste generated by both the public and private sectors. Other cap-and-trade and similar carbon reduction programs have recognized this fact and exempted landfills from these programs. In California, landfills are exempt from the state's robust AB 32 cap-and-trade program. California's program excludes the biogenic emissions from biomass (including biogas) as well as fugitive emissions from municipal solid waste landfills, which are regulated under a separate rule. On the East Coast, landfills are excluded from the Regional Greenhouse Gas Initiative (RGGI), a mandatory cap-and-trade program covering nine states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont).

Landfills are also exempt from the European Union's (EU) cap-trade-program. Landfill emissions reductions are achieved through the separate EU Landfill Directive, which provides solutions tailored to landfills and their unique public necessity. Similarly, carbon emissions from biogenic sources are not included in the Clean Development Mechanism of the Kyoto Protocol. Washington's Clean Air Rule should follow the precedent set by the most prominent currently functioning carbon reduction and cap-and-trade programs. Washington should follow the global trend; landfills should be exempt from the Clean Air Rule.

Summary: Landfills are exempt under all of the long standing and well established carbon reduction and cap and trade programs across the world. Landfills should be exempt from the Clear Air Rule.

II. Landfills Should Generate Emission Reduction Units from Methane Capture Programs.

Under the Clean Air Rule, biogenic emissions from combustion of landfill gas are included in the baseline emissions, which apparently precludes the generation of Emission Reduction Units from landfill methane capture and reduction programs. Landfill emissions, particularly landfill gas methane can be collected by high efficiency systems and eliminated through combustion and other methods, producing electricity, fuel, or used for other industrial purposes. These uses of landfill emissions routinely generate "credits" or reductions under other emission reduction programs, even when landfills are exempt from the program itself.

Many major emission reduction programs allow for emission credits to be generated from landfill methane capture programs. Landfills are not regulated under the RGGI, yet landfills performing above state and federal standards can generate credits under these programs through methane capture and reduction. The same trend holds true abroad in both longstanding and newly established programs. The EU cap-and-trade program has operated for 11 years since 2005, and allows landfills generate credits for methane reduction. Again, landfills notably are exempt from the EU program, but still rewarded for emission reducing efforts. Under Australia's recently newly established Safeguard Mechanism carbon cap, which went into effect on July 1, 2016, landfills may generate reduction credits through methane capture and combustion.

Contrary to other leading carbon reduction programs, The Clean Air rule precludes a number of excellent carbon neutral, green, and innovative energy and fuels projects which use landfill gas as a feedstock from generating Emission Reduction Units. In this respect, the Clean Air Rule is at odds with its own goals by discouraging the transition to alternate and better fuel sources. The Clean Air Rule is also at odds with other leading carbon reduction programs, many of which exclude landfills from emissions caps. In light of this, WRRRA asks the Department to reconsider landfill methane capture and reduction projects in the rule.

Summary: *Landfills generate credits for emission reduction units under other leading carbon reduction programs across the world, even under programs that exempt landfills. Landfills should be exempt from the rule, but allowed to generate emission reduction units through methane capture and destruction if included.*

III. The Clean Air Rule Draws Problematic Conclusions in Measuring Landfill Emissions which are Better Measured and Regulated under Other Existing Programs.

Landfills are unique, unlike measuring stack emissions from a manufacturing facility, landfill gas emissions cannot be directly measured. Potential emissions can be measured through several complex methods, though every landfill is different in terms of its emissions and existing mechanisms for emission reduction. Furthermore, biogenic emissions from landfill gas are treated differently under the Clean Air Rule than existing programs at the federal level and differently than the global trend.

On July 15, 2016, the federal Environmental Protection Agency issued final rules governing New Source Performance Standards for new, modified, and reconstructed Municipal Solid Waste landfills, as well as new Emission Guidelines for MSW landfills. These rules and guidance are on track to specifically reduce landfill emissions and represent a better fit for landfills than the Clean Air Rule. A number of solid waste industry and government representatives have addressed these issues and the difficulty with landfill emissions in excellent technical detail in their comments. WRRRA will not duplicate those arguments, but does reiterate that well-reasoned and informative analysis. Given these challenges with landfills, most carbon reduction programs exclude landfills and regulate these entities separately, as previously discussed.

Summary: *Landfills are not a good fit for cap and trade programs due to the difficulty in accurately measuring emissions. Landfills are heavily regulated under other programs, including new federal rules which will accomplish significant reductions similar to the Clean Air Rule. Landfills should be exempt from the Clean Air Rule and achieve reductions through programs more tailored to these unique and necessary facilities.*

IV. The is No Clear Emission-Reduction Pathway for Landfills, the Cost of Compliance is Likely Unachievable, and will Directly Impact Nearly Every Resident and Industry in Washington.

Compliance pathways for landfills are much more complex because a landfill will generate emissions over the entire life of the landfill, and the highest generation rate will occur the year after the landfill accepts its final ton of solid waste. In other words, cumulative emissions generations rates increase every year waste is placed into the landfill. Because of this, there is no real ability for landfills to have an “emission-reduction pathway” as envisioned by the rule, and landfills must turn to ever-increasing cost penalties in the form of purchasing ERUs.

The cost of compliance for landfills is devastating to both public and private facilities. For example, Cowlitz County, operator of a publicly owned landfill, estimates a cost of \$80 million through 2035. These costs are crippling to a public facility and impact privately owned landfills as well, with estimated potential costs exceeding \$200 million over the same period for larger landfills. The costs of meeting the ERU requirements will be very significant, and meeting these will place Washington Counties and companies at a disadvantage.

As landfills adjust prices to account of the cost of compliance with the Clean Air Rule, these increases in disposal and collection costs will likely cause the diversion of waste from larger landfills (which are highly regulated and have comprehensive gas collection systems and beneficial use projects in place) to smaller or out of state landfills not subject to the rule. As that process unfolds, there will be no real GHG reductions from landfills because waste will go to landfills or states not required to reduce emissions, Washington will see increased GHG emissions from extra waste transport, and Washington landfills will face economic hardship and potential bankruptcy under the Clean Air Rule.

The Clean Air rule will also lead to increased costs to other sections of the solid waste industry, which serves virtually every other industry and resident in Washington State. In Washington, the transportation of Solid Waste is heavily regulated by the Utilities and Transportation Commission under RCW 81.77. The Commission sets the rates for solid waste collection companies to ensure that they are just, fair, reasonable, and sufficient. The costs of disposal are internalized in these rates, and typically account for around 40% of a solid waste collection company’s costs. RCW 81.77.160 allows solid waste collection companies to receive rate increases should the cost of disposal at a landfill increase. Cities may opt out of the regulated WUTC structure and contract directly with a solid waste collection company, though those contracts virtually always include a similar mechanism for cost recovery on increased disposal costs. An increase in the cost of disposal landfills will thus be spread across the entire rate base,

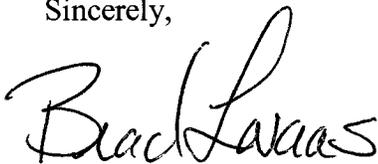
and felt across the entire economy. The costs of compliance will be felt across the state and the cost may fall disproportionately on disadvantaged people and communities. This runs directly contrary to the Clean Air Rule's stated environmental justice goals.

Summary: *Landfill emissions increase over the lifetime of the landfill and there is no clear path to reduction for landfills like other facilities. Under the rule, landfills can only meaningfully achieve reductions through purchasing ERU's, which carry a massive burden for both public and private facilities. The rule will only hurt Washington entities, not achieve emissions reductions as waste will be diverted to smaller and out of state landfills not subject to the rule. The increased cost of compliance will be felt by virtually every Washington resident and sector of the State's economy.*

V. Conclusion

The proper and safe disposal of waste is an essential public service necessary to protect human health and the environment. Landfills generally do not lend themselves to regulation under cap and trade programs based on the difficulty in measuring the direct emissions accurately and the public necessity they serve. As such, the global and national trend has been to exclude landfills from programs like the Clean Air Rule because, simply put, landfills are different and necessary. WRRRA requests the department consider these comments and adjust the Clean Air Rule accordingly.

Sincerely,



Brad Lovaas

Executive Director

cc: Maia Bellon, Director, Department of Ecology
Stu Clark, Program Manager, Air Quality Program



WASHINGTON REFUSE & RECYCLING ASSOCIATION

May 31, 2016

Mr. Sam Wilson
Air Quality
Department of Ecology
P.O. Box 47600
Olympia, WA 98504

RE: Clean Air Rule WAC 173-442

Dear Mr. Wilson:

The solid waste industry and the landfills which provide for final disposal of most of the solid waste in Washington perform a vital public service which is necessary to protect human health and the environment. These facilities are the result of a successful and necessary regulatory system which provides for the safe and responsible disposal of solid waste. The solid waste industry is unique and landfills face unique challenges which WRRRA asks the Department of Ecology to consider while drafting the Clean Air Rule.

Accounting Methodology

A number of solid waste industry and government representatives have addressed the accounting methodology issue in great technical detail in their early comments and WRRRA will not duplicate that well-reasoned and informative analysis. However, WRRRA would like to reiterate those comments, especially in consideration of the incredible engineering and technology present at modern landfills. Today's landfills are complicated, and well-designed facilities designed to operate for many decades and are already on the cutting edge of greenhouse gas reduction and clean energy generation. This may not be reflected in the department's current methodology or given appropriate recognition in the Clean Air Rule.

Competitiveness

Much like energy-intensive, trade exposed industries, which are recognized in the rule, the landfill side of the solid waste industry is highly competitive with out-of-state entities. Much of the solid waste in Washington is exported to landfills outside the state, where landfills are largely exempt from similar programs. Other states have exempted landfills from their regulation due to the unique challenges presented by landfills in relation to emissions regulation and the vital role they serve in public health and the environment. Even more of Washington's solid waste may leave the state for disposal to neighboring states where landfills would operate under a competitive advantage, depriving local governments and companies operating in Washington of revenue from disposal fees.

For waste that remains in Washington, the draft rule will likely encourage diversion of waste from large landfills covered by the rule to smaller facilities, which fall below the emissions threshold, typically with less modern equipment for controlling emissions. This will increase the cost of disposal at covered

landfills without resulting in reduced GHG emissions as the waste and emissions generated will still be present, just not at covered facilities. WRRRA requests the department to recognize the challenges this rule presents to the solid waste industry, as they have with other competitive industries.

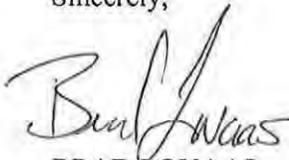
Environmental Justice

The costs of compliance will be felt across the state and the cost may fall disproportionately on those least able to pay. In Washington, the transportation of Solid Waste is heavily regulated by the Utilities and Transportation Commission under RCW 81.77. The Commission sets the rates for solid waste collection companies to ensure that they are just, fair, reasonable, and sufficient. The costs of disposal are internalized in these rates, and RCW 81.77.160 allows solid waste collection companies to receive rate increases should the cost of disposal at a landfill increase. Cities may opt out of the regulated WUTC structure and contract directly with a solid waste collection company, though those contracts virtually always include a similar mechanism for cost recovery on increased disposal costs. An increase in the cost of disposal at the landfill will thus be spread across the entire rate base, which will increase costs of an essential service for all customers and have a disproportionate impact on disadvantaged people and communities. This runs directly contrary to the Clean Air Rule’s stated environmental justice goals.

Conclusion

It’s simple common sense that Washington’s landfills provide a vital public service which addresses a vital public need: the safe and responsible disposal of solid waste. It’s also common sense that as more waste enters a landfill for final disposal, the emissions of the landfill will increase over time as the landfill accepts more waste from Washington’s cities and counties. Landfills and the solid waste industry are unique due to the necessity of the service they provide. Other states, including California, have recognized these differences and regulated accordingly. WRRRA asks the department to thoroughly consider these initial comments in its drafting process and work with the solid waste industry to develop solutions.

Sincerely,



BRAD LOVAAS,
Executive Director

Attachment 1
Western States Petroleum Association Comments
Proposed Washington Clean Air Rule
July 22, 2016

SECTION 1. SUCCESSFUL START: PROGRAM DESIGN AND DEVELOPMENT

The proposed Clean Air Rule (CAR) WAC 173-442 and 173-441 will be a challenge to implement even under the best of conditions. It will result in nothing less than a fundamental shift in the way that energy is produced and consumed in the state of Washington. It would be difficult to overstate the impact this will have on Washington's energy producing and consuming industries, as well as on consumers. Even under the best of conditions, where such a rule developed and fine-tuned over a period of years (as has been the case in other jurisdictions) with is ample input from stakeholders including the public, these programs normally are rolled out in a phased approach in recognition of the challenges involved.

The myriad of topics discussed in the rulemaking are complex; time and effort are needed to incorporate them into a rule that is workable. In the European Union (EU), for instance, there was a multi-year test run of the regulation where no emission reduction obligation was required. In California, the Cap & Trade program started with a year of "cap and trade with reporting only¹," followed with the start of compliance for stationary sources only one year later. Compliance for fuels started two years after that. Even with this additional development time, California has had to further revise its regulation.

By comparison, the proposed CAR starts rapidly, with only a short gap of a few months between final rule and implementation. The proposed rule is approximately 29 pages long, versus other jurisdictions that have rules more than an order of magnitude longer to cover the relevant detail that such a rule demands. As a result, this rule continues to require significant interpretation and "reading between the lines" by stakeholders.

The rule is missing key definitions (e.g. "Producers" and "Final Distribution"). Concepts are abstracted across sections and incoherently so. Most significantly, key information to demonstrate a workable program has not been provided to the stakeholders. This lack of transparency suggests that key assumptions implied in the rule (such as the availability of credits to cover obligations) were never actually analyzed.

This is the logical conclusion that must be drawn given that multiple requests to Department of Ecology (Ecology) to provide such information, and assurances that the information would be forthcoming², have not been met. We discuss this concern in more detail in Section 4, "Emission Reduction Units (ERUs) and Program Cost/Benefit" and Section 7, "Declining "Hard" Cap and the Reserve".

Rule Feasibility - Ability to Comply

The availability of emission reduction units (ERUs) and credits, in particular, is the greatest concern with basic rule feasibility. It is the only significant compliance pathway available to fuel providers, including WSPA members, due to the large commodity-scale of petroleum products and since we do not have

¹ Reporting for California started in 2008. So it had been around for 4 years before the 2012 start to the cap and trade program.

² Key meetings with WSPA and Ecology include Feb 16, 2016; March 18, 2016; March 29, 2016; April 6, 2016

control over consumer choice. WSPA members represent the largest impacted sector covered by the CAR, so additional focus on compliance feasibility deserves Ecology's attention.

As we discuss in Section 6, "Emission Reduction Units (ERUs) and Program Cost/Benefit", we have roughly reviewed the main emission reduction unit opportunities that Ecology has mentioned in hearings and in the documents, namely dairy digesters and employee trip reductions in transportation. Unfortunately, we have found that these options may provide < 4% of the ERUs needed for compliance by 2023. Per Table 3 in the proposed rule, in the third compliance period, the draft rule stipulates that 50% of reductions must come from within the state of Washington. This apparent shortfall of robust emission reduction unit generation opportunities, and early curtailment of the credit options from external sources, is what makes WSPA so concerned about the workability and cost-effectiveness of the proposed rule.

Businesses make proactive plans and decisions in forward-thinking, multi-year increments that can cover periods of up to 10 years or even longer. If there were sufficient time to develop this rule, containment methodologies to manage major events that harm the economy could be developed, with predictable program plateaus or changes. The lack of such proactive planning is a significant gap in the rule that shows the lack of recognition of the complexity of this rule, its impact on the state of Washington and its citizens and the complexity for a business to comply with a rule of this nature.

There is great uncertainty surrounding the availability of in-state derived reductions in the third compliance period. As indicated in California's Emissions Markets Assessment Committee (EMAC) report, time to develop a cost containment mechanism is before a market has become stressed³.

Rule Feasibility – Readiness to Start

We continue to press for the program to start with a trial period only until 2020, to allow it be phased in to account for the variety and challenge of all of the different sectors and markets included. It is simply not reasonable to start the obligation period in 2017 based on 2012-2016 data, with 2016 operating year and its emission data not yet in hand and the likelihood that ERUs will not be available until 2018. As mentioned above, this allows for no planning, that the covered entities normally do many years in advance.

A phased approach would allow stakeholders to develop familiarity with the regulations, develop compliance plans, and put in place the processes to reduce emissions. Moreover, a phased approach would allow Ecology the time to further develop the regulation and to carry out a more appropriate and robust stakeholder process. This additional time would allow Ecology to put in place the necessary reporting and compliance tracking processes needed to ensure that the rule is meeting its goals. Addressing climate change is a century scale problem. It is more important to get the regulation right, rather than start it prematurely.

A phased-in approach for the stationary sources and for fuels, as well as the ramp up of the compliance obligation over time, would:

- Allow Ecology to further develop the regulation and key reporting components
- Allow Ecology to develop the necessary reporting forms, accounting systems, registry and ERU reserve

³ Report found at <http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/emissionsmarketassessment.htm>

- Allow for a more robust stakeholder process
- Allow regulated entities to put in place compliance plans and processes
- Allow for emission reduction capital projects to be planned, funded and permitted – a multiyear process
- Allow for offset markets to develop in response to the finalized regulation, as there are valid concerns about the availability of these credits
- Allow time to receive assurance on the availability of allowances from other carbon rule jurisdictions, which may require rulemakings in those jurisdictions.

SECTION 2 - ENERGY INTENSIVE TRADE EXPOSED

The proposed CAR should use independent criteria to determine whether industries are Energy Intensive Trade Exposed (EITE). WAC 173-442-020 simply provides an arbitrary and capricious list of industries (by NAICS code) whose members would be considered EITE-covered parties under the rule.⁴ Ecology has provided no explanation as to why it selected these industries, and not others, for EITE status. Based on criteria listed by Ecology in the SEPA checklist for the CAR, petroleum refineries should be included.

The SEPA checklist provides an objective description of EITE industries as industries that:

- Use a lot of energy in manufacturing their products
- Manufacture commodities that are traded globally, in very tight markets so they are vulnerable to competition.⁵

Objective EITE classification commonly uses a set of criteria for energy intensive (emissions intensity or carbon costs) and a set of criteria for trade exposure (trade intensity), which then form a combined test. These criteria are used to determine EITE status and are consistent across many jurisdictions, including the European Union, Australia, and California; these criteria were also used in the development of a 2009 U.S. congressional bill (H.R. 2454), commonly referred to as “Waxman-Markey.”⁶ Applying factors to petroleum refineries and associated activities in Washington (NAICS 324110 and others under the 324xxx designation), demonstrate that these refineries are EITEs.

Energy Intensity

Other jurisdictions measure energy intensity as the amount of CO₂ emitted by an industry, divided by the value added of goods produced. The following is a summary of these criteria, translated to common units of tons CO₂e/million USD.

⁴ See proposed WAC 173-442-020(l).

⁵ Ecology, SEPA Environmental Checklist – Clean Air Rule, at 5 (May 24, 2016).

⁶ H.R. 2454, 111th Cong. (2009).

Jurisdiction	Currency conversion (to USD)	High Intensity	Medium/Moderate Intensity	Only a single emissions intensity classification
California	na	5000	1000	
Australia	0.75	4500	1500	
United States ⁷	na			2500
European Union	1.11			1850
New Zealand	0.72			1150

The energy intensity of the Washington petroleum refining industry can be estimated according to these criteria based on public information. Washington’s five refineries generate approximately 6.6 million tons CO₂/yr.⁸ With respect to value added, these refineries have the capacity to produce approximately 632,000 bbl/day of product. Based on reasonable assumptions of 85% utilization and a notional product uplift of \$10/bbl of production, this yields an added value of approximately \$2 billion per year.⁹

The resulting energy intensity factor for Washington’s petroleum refining industry is **3300**.¹⁰ This is similar to California’s calculated value of **2720** for its refining industry.¹¹ Applying this criterion, California designates refineries as “Medium Emissions Intensity”.¹² Emissions Intensity of industries like aircraft manufacturing, sawmills and food manufacturing is categorized low to very low (under a 1000 or 100 on the scale), while cement manufacturing is very high (over 10,000 on the scale).¹³ By looking to this reference scale, Washington’s petroleum refining industry is clearly energy intensive according to objective criteria used in other jurisdictions,¹⁴ and much more energy intensive than other industries that have been declared an “EITE Covered Party” by the draft CAR.

Trade Exposure

EITE criteria used in other jurisdictions typically measure trade exposure via the following equation: (Imports + Exports) / (Imports + Shipments). “Shipments” refers to domestic production. Under the CAR and Ecology’s proposed amendments to WAC 173-441-120, “exports” refers to products transferred from Washington to locations outside the state. Based on the following 2013 data from the Washington Research Council,¹⁵ and estimates of

⁷ Per proposed H.R. 2454 (Waxman-Markey)

⁸ See Ecology, Washington Mandatory Greenhouse Gas Reporting Program – Reported Emissions for 2012 – 2014, available at http://www.ecy.wa.gov/programs/air/permit_register/ghg/PDFs/WA_GHG_Reporting_Data_2012-2014.pdf

⁹ Calculated as follows: (632,000 bbl/day) * (365 days/yr) * (0.85 utilization) * (\$10/bbl) = \$1,960,780,000.

¹⁰ Calculated as follows: (6,600,000 tons CO₂) / (2000 \$mln value added) = 3300.

¹¹ California Air Resources Board (CARB), Proposed Regulation to Implement the California Cap-and-Trade Program, Initial Statement of Reasons (ISOR), Part I, Volume IV, Appendix K: Leakage Analysis, K-15 (2010), available at <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appk.pdf>. Note that, while the California EITE information is used as an example that does not indicate agreement with all elements of that program. In addition, California agencies have recently indicated intent to re-design the current EITE program. Note 2: California is starting over with regard to the EITE process.

¹² *Id.*

¹³ *Id.*

¹⁴ Other industries with much lower energy intensity figures are listed in WAC 173-442-020 as “EITE Covered Parties.”

¹⁵ Washington Research Council (WRC), The Economic Contribution of Washington State’s Petroleum Refining Industry in 2013, 19 (2014), available at <https://researchcouncil.org/files/docs/2014/12/2014-refinery-report-final-122914.pdf>.

approximately 40,000 barrels per day of imports,¹⁶ Washington’s petroleum products industries are “trade-exposed” under these criteria:

	Production that is consumed in <u>Washington</u>	Production exported to <u>other US states</u>	Production exported to <u>foreign countries</u>	Total production
Gasoline	118.7	116.6	21.8	257.1
Diesel	77.2	57.8	21.8	156.8
Jet Fuel	47.6	15.4	20.8	83.8
TOTAL	243.5	189.8	64.4	497.7

All figures in kbd

Applying this data to the criteria above yields a trade exposure intensity of 55% for Washington’s refineries.¹⁷ This figure indicates a trade-exposed industry under the criteria used in other jurisdictions.¹⁸ This is not surprising given that Washington produces 3.4% of the nation’s fuel while only comprising 2.1% of U.S. population.¹⁹

The incremental costs imposed by the CAR expose Washington refineries to increased competition from fuel providers in other jurisdictions, in other states as well as foreign countries, which impose no obligation on carbon emissions from their refineries. This also creates a significant leakage risk.

Even if only exports to foreign countries were considered, Washington’s refineries still would qualify as trade-exposed. In this case, the calculated intensity would be 19%.²⁰ This meets criteria for being “trade-exposed” in all jurisdictions, including the “High” criteria designation in the state of California.²¹

The trade exposure intensity for Washington refineries is likely to increase in future years. Foreign exports from Washington refineries doubled from 2005 to 2010, and tripled from 2005 to 2015. Refined products are the second largest non-agricultural export from Washington after aircraft, with a total annual value of about \$2.5 billion.²² For the refining industry to remain competitive and remain a robust source of fuel for Washington’s economy,

¹⁶ U.S. Energy Information Administration (EIA), PADD 5 Transportation Fuels Markets, 35 (2014), available at https://www.eia.gov/analysis/transportationfuels/padd5/pdf/transportation_fuels.pdf (noting imports as well as “inter-PADD pipeline movements,” which are also imports).

¹⁷ Calculated as follows: $(40+254)/(40+498) = .546$ (55%) (discussion in kbd). Although jet fuel is an exempted product under the CAR, refineries generate CO₂ emissions in its production. As one of the three major products of a refinery, it is important to include in the trade exposure calculation for refineries as stationary sources.

¹⁸ Centre for European Policy Studies (CEPC), Carbon Leakage: Options for the EU, 6 (2014), available at <https://www.ceps.eu/system/files/CEPS%20Special%20Report%20No%2083%20Carbon%20Leakage%20Options.pdf>.

¹⁹ WRC, *supra* at 1, 4; U.S. Census Bureau, Quick Facts, <http://www.census.gov/quickfacts/table/PST045215/53>, <https://www.census.gov/quickfacts/table/PST045215/00>. CEPC, *supra* at 6.

²⁰ Calculated using Washington Research Council data as follows: $(40+64)/(40+498) = .193$ (19%). CEPC, *supra* at 42 and 44.

²¹ CEPC, *supra* at 6.

²² U.S. Census Bureau, State Exports from Washington, available at <http://www.census.gov/foreign-trade/statistics/state/data/wa.html> (annual value provided reflects 2012-2015 average).

the industry's level of exports and trade exposure would increase if consumption of motor vehicle fuels declines in Washington.²³

The lack of objective criteria to determine EITE status for industries impacted by the CAR is not only a significant gap in the rule, it is arbitrary and capricious. Applying objective criteria used in other jurisdictions shows that Washington's petroleum products industries are both energy intensive and trade-exposed, and should be granted EITE status under the CAR. Otherwise, the CAR would cause leakage that would simply shift emissions to other jurisdictions and put an industry at risk that provides family-wage jobs to Washington families and a secure energy supply that is the basis for any vibrant economy.

SECTION 3 - PETROLEUM PRODUCTS (FUELS)

Scope and Clarity on Covered Petroleum Products - Context

The Ecology proposal should clearly state what products are included (obligated) products versus stating only what is excluded. This change will help ensure consistent application of the regulation for both Ecology and obligated parties.

Through discussions with Ecology, WSPA understands that there are six fuels that Ecology has stated it is most interest in tracking – gasoline, diesel (on-road/off-road), home heating oil, aviation gasoline, LPGs (e.g propane) and biofuels combusted in the state. WSPA believes strongly that the program would derive a majority of the intended benefit by covering transportation fuels in a first phase of the program. This phased approach would allow time to develop additional reporting methods and confidentiality protections for other fuels intended to be covered in the program. Furthermore, attempting to report via Subpart MM strays from the focus on the six fuels, as Subpart MM reports many products, many of which are not even combusted, and the remainder contribute little to the state's GHG emissions inventory.²⁴

In addition, by including biofuels as an obligated product, Ecology is ignoring the sequestration-related reductions that occur in the plant, animal or waste material that serves as a feedstock for liquid biofuel production. The regulation should at least not penalize this sequestration. Ecology can also avoid creating conflicting priorities with state or federal biofuel blending mandates. Therefore, WSPA believes that liquid biofuels should be exempt and suggests that the following be added to provision (1) of WAC 173-442--040:

(e) CO2 emissions from combustion of the following biomass-derived fuels:

(i) Biodiesel:

(ii) Fuel ethanol (including denaturant):

(A) Cellulosic biofuel produced from lignocellulosic or hemicellulosic

²³ WAC 173-442-040(2)(b) would exempt exported fuels from a fuel supplier's covered GHG emissions. But that exemption does not apply to the stationary source emissions of a refinery. The refinery's cost of production affects the cost of every barrel of product that the refinery sells, even if fuel sales outside of Washington do not trigger CAR emission reduction obligations.

²⁴ 40 CFR Part 98, Subpart MM, Table MM-1.

- material that has a proof of at least 150 without regard to denaturants;
- (B) Corn starch; or
- (C) Sugar cane.
- (iii) Renewable diesel

WSPA supports moving away from Subpart MM as the reporting mechanism for assigning obligation and supports the concept that a regulation focuses on what is included vs. excluded. If Ecology persists with their current structure, more exemptions need to be included in WAC 173-442-040 (2)(a) based on the fact that a majority of the products are not directly consumed by the public in the state of Washington. These products from table MM-1 include:

- Blendstocks – Other
- Diesel – Other
- Heavy Gas Oils
- Residuum
- Special Naphthas
- Petroleum Coke
- Still Gas
- Ethane
- Ethylene
- Propane
- Propylene
- Butane
- Butylene
- Isobutane
- Isobutylene
- Pentanes Plus
- Miscellaneous Products

Ecology’s proposed new emissions reporting requirements for fuel suppliers are unlawful and would result in inaccurate reporting.

The 2010 Legislature directed Ecology to adopt rules that require fuel suppliers to report CO₂ emissions from the combustion of certain liquid fuels using fuel sales data already reported to the Department of Licensing (DOL) under a state tax reporting program. The Legislature also prohibited Ecology from requiring fuel suppliers to use any data other than the data they report to DOL to calculate greenhouse gas emissions. Ecology adopted WAC 173-441 to implement this legislative mandate.

The proposed CAR would leave the existing reporting requirements outlined in WAC 173-441 in place, and establish a second, conflicting fuel reporting system based on Ecology’s re-invention of an EPA reporting rule. Petroleum refiners and importers would need to report CO₂ emissions

from the combustion of the fuels they sell under both systems,²⁵ but Ecology would use only the data from its new reporting rule to calculate GHG reduction obligations under WAC 173-442.

The proposed amendments governing reporting by fuel suppliers violate RCW 70.94.151(5) by requiring fuel suppliers to report CO₂ emissions based on data other than DOL fuel sales reports. In addition, Ecology's new reporting scheme would double-count some emissions, misallocate obligations and pick up emissions that are exempt under the rule. It establishes new, complicated reporting requirements for exports and imports that are unnecessary when DOL reports are used. Finally, the new reporting scheme would impose onerous new data gathering and reporting burdens on petroleum companies -- precisely the burdens the Legislature sought to avoid by directing Ecology to use the existing DOL reporting scheme.

The 2010 Legislature directed Ecology to base GHG emissions reporting by fuel suppliers exclusively on data reported to the DOL.

The 2008 Legislature amended RCW 70.94.151 to create a GHG emission reporting program.²⁶ The 2008 law did not regulate fuel suppliers or importers. It picked up some mobile source emissions by requiring operators of vehicle fleets to report emissions. This approach proved unwieldy. The 2010 Legislature revisited the problem of how to gather data on GHG emissions from mobile sources. Substitute Senate Bill 6373 replaced the vehicle fleet reporting requirement with a reporting program for fuel suppliers.²⁷ The Legislature built the new reporting program on an existing tax reporting scheme. Under RCW WAC 82.38 "fuel suppliers" report sales of gasoline, diesel and some aircraft fuel to DOL. Those reports form the basis for the state's assessment of excise tax on those fuels. The 2010 Legislature decreed that each person who files periodic tax reports of sales of certain fuels must "report to the department [of ecology] the annual emissions of carbon dioxide from the complete combustion or oxidation of the fuels listed in those reports as sold in the state of Washington."²⁸ According to proponents of the legislation, "It makes a lot more sense for fuel suppliers to report rather than the various fleets. The numbers are already generated through the Department of Licensing and therefore there should be no additional costs associated with the reporting requirements of fuel."²⁹

By the time the 2010 Legislature changed the rules for mobile source GHG emissions reporting, EPA had promulgated a federal GHG emissions reporting rule.³⁰ The Legislature was well aware of this development. For sources other than fuel suppliers (e.g. stationary sources), the 2010 law required Ecology to follow the new EPA reporting rules.³¹ For fuel suppliers, however, the Legislature directed Ecology to utilize the existing DOL reporting scheme. The 2010 law states that Ecology "shall not require suppliers to use additional data to calculate greenhouse gas emissions other than the data the suppliers report to the department of

²⁵ WAC 173-441-020 defines "supplier" to include "distributor," but Ecology's modified EPA reporting system does not reach distributors, and Ecology proposes no rules for reporting by distributors (other than the DOL reporting rules adopted in WAC 173-441-130). WSPA assumes that distributors have no reporting obligations under WAC 173-441-120.

²⁶ Laws of 2008, ch. 14, §5.

²⁷ Laws of 2010, ch. 146, §2.

²⁸ RCW 70.94.151(5)(a)(iii)

²⁹ Senate Bill Report for S.B. 6373, Senate Committee on Environment and Water & Energy, at 3 (Jan. 19, 2010).

³⁰ 40 C.F.R. Part 98, as adopted at 74 Fed. Reg. 56,260 (Oct. 30, 2009).

³¹ RCW 70.94.151(5)(b)(i).

licensing.”³² This language was added in an amendment to S.B. 6373 for the purpose of “restrict[ing] [Ecology] from requiring suppliers to use data other than the data supplied to the DOL to calculate their GHG emission.”³³ Another section of the 2010 law directed Ecology to update its GHG reporting rules whenever EPA updates 40 C.F.R. Part 98. Once again, however, the Legislature was careful to exclude from this consistency requirement the fuel supplier reporting rules. RCW 70.94.151(5)(c) states:

*The department shall review and if necessary update its rules whenever the United States Environmental Protection Agency adopts final amendments to 40 C.F.R. Part 98 to ensure consistency with federal reporting requirements for emissions of greenhouse gases. However, the department shall not amend its rules in a manner that conflicts with (a) of this subsection.*³⁴

Ecology was aware of this limit when it proposed rules to implement the 2010 legislation. The Preproposal Statement of Inquiry for the rulemaking to establish WAC 173-441 states that “SSB 6373 directs Ecology to maintain consistency with the EPA [reporting] program to the extent possible under state law.”³⁵ Ecology recognized that full consistency with EPA’s reporting program was impermissible under state law, and wrote WAC 173-441-130 to base fuel supplier reporting on the excise tax reports filed with DOL.

The proposed amendments to WAC 173-441 violate RCW 70.94.151 by requiring fuel suppliers to report GHG emissions using data beyond that reported to the DOL.

Ecology’s proposed amendments to WAC 173-441-120 would create a new reporting system for fuel suppliers. First, Ecology proposes to add “suppliers of petroleum products” to a table of “facilities” that report under Part 98.³⁶ This change would bring suppliers within the scope of existing language in the first paragraph of WAC 173-441-120 that requires “facilities” to report under EPA’s reporting rules. Under EPA’s rules, “suppliers of petroleum products” are refiners, importers to the U.S. and exporters from the U.S.³⁷

Second, Ecology proposes to revamp EPA’s reporting rules to require reporting on fuels “imported” into Washington, rather than the United States, and to exempt fuels “exported” from Washington, rather than the United States.³⁸ Ecology proposes to adopt the new reporting scheme without amending the rules that implement the statutory reporting scheme in WAC 173-441-130. Ecology would accomplish this result by having a new set of definitions for fuel suppliers, importers and exporters that conflict with those mandated by the Legislature in RCW

³² S.B. 6373, 61st Legislature § 2(5)(a)(iii) (2010), codified at RCW 70.94.151(5)(a)(iii).

³³ See 6373-S AMH EPAR H5219.1 (adopted Mar. 3, 2010), available at: <http://lawfilesexternal.wa.gov/biennium/2009-10/Pdf/Amendments/House/6373-S%20AMH%20UPTH%20H5528.2.pdf>; House Committee on Ecology & Parks, Committee Materials (Feb. 19, 2010), available at:

<https://app.leg.wa.gov/CMD/Handler.ashx?MethodName=getdocumentcontent&documentId=ZfukrVXAmHA&att=false>.

³⁴ RCW 70.94.151, as amended by SSB 6373 (emphasis added)

³⁵ Ecology, Preproposal Statement of Inquiry for rulemaking to establish Chapter 173-441 WAC, filed May 18, 2010.

³⁶ EPA does not classify fuel suppliers as “facilities,” and they would not meet the 40 C.F.R. 98.6 definition of a “facility.”

³⁷ 40 C.F.R. § 98.390 and Part 98, Subpart A, Table A-5.

³⁸ WAC 173-441-120, Table 120-1 and subsection (h)

70.94.151.³⁹ The proposed amendments do not attempt to reconcile the presence in the same chapter of conflicting definitions for multiple terms.

Ecology's new reporting scheme for fuel suppliers conflicts with RCW 70.94.151(5) in at least the following ways:

- It ignores the statutory mandate described above to base reporting for fuel suppliers on the DOL reporting system;
- It defines terms in ways that deviate from the RCW 70.94.151 definitions of those terms;
- It moves reporting upstream from the fuel distributors who report most fuel sales under the DOL system to refiners and importers, who engage in frequent wholesale transactions that are not reported to DOL— a complication that will cause errors;
- It requires reporting on products that are not subject to reporting under the DOL system.⁴⁰

Ecology's proposed new reporting scheme would result in inaccurate and burdensome reporting.

In addition to being unlawful, Ecology's proposed new reporting rules add enormous complexity to the reporting system and would yield less accurate data on fuels combusted in Washington than the statutory system embedded in WAC 173-442-130. The key difference is that the statutory system mandated under RCW 70.94.151 tracks volumes of fuels distributed at the rack. The rack is the appropriate point of obligation for any approach ultimately deemed legal to account for CO₂ emissions by a consumer. This accounting at the rack resolves and eliminates the need for accounting for import and export volumes. Placing the point of obligation at the rack also ensures program equity between producers and importers.

Attempting to report at the refinery gate causes a host of accounting problems, including double counting, assessment of emission reduction obligations against fuels that the CAR exempts from the definition of covered emissions, and misallocation of compliance obligations. The best way to understand these problems is to consider some examples, in the following sections.

Ecology's use of EPA Subpart MM reporting is flawed.

A way to describe to a lay-person this proposed use of Subpart MM data is that it is similar to asking us to figure out how many loaves of bread were sold at grocery stores based on how many eggs were used in the multiple bakeries that provided the product to the groceries. It is much

³⁹ Compare the statutory definition of "supplier" in RCW 70.94.151(5)(h)(2) with proposed WAC 173-441-120 (incorporating and modifying EPA's definition of "supplier" from 40 C.F.R. § 98.390). Compare the definition of "importer" in RCW 82.38.020, incorporated by reference in RCW 70.94.151(5)(h), with the definition Ecology invented in proposed WAC 173-441-120(2)(h)(ii). Compare the definition of "exporter" in RCW 82.38.020 with the definition Ecology invented in proposed WAC 173-441-120(2)(h)(ii).

⁴⁰ The excise tax reporting rules apply to motor vehicle fuel sales, special fuel sales and distributors of aircraft fuel. RCW 70.94.151(5)(a)(iii) bars Ecology from requiring any additional information from fuel suppliers.

easier to just ask the grocers to report the bread sales data. This, like Subpart MM, is just not a good approach, for the reasons outlined below.

Traceability

In the Ecology proposal, suppliers of petroleum products would want to trace fuel sales reported at the refinery gate to the point of distribution to be able to accurately account for exported volumes. This is difficult as the following example demonstrates using common business practices. Washington suppliers of petroleum products (including refineries) often sell finished products to other companies that distribute petroleum products, in bulk volumes through pipelines, over water by barge/ship, or over land by truck and rail. In these transactions, the refinery may not know what the purchaser will do with the fuel. The purchaser may be a competitor, and the final disposition of the fuel may be confidential information. The purchaser may export the fuel to Alaska, distribute the fuel within Washington, or sell the fuel to another supplier in Washington (who in turn might export it or distribute it within Washington). WAC 173-442-040 would exclude exports from the definition of “covered GHG emissions” for a petroleum fuel supplier, but WAC 173-441-120 would require the refinery to know whether this fuel is “exported,” which requires knowing where “final distribution” takes place.⁴¹ Without this information, the refinery cannot claim the export exemption and the net result is overstatement of volume (and increase in their emission reduction obligation). If the accounting was properly placed on rack volumes, as required by law, tracking export volumes from the terminal would not be burdensome.

Washington refiners also buy and sell intermediates (unfinished materials) and gasoline blend stocks.⁴² A different traceability problem arises when one Washington refinery sells to another Washington refinery an intermediate such as VGO (vacuum gas oil or “Heavy Gas Oils” according to table MM-1) that is processed into an exempt product -- e.g. jet fuel.⁴³ Refinery A bears the burden of reporting the CO₂ emissions from sale of the VGO to Refinery B, and those emissions contribute to Refinery A’s emissions reduction obligation. Refinery A cannot claim the jet fuel exemption because A does not know what B will do with the intermediate. CAR emission reduction obligations would apply to CO₂ emissions from a fuel that Ecology purports to exempt from the program. Once again, if the reporting was at the rack as required by law, this is not an issue.

Misallocation

Refinery A might sell alkylate (a blend stock) to another Washington refinery (Refinery B). Refinery B blends the alkylate into CARBOB and exports it to California. Under WAC 173-441-120, Refinery A would have to report the CO₂ emissions from the alkylate sold to Refinery B. Refinery B would deduct from its emissions report the CO₂ from combustion of the

⁴¹ See proposed WAC 173-441-120(h)(ii)(B). “Final distribution” is not defined in the proposed rules and its meaning is unclear.

⁴² An intermediate is defined as a refinery product that requires further refining or processing before it can be used for commercial or general use. A blendstock is a refinery product that is used for direct blending into finished motor fuel (see 40 CFR §98.6).

⁴³ WAC 173-442-040(2)(a) exempts jet fuel from a petroleum product producer’s covered emissions.

exported CARBOB and from combustion of the purchased alkylate.⁴⁴ Refinery A would report 100 percent of the emissions from combustion of the alkylate, even though Refinery B obtained the principal economic benefit from the marketing of the fuel.

Even if Refinery B sells the products containing the purchased alkylate in Washington, WAC 173-441-120 misallocates the obligation for the carbon in these fuels. Refinery A would bear 100 percent of the emissions reduction burden, even though it did not derive the principal benefit of producing a fuel consumed by the public, and was not involved in the transaction closest to the point of final distribution and combustion. This situation would not occur if the reporting was at the rack as required by law.

Another example of a misapplied obligation occurs when Refinery A sells VGO to Refinery B, and Refinery B uses the VGO as feed to a hydrocracker/fluidized catalytic cracking unit (FCCU). The hydrocracker/FCCU processes the VGO into fuels, but some of the VGO converts to refinery fuel gas combusted in the refinery, and reported under Subpart CC of Part 98. Under the proposed WAC 173-441-120, Refinery A would report the CO₂ emissions from combustion of the VGO it sells to Refinery B. Under Subpart MM, Refinery B could deduct the CO₂ emissions from the VGO imported as a non-crude feedstock.⁴⁵ Refinery A would be wholly responsible for the emissions under the CAR, even though Refinery B markets the products refined from the VGO and burns the fuel gas derived from the cracking of the VGO. This situation would not occur if reporting was done at the rack as required by law.

Fuel suppliers also conduct trading transactions with each other. For instance, Company A that owns a refinery in Washington distributes gasoline to a Washington terminal owned or leased by Company B. Company B owns no production facilities in Washington, but B owns a refinery in California. Company B distributes the same quantity of gasoline received from Company A in Washington to a Company A terminal in California. The trade saves money and energy by reducing transportation costs for both companies. Under the DOL reporting rules Company B would report and pay tax on the gasoline it sells in Washington as a distributor. WAC 173-441-130 would require Company B to report the stationary source GHG emissions from those sales. But Ecology would not use that information to set Company B's CAR compliance obligation, because Ecology proposes to base CAR emission reduction obligations solely on information reported under WAC 173-441-120, i.e. sales, including wholesale transfers at the refinery gate. Ecology's new reporting scheme would assign the entire burden to the company that produces the fuel, and none to the company that distributes it in Washington and derives the principal benefit.

Double Counting

Ecology's new reporting scheme also would double-count emissions. For example, Refinery A produces calcined coke. Consider a case where Refinery A sells coke to an aluminum smelter in Washington where the coke is used for primary aluminum production. Refinery A would report the GHG emissions from the carbon in the coke as a supplier under Subpart MM and the smelter

⁴⁴ Under Subpart MM, Refinery B may deduct from its GHG reports carbon contained in purchased intermediates. 40 CFR 98.393(d)

⁴⁵ 40 CFR 98.393(b) (definition of "feedstock").

would report GHG emissions from the same carbon molecules under 40 CFR 98 Subpart F for primary aluminum smelters.

In sum, Ecology's proposed amendments to WAC 173-441-120 would result in inaccurate reporting and assessment of compliance obligations, through double-counting emissions, misallocation of the emissions reduction obligation and the inability of fuel suppliers to trace some fuels sold to another company that are exempt or exported.

Unnecessary Reporting Burdens

Ecology's new reporting system would not only yield inaccurate results, it also would add burdensome new data gathering and reporting obligations. The existing system for reporting emissions, based on data provided to the DOL, is relatively straightforward. Reporting parties track emissions based on fuel sales at the rack, which is downstream in the fuel distribution network, closer to where emissions actually occur and where it is easier to know whether fuels are finally distributed beyond Washington. The existing system mitigates burdens on reporting entities by utilizing an existing, audited system overseen by the DOL. This simplifies reporting for both Ecology and regulated entities. Data reported to the DOL already account for production, imports, and exports by accounting for fuels sold and consumed in the state, consistent with Ecology's intent for its proposed new scheme. DOL data is submitted with confidentiality provisions, to help protect competitively sensitive data.

Ecology has questioned the accuracy of the DOL fuel reporting system. Discrepancies between Subpart MM reports and DOL data are partly attributable to the fact that Subpart MM data fails to account for exports from Washington State and is otherwise prone to the double-counting and over-reporting problems described above, while at-the-rack DOL data are not subject to these infirmities. These examples and flaws would lead to an overestimate of carbon emissions in Subpart MM data relative to DOL data.⁴⁶

The proposed reporting rules in WAC 173-441-120 add enormous complexity to the reporting system, in an effort to trace fuel sales reported at the refinery gate to the point of distribution in Washington. Once again, a real world example best illustrates the data gathering and reporting morass that would result from Ecology's new reporting system. Refinery A transfers gasoline on the Olympic Pipeline from western Washington to a distribution terminal in Portland, Oregon. From this terminal, some of the gasoline travels by barge to a terminal in Pasco, Washington. From Pasco, some of the gasoline travels via pipeline to Spokane, where it is placed in tanks along with gasoline from other sources. The Spokane terminal sells some gasoline for distribution in Washington, and some for distribution in Idaho.

Under WAC 173-441-120, Refinery A would deduct the gasoline exported to the Portland terminal from its fuel sales. The owner of the Pasco terminal would report the gasoline arriving

⁴⁶ Ecology has pointed out that Subpart MM prescribes multiple emission factors for gasoline based on its octane rating. The purported accuracy benefits of these different emission factors do not justify use of Subpart MM.

. If it is ultimately deemed legal that refineries are obligated for the CO₂ emissions of consumers, Washington petroleum producers and importers would prefer to marginally over-report in this area using DOL data by employing the most conservative emissions factor – i.e., adding incremental extra CO_{2e} to the reported emissions by consumers.

by barge as imported fuel despite being from Washington. The terminal in Spokane might be required to report under WAC 173-441-130 as a distributor, but not under WAC 173-441-120. If the owner of the Pasco terminal (reporting as an importer) could obtain information from the Spokane terminal about how much of the fuel that it shipped to Spokane by pipeline was distributed in Idaho, the owner of the Pasco terminal could deduct the out-of-state sales from its covered emissions.

In this example, the Ecology proposal to report fuel sales at the refinery gate yields a bookkeeping nightmare. By contrast, the statutory reporting scheme would measure CO₂ from fuel distributed at the rack of the Spokane terminal. Each molecule would be counted only once.

Another source of unnecessary complexity in WAC 173-441-120 is the Subpart MM obligation to report sales of many separate products,⁴⁷ most of which contribute little to the state's GHG emissions inventory. The latest proposal does allow for some exceptions to this list, but there are still many products that are required to be tracked in addition to the six mentioned earlier in these comments. Under Ecology's proposal, each of these numerous products must be tracked separately for production, imports, and exports. This is relatively easy to do when exports and imports are defined as EPA defines them (at a national scale), but much more difficult if the supplier must research whether its products crossed a state line

WSPA recommends that Ecology limit the initial scope of the reporting obligation to the fuels that suppliers report to DOL. The existing DOL-based system already captures gasoline, diesel (on-road/off-road), and aviation gasoline. If Ecology believes it needs to track additional fuels, such as home heating oil or liquefied petroleum gases (e.g., propane), there is no need to track this many products at three different locations in the supply chain (production, imports, and exports) to capture these additional fuels. It would be much simpler and less burdensome to create a reporting program for these few specific fuels not captured in the DOL reports. The use of Subpart MM reporting by Ecology exposes a large amount of proprietary and confidential data with a high degree of granularity (tracked by production, imports, and exports). This is a substantial burden on petroleum product producers and importers in Washington, and a burden contrary to the intent of the Legislature when it amended RCW 70.94.151 in 2010 to afford protection to confidential data provided to DOL and to prohibit Ecology from requiring any additional data.

The examples described above highlight the problems that result from requiring fuel suppliers to report based on products transferred at the refinery gate. Further detail pertaining to product movement and distribution in Washington that illustrate the infeasibility of tracking refinery products ex-refinery gate according the draft CAR rule can be found in Attachment 2 of this comment letter. To avoid these problems, Ecology should stick with the statutory fuels reporting system that focuses on fuels sold at the rack for distribution in Washington.

Accuracy

The CO₂ data currently submitted to the Department of Ecology under RCW 70.94.151 for fuel suppliers is underpinned by well-developed, audited, and time tested fuel volume data reporting

⁴⁷ 40 CFR Part 98, Subpart MM, Table MM-1.

to the DOL under state fuel taxation rules. The DOL data is inherently superior to any conceivable reporting scheme at the refinery gate (including federal Subpart MM), not only because it is well-developed, but also because it avoids many, if not all, of the complexities and reporting errors outlined above that arise from attempting to quantify and trace refinery products from the refinery gate rather than from the point closest to consumption or “final distribution”.

Equally important, the DOL data is audited, verifiable and accurate for state level supplier reporting. Ecology has stated to WSPA, most notably in a meeting on April 6, 2016⁴⁸, that they believe the DOL data to be inaccurate by as much as 25%. They based this assertion on a purported comparison of “Dept. of Commerce” data that was “estimated” in an attempt to approximate what was consumed in Washington to DOL data. To date, Ecology has not produced the empirical data upon which this inaccuracy determination was made. WSPA, however, has performed a comparison of 2014 gasoline volume data supplied by the Washington DOL and 2014 data compiled by the U.S. Energy Information Administration (EIA) in their Prime Supplier Sales Volume reports for Washington⁴⁹. The 2014 gasoline volumes for Washington State according to the EIA were 2.7040 billion gallons and the Washington DOL 2014 reported gross volumes of 2.7516 billion gallons (including ethanol blended beyond the refinery gate). This translates to a difference of only 1.7% between the two independent DOL and EIA data sets, which is far less than the 25% difference Ecology “estimated” in their analysis. This 1.7% difference is also likely within the margin of error for the EIA reporting program due to what the EIA identifies as “sampling” and “non-sampling” errors⁵⁰.

In addition, the federal GHG reporting program under Subpart MM was designed, in part, to integrate with a national cap-and-trade program. However, it is not fully developed and is an unaudited, untested system. As such, the definitions and prescriptive calculation methodologies cannot be directly adopted for a state level program as Ecology proposes in the amendatory section of the draft WAC 173-441-120. Even altering federal definitions to create boundaries at the border of the state, the attempted approach introduces inaccuracies and expected double counting.

Simplicity

If the contentions that the reporting provisions are both illegal and inaccurate are still not persuasive, WSPA would highlight that this fuel data is tracked at the rack, consistent with DOL, in every other jurisdiction with a functioning carbon program. That is because it is an accurate, simple, and superior source of fuel data. It is in close proximity to the actual point of use. The benefits to all parties are as follows:

- Placing the point of obligation at the rack moves that obligation closer to where the emissions occur. It represents what is sold to customers who intend to consume and emit in Washington – consistent with Ecology’s goals.

⁴⁸ Meeting April 6, 2016 included WSPA, Ecology, DOL and the Governor’s office to specifically discuss the point of obligation for fuels.

⁴⁹ https://www.eia.gov/dnav/pet/pet_cons_prim_dcu_SWA_a.htm

⁵⁰ Petroleum Marketing Explanatory Notes – “The EIA-782 Survey”
<http://www.eia.gov/petroleum/marketing/monthly/pdf/enote.pdf>

- It accommodates use of an existing, audited and comprehensive fuel volume reporting system overseen by the DOL.
- Utilizing DOL data greatly simplifies this reporting for both Ecology and the industry. The data reported to DOL already account for production, imports, and exports by accounting for fuels sold and consumed in the state – consistent with Ecology’s intent. This eliminates the need for Ecology to create new – separate reports for exports and imports, and the need to then reconcile these new reports with existing refinery production reports. It avoids double counting and misapplying the obligation.
- DOL data are already carefully reviewed and checked for accuracy due to use for taxation. They can easily be verified. Thus the initial reporting volume is within a slim margin of 100% accurate for the volumes currently managed in the system.
- All fuel suppliers- be they in-state producers or importers- should be covered under the DOL reporting system in the same manner as provided in the statute.
- The DOL data submitted with confidentiality provisions, and agreements in place with DOL to protect this very competitively sensitive information.
- The statute directs Ecology to use DOL reporting to collect GHG emission information. Under RCW 70.94.151 5(a)(iii):
the department shall not require suppliers to use additional data to calculate greenhouse gas emissions other than the data suppliers report to the Department of Licensing.

SECTION 4 - FUEL BASELINE

Baseline

The petroleum product sector has **no control** over consumer purchase decisions. Consumers purchase the volume of petroleum products that meet their personal and business needs. The petroleum sector works to reliably and consistently meet those needs.

The proposed rule’s structure of an historical baseline for petroleum products, from which there is an annual reduction obligation, is problematic. As currently proposed, WAC 173-442-050(3) would set each existing fuel supplier’s baseline on average volumes sold between 2012 and 2016. This use of a historical baseline for fuel suppliers does not account for expected variations in a supplier’s sales from year-to-year, nor does it recognize the potential for increased overall demand.

While fuel volume used in the state can appear to be static, volumes sold by individual companies can and do change year-to-year. One of the largest reasons for year-to-year change is a company’s success in securing actual product sales (e.g. long-term supply contracts or in the short-term “spot market”). The ability to secure these contracts can change year-to-year. Companies also respond to market supply/demand disruptions and change their Washington sales, accordingly. This can include supply “backfill” as described in this Section under “Dynamic Fuels Obligation- A Solution”. The rule impinges these market fluctuations by requiring ERUs to cover increases in product sales in the market place.

Ecology has included provisions to allow fuel suppliers to participate in GHG reduction projects and acquire ERUs to meet the growing fuel supplier reduction obligation. However, with petroleum products making up approximately 60% of the emissions covered under the proposed rule, and the accompanying large reduction obligation, it is not at all clear at this time whether there can or will be an adequate supply of project opportunities and/or ERUs for a feasible compliance pathway. This is especially true if statewide consumer demand for petroleum products increases. As a result, Ecology should revise WAC 173-442-050(3) to normalize the GHG reduction obligation based on a fuel supplier's market share (products sold).

Ecology's baseline determination methodology appears to penalize fuel supplier's refineries for executing maintenance and varying output based on market demand by obligating them to acquire offsets or ERUs equal to the difference between the average facility CO₂ emissions and the refinery's maximum demonstrated output.

Export Baseline Adjustment

Another baseline issue arises if you use historic baselines and attempt to take into account petroleum product exports. Ecology prescribes in 173-442-050 (2)(d), how to adjust a petroleum producer baseline for exports of petroleum products. While exports appear to be voluntarily reported by covered entities, these provisions suggest that the baseline will be mandatorily adjusted for exports. This provision prescribes two methods to accommodate the baseline adjustment. These methods are prescribed in 173-441-120 and 173-441-086 – but neither method is rational.

The first method prescribed in 173-441-120 requires submittal of Subpart MM reports – which is not possible since past MM reports only accounted for exports on a national basis. The other alternative, in 173-441-086, enables Ecology to establish “conservative” export values punitively. This section normally applies to entities that do not provide timely or complete data and is meant to punish them in some way. Neither approach is reasonable for covered entities. In fact, the best approach is to allow use of historic DOL reports where exports are quantified and audited. This is yet another argument for the use of DOL reports in establishing a valid and equitable facility baseline accounting for exports.

Dynamic Fuels Obligation – A Solution

To address these concerns, WSPA has the following proposal which first requires some background. Suppliers deliver fuel to Washington consumers through a complex network of refineries, pipelines, storage terminals, barges, rail cars, and trucks. Disruptions in supply channels occur due to planned and unplanned downtime in refineries, logistical problems impeding truck, rail, or barge traffic, and numerous other factors. To address these disruptions, certain suppliers increase production for a period, to fill the supply gap (“backfill”) and to continue to meet the demand of Washington consumers. When measured against a historical baseline, the entirety of this additional supply yields an increased compliance obligation. The supplier would most likely have to acquire ERUs, if available, to account for emissions from all

of the additional fuel sold to fill the gap. The supplier that acts to fill the gap to meet consumer demand assumes additional burdens under the CAR.

Therefore, instead of using a historical baseline, WSPA proposes that Ecology adopt a requirement where a fuel supplier's compliance obligation each year is calculated based on actual volumes sold at the rack. Ecology should then apply an annual decrease factor to emissions associated with these actual fuels sold.

This "dynamic" obligation would recognize the realities of change in fuel supplied by individual suppliers and fuel required state-wide, while still establishing a GHG reduction obligation for fuel suppliers. WSPA has presented this option to Ecology in recent months and is prepared to discuss it in more detail for rule adoption.

SECTION 5 - FACILITY BASELINE

The CAR as proposed for non-EITE facilities would establish GHG emission baselines based on the annual average of direct CO₂ emissions for 2012-2016. From this baseline, annual emission reductions would be required. WSPA instead recommends that a facility baseline should be established using the single highest GHG emission year for the 7-year period of 2010-2016, or 2010-2018 if the program start is delayed to 2020. This is a similar approach to the baseline setting method in Ecology's GHG RACT rule for refineries.

Ecology's proposed facility baseline determination using average reported facility emissions from 2012-2016, undoubtedly encompasses reporting years where refineries reduced annual production to execute large scale maintenance events, a primary goal of which is to ensure reliable and safe operations.

Ecology's baseline determination methodology essentially penalizes refineries for executing maintenance and varying output based on market demand by obligating them to acquire offsets or ERUs equal to the difference between the average facility CO₂ emissions and the refinery's maximum demonstrated output.

Facility emissions could increase due to changes in product market demand and other reasons as footnoted below⁵¹. Manufacturing facilities should be encouraged to operate at full capacity to

⁵¹ Increases to baseline could include: 1. Large-scale maintenance events: Facility emissions can be significant higher or lower in some years due to periodic, cyclical large scale maintenance events that are necessary to inspect, maintain and repair process equipment to ensure compliant and safe operation (otherwise known as turnarounds). The proposed rule could penalize facilities for continuing strong maintenance practices. 2. Facility expansions: Facilities may expand capacity or otherwise change operations to meet increased consumer demand caused by population growth and/or changes in demand for types/grades of fuels. 4. Compliance with environmental or other regulatory requirements: For refineries, these include projects necessary to produce fuels that meet ever changing federal and state mandated fuel specifications under Title I and Title II of the Clean Air Act. Examples of such projects which have reduced criteria pollutant levels from the combustion of transportation fuels by several tons per year include: A. Isomerization/Benzene Saturation Units, Solvent-Aromatic Extraction Units: for compliance with 2005 federal benzene gasoline specifications B. Hydrotreating, hydrogen production and sulfur capacity: for compliance with new sulfur specifications for highway diesel (2007 Highway Diesel/ULSD Rule) and gasoline (Tier 2 [1999] and Tier 3 [2014] gasoline standards). Facility expansions to meet the Tier 3 requirements may be planned or underway. Increased hydrotreating requires CO₂ intensive hydrogen production and increased sulfur processing capabilities.

maintain supply chain continuity to meet product demand. For refineries, this includes the ability to increase operations to backfill volumes on the U.S. West Coast, including Washington, in the case of product supply disruptions. Facilities can be the most efficient when operating at full capacity.

WSPA acknowledges that Ecology has added the “reserve” component to the proposed rule, which could prove to be a good tool for adjusting baselines to accommodate facility growth. At this point, though, there is little detail on how that reserve would be made available to obligated facilities or if there are enough credits available to accommodate the growth. Similarly, there would need to be clear understanding on how the reserve would be made available to suppliers of petroleum products where sales may increase year-to-year due to population growth. Therefore, we continue to encourage Ecology to consider all options for allowing increases in baselines to meet the needs of changing businesses. We discuss the reserve concept further in a different Section 7 of these comments, page 27.

Allowing for an increase in the baseline recognizes the reality of Washington State’s economic growth, and encourages facilities to operate at full capacity.

SECTION 6 - EMISSION REDUCTION UNITS (ERUs) AND PROGRAM COST/ BENEFIT

Availability of Emission Reductions Units

In addition to the legal concerns with the rule, expressed in the AWB letter, the documents relating to WAC 173-442, including the SEPA and Cost Benefit Analysis, **do not describe** how many ERUs can reasonably be supplied to support compliance with the rule. WSPA has repeatedly requested this information from Ecology, and while Ecology has repeatedly agreed to provide this information, it is not included in the rule documents nor provided elsewhere.

Ecology has highlighted a few possible sources of ERUs for the program: transportation units, dairy digesters, Renewable Energy Credits (RECs) and external carbon cap-and-trade allowances from California ARB. Ecology can and should estimate the availability of ERUs from these sources, and any others that could reasonably be anticipated by the rule. Based on the information that Ecology has provided, WSPA has no confidence there are sufficient ERUs available to sustain the program.

Emission Reduction Units- In-State

Ecology has highlighted a few possible in-state sources of ERUs for the program: commute trip reduction and dairy digesters. There is great uncertainty surrounding the availability of in-state reduction projects for the program.

Transportation Units

Commute trip reduction (CTR) is a frequently cited source of ERUs for the program. According to the latest 2015 Report to the Legislature⁵² the Commute Trip Reduction Board reported the CTR a success, reducing total Vehicle Miles Traveled (VMT) by 33 million (mm) miles annually between 2007 and 2014. The CTR board reports that this translates to a reduction of 14,770 tons of CO₂. For purposes of CO₂ reductions per the CAR rule, the 14,770 MT of CO₂ equates to an estimated:

- **0.14%** of the (2023)- compliance obligation for the full state program (assuming a total state CO₂ inventory of and baseline~ 100 mm Metric Tons (MT)) –
 - 100 mm MT Baseline
 - 10.2 mm MT Reduction Obligation

In the aforementioned CTR Board 2015 Report to the Legislature, the pie graph sourced from the National Household Travel survey indicates that a maximum of 16% of VMT's constitute commute trips while non-work trips make up the balance at 84%⁵³. Assuming Washington could attain a very large threefold expansion in the current CTR program (up to the maximum 16% from the current 4%) by the 2023 CAR compliance demonstration, the maximum achievable number of VMT's reduced would be approximately 132 million miles. Using a 3:1 gasoline to diesel ratio for transportation fuels consumed in Washington (Reference EIA Prime Supplier Reports), the avoided CO₂ emissions from 100% participation in the CTR program would be a meager 45,250 MT annually. This translates to the following estimates with regard to the 10.2% reduction from baseline in 2023 according to the CAR:

- 0.44% of the 10.2 million MT reduction obligation in the 2023 compliance demonstration for the full state program (assuming a total state CO₂ inventory/baseline of ~ 100 million Metric Tons)

Ecology proposes in draft WAC 173-442-160(3)(b) that exceeding commute trip reduction targets could be a way of generating a substantial amount of ERU's. This analysis however indicates that the current CTR program according to the latest Report to the Legislature will provide almost no benefit toward achieving Ecology's proposed reduction pathway for fuels or overall statewide CO₂ reductions. Further, given that 100% participation in a statewide CTR program will only yield a maximum of ~45,000 MT of CO₂ avoided, Ecology's assertion that these programs will generate significant reserve ERUs under draft WAC 173-442-160(3)(b) appears incorrect per this data analysis. To date Ecology has not shared any empirical data showing how many ERUs they believe will be generated by the CTR activities listed in draft WAC 173-442-160.

Dairy Digesters

One of the options commonly mentioned for reducing GHG emissions and obtaining CO₂ ERUs in Washington is the installation of dairy digesters. A detailed research study titled "Estimating

⁵² http://app.leg.wa.gov/ReportsToTheLegislature/Home/GetPDF?fileName=2015CTR_Report_2546c4ac-eb9d-497b-8747-4d8cb840d275.pdf, Page 4, lower left.

⁵³ Supra, page 3. This number assumes relatively flat total VMT in 2023, when compared to the numbers provided for 2014, which is consistent with current WSDOT VMT forecasts.

Greenhouse Gas Reductions from a Regional Digester Treating Dairy Manure”⁵⁴ provides an estimate of the reductions in GHG emissions from a dairy digester system that consisted of 2 digesters servicing 14 dairy farms in the Chino, California area. Table 3 of the report provides a summary of the GHG emission reductions due to the installation of this digester system. The reductions were calculated to be 8,291 tons of CO₂-eq from the digester system, excluding the emissions from the digester. Including the digester emissions would lower the CO₂-eq reductions.

As an example, to offset 1,000,000 tons of CO₂ emissions, it would require about 240 digesters and 1680 Washington dairy farms to meet that need⁵⁵. According to the Capital Press “The West’s Ag Website”, July 13, 2016, there are approximately 480 dairy farms in Washington State⁵⁶. Therefore, assuming 100% participation in the “Livestock and agricultural activities” outlined in draft WAC 173-442-160(6) by Washington State dairy farms by 2023, this would yield approximately 286,000 MT of reserve ERU’s. This translates to the following estimates with regard to the 10.2% decrease from the statewide baseline in 2023 according to the CAR:

- 2.8% of the 10.2 million MT reduction obligation in the 2023 compliance demonstration for the full state program (assuming a total state CO₂ inventory/baseline of ~ 100 million Metric Tons)

Similar to CTR programs, this analysis shows that there are not enough dairy farms in Washington to generate a significant number of ERU’s. To date Ecology has not shared any empirical data showing generation ERU’s in significant numbers to make the rule feasible by agricultural activities or any of the activities listed in draft WAC 173-442-160.

Offset Projects

There is concern that the supply of offset projects may be limited, especially in the program’s early years. Of course, for a project to be successful it takes mutual agreement from both the project developer and the party that is acquiring the ERUs. While these agreements occur, they would require significant work to execute by both parties.

For reference, below is a supply-demand curve on the supply of offset credits available to the California Cap-and-Trade program – prepared and provided by Bloomberg 2015. This analysis assumes full use of the 8% quota *in* California. The data shows there is a supply shortage in the future.

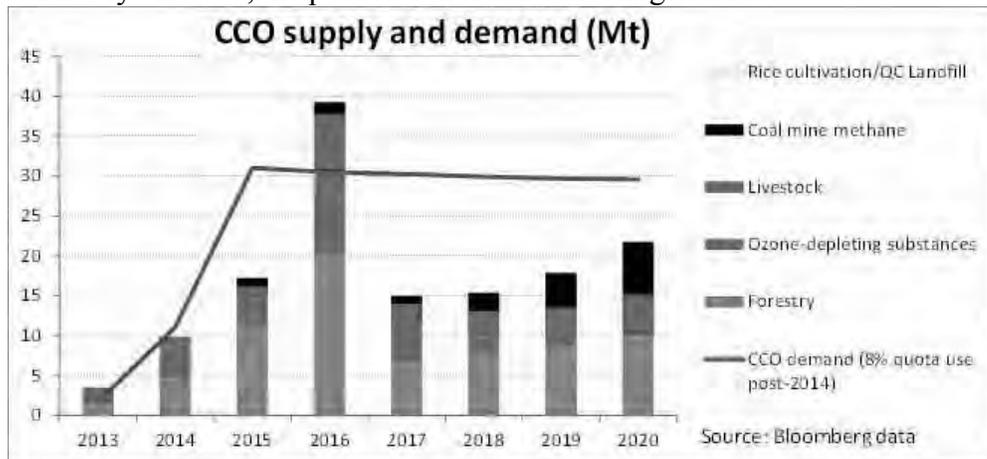
⁵⁴ Written by Deborah Bartram & Wiley Barbour; paper available at the following link:

https://www.researchgate.net/publication/228684606_Estimating_Greenhouse_Gas_Reductions_for_a_Regional_Digester_Treating_Dairy_Manure

⁵⁵ 1mm MT/8291 MT digester=~120systemsx2digesters/system=240digesters; 120systems x 14dairy’s/system =1680dairy farm’s

⁵⁶ <http://www.capitalpress.com/content/cs-pr-Washington-Dairy-facts-Dairy13>

In addition, forestry makes up about half the offset supply evaluated by Bloomberg. Ecology at this point is not allowing the use of forestry ERUs for compliance. With the assumed lack of access to forestry offsets⁵⁷, the potential shortfall is much greater.



According to the Ecosystem Marketplace “Ahead of the Curve: State of the Voluntary Carbon Markets, 2015”, more than half the offsets were from forestry and land use projects globally in 2014. In 2014 projects that avoided deforestation (REDD projects) were the top selling project types.

Emission Reduction Units – Other States, Regions and International

The use of allowances from other regional programs may be critical for some parties to comply with the program. This is especially true given that the proposed rule would require compliance as early as 2017. A 2017 start, even with 3-year compliance period, will not provide sufficient time for implementation of larger-scale emission reduction projects for companies with very large compliance obligations like refineries, fuel suppliers and natural gas suppliers. The use of allowances will be critical for natural gas suppliers and petroleum fuel suppliers where they have no control the emissions from sale of their products. Ecology has suggested that out-of-state allowances are needed for these entities to comply since their obligations are large and reduction opportunities non-existent.

WAC 173-442-170 Section (1) states that allowances must be issued by an established multisector GHG emission reduction program. There is no definition of “allowances” and there is no definition of “multi-sector” to give potential buyers of allowances the confidence that they are acquiring allowances acceptable to Ecology. The requirement that allowances be from multi-sector programs that are congruent with the CAR is arbitrary and likely overly restrictive. Different carbon programs have different structures; none are identical to our knowledge. Examples of these differences are noted here:

- European Commission EU Emissions Trading System (EU ETS) includes many stationary sources but excludes transportation emissions, and allows use of certain international non-Europe credits (CDM and JI credits) that are exchanged for

⁵⁷ As discussed in WSPA and Ecology meetings Feb 16, 2016; March 18, 2016; and March 29, 2016.

allowances. The EU continues to change the program and use of allowances.

- Regional Greenhouse Gas Initiative (RGGI, northeast states) limits carbon emissions from the electricity sector from multiple sources (e.g. coal, natural gas, oil). However, RGGI states that compliance offsets can be used from “emission reductions or carbon sequestration achieved outside of the capped electricity sector”. As an example, buildings can generate offsets by switching to eligible use of biomass if it is NOT used to generate electricity.
- The California/Quebec Cap-and-Trade program may meet Washington’s definition of multisector. However, there are key differences. California’s program excludes CO2 emissions from biofuel use while the proposed CAR includes emissions from biofuels. California allowances carry a vintage year designation and have no expiration, while the CAR allows banking of vintage ERUs for only ten years.
- Regions of China have adopted Cap-and-Trade programs and the country is considering one in the future.

Covered parties under the CAR will have no confidence to proceed and purchase allowances from other programs without assurances that they will be approved and accepted by Ecology into the registry system. Ecology must provide some form of public written documentation as part of this rulemaking that addresses what allowances are acceptable. That documentation can be updated as necessary. It is also recommended that the external GHG emission reduction program provide parallel documentation of acceptability.

WAC 173-442-170 Section (2) establishes limits on the use of external allowances. It is positive that Table 3 allows for 100% allowances through 2022 to meet a compliance obligation. It is not clear what vintage year(s) are allowed. The steep decline in ability to use allowances after 2022 is problematic since the reduction obligation becomes more severe with time. Ecology has produced no documentation that there will be, or can be, an adequate supply of ERUs including external allowances for compliance.

Table 4 places confusing constraints on the use of allowances from a single vintage year. The purpose of this constraint is unclear, appears arbitrary, and seems to contradict the flexibility offered in the early years in Table 3. There is no stated justification for the Table 4 and limits how they would be applied. The column “Year within a compliance period” is confusing since the rule does not have single year compliance obligations to our knowledge. The CAR should state whether there are single year compliance obligations. Table 4, as an example, may suggest that for 2020-2022 compliance, a covered party could use no more than 40% of its emission reduction obligation with 2022 allowances.

WAC 173-442-170 Section (4) states that the covered party must document that an external allowance used as an ERU has been invalidated from use or placed into a permanent holding account in its originating market. The rule should clarify what documentation is required, and whether that can be provided from the obligated party or must come from the external program government. The majority of allowances in the California program are retired after the end of each 3-year compliance period. California and Washington have different compliance periods (e.g., 2018-2020, and 2017-2019, respectively... it is not clear if this difference has significance.

To clarify further, the requirement that a covered party must be allowed to purchase allowances within an external program is understandable. However, the structure of some external programs is that allowances within their programs must be eventually surrendered or retired within the same program. It is not clear whether allowances could “exit” an external program and “enter” the Washington program. There are no current agreements or regulations where this optionality is clear.

Section 170 (3) may be recognizing this complexity when it suggests that allowances really never leave their “originating market”. It seems illogical that external programs would be agreeable to a “one-way only” structure.

The rule and rulemaking documents lack clarity on:

- Requirement in 170(1)(c) that external allowances are derived from methodologies congruent with WAC 173-441. Congruency needs definition.
- Mechanism for how external allowances are converted to CAR ERUs.
- Acceptability of external allowances with a vintage year earlier than 2017, the start of the CAR program. The rule should define how earlier allowances (e.g. California 2013 vintage with no expiration, or even earlier year EU vintage) would be assigned a CAR vintage year with a 10-year expiration date.
- Rationale for the restrictions in Tables 3 and 4.
- Cost impact of the restrictions in Tables 3 and 4, and included in the required rule cost-effectiveness analysis

Ecology should not rely on California or Quebec allowance prices to estimate the cost of purchasing allowances from external market programs. California currently does not allow participants in external GHG programs to purchase and retire California compliance instruments. CARB recently circulated a proposed rule that would authorize “linkage” between the CARB allowance system and other state programs. The proposed rule states in part that only after CARB has approved an access agreement with an external GHG program may entities registered in that program retire California allowances to meet obligations of their program.⁵⁸ Before Washington-covered parties could access CARB allowances, the CARB Board would need to adopt the proposed rules and the CARB Board would need to approve a “Retirement-Only Agreement” with Washington.⁵⁹ Both steps would be controversial in California. In considering such an agreement, the CARB Board could limit access by Washington sources to California compliance instruments.⁶⁰ Ecology would need legislative approval to enter into such an agreement. For all of these reasons, Ecology has no basis to assume that CARB allowances will be available to Washington-covered parties. Moreover, CARB’s restrictions will limit covered parties’ access to compliance instruments from linked programs like the Quebec program.

⁵⁸ Proposed amendments to California Health & Safety Code § 95943, available at http://www.arb.ca.gov/cc/capandtrade/draft-ct-reg_071216.pdf.

⁵⁹ Proposed amendments to California Health & Safety Code § 95945.

⁶⁰ Id. § 95945(a)(3).

In Conclusion: WSPA has no confidence that the supply of ERUs adds up to even a fraction of what could be needed. The external source of allowances may be the primary compliance pathway available to the petroleum sector.

- The requirement that external allowances must come from multi-sector programs that are congruent with the CAR and should be removed or clarified.
- Prior to reliance on the use of allowances from external programs, Ecology should have clear written agreement from external program(s) for use and ensure that ERU availability can meet compliance needs in Washington.
- Eliminate phased-down allowable use of external allowances (Tables 3 and 4).
- Develop regulation elements and/or off-ramps that would trigger in the case there are any unintended adverse economic impacts. As discussed in Section 1 “Successful Start: Program Design and Development”, in the California's Emissions Markets Assessment Committee (EMAC) report⁶¹ it is noted that the time to develop a price cap or other cost containment provision is before a market is stressed

Ecology should prepare, as part of the rulemaking process, documents that predict availability of in-state WA ERUs and out-of-state allowances.

Cost-Benefit

Ecology severely understated the costs of the CAR

In developing its preliminary CAR Cost-Benefit Study, Ecology assumed a significant portion of the compliance obligation for the rule would be met through ERUs (as opposed to covered parties reducing their GHG emissions). Ecology provides no analysis that ERUs will be available in a sufficient quantity at a given price to meet the compliance obligation. Furthermore, the CAR Cost-Benefit Study implies nearly limitless supply. Ecology uses unchanging prices for reductions and ERUs over the twenty-year period. The proposed rule’s compliance obligation increases over time, which means demand for ERUs will rise⁶². This is a significant increase in demand that is not reflected in the unchanging prices used in the preliminary CAR Cost-Benefit Study. The most basic analysis of costs would consider the balance of supply and demand and its impact on prices.

As we discuss in Section 6 under “Availability of Emission Reduction Units”, WSPA members are not able, based on the information provided by Ecology, to calculate sufficient quantities of ERUs to sustain the program. Ecology also used inappropriately low proxy prices for ERUs. The preliminary CAR Cost-Benefit Study uses three proxy prices for ERUs: RECs, voluntary carbon offsets⁶³, and allowances from the California/Quebec market. There are significant issues with each of these choices.

⁶¹ Report found at <http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/emissionsmarketassessment.htm>

⁶² The 1.7% reduction-from-baseline compliance obligation required in year 2 onwards grows to a 30.6% overall reduction.

Voluntary credits are not limited to a given jurisdiction and therefore the current voluntary credit prices are much lower than the prices of Washington-only voluntary credits. National voluntary carbon offsets also include a wider variety of project types than allowed in the CAR. Notably, forestry/sequestration projects which contribute substantial supply and are lower cost are not allowed, as discussed in this Section. Therefore the CAR cost-benefit analysis underestimates voluntary credits both from a geographic basis and also due to limited projects which will limit supply.

RECs are currently available in a wide range of prices, \$0.26- \$300.00⁶⁴. It would seem likely in 6 years that REC prices would be on the higher end of the spectrum. Introducing a wide cost range that could be very high-cost is likely to discourage investment in Washington, rather than keeping it in-state.

Ecology used a static allowance price as a proxy for ERUs sourced from multi-sector greenhouse gas programs. This assumption is not reflected in reality, as the only multisector program has prices that escalate substantially over time. The joint California/Quebec allowance auction has a floor price, called the Auction Reserve Price, which requires an escalation of auction allowance prices at 5% plus inflation per year. Ecology disregarded this requirement and did not increase its price over the twenty years.⁶⁵ In addition, there is some uncertainty if these allowances would be available in 2017 at all, given the potential necessity of rulemaking in California to allow the use of these allowances in Washington.

These factors lead to a severe understatement of the costs of the proposed CAR, and provide no identification of the risks faced by businesses if ERUs are simply unavailable at any price in the quantities needed in later years.⁶⁶ Based on the materials provided by Ecology, the program appears infeasible in the beginning.

SECTION 7 - DECLINING “HARD” CAP AND THE RESERVE

Necessity

The rulemaking documents do not present data showing 1990 total state emissions or the 2035 purported goal. The goal in the document appears to be stricter than 25/35% reduction from 1990, as confirmed by Ecology. The documents do not show current emissions from CAR-obligated sectors, use multiple data sources for some sectors, and use emission reductions from known changes in the state, such as the closure of the Centralia plant⁶⁷.

⁶⁴ Example from Karbone Renewable Brokerage, July 13 2016. RECs for sale on that date, range of values.

⁶⁵ California Cap-and-Trade Program and Québec Cap-and-Trade System, 2016 Annual Auction Reserve Price Notice (December 1, 2015), *available at* <http://www.mddelcc.gouv.qc.ca/changements/carbone/ventes-encheres/budget-unites-emissions2016-en.pdf>

⁶⁶ Energy Strategies Critique of CAR Cost-Benefit Report, AWB letter.

⁶⁷ Washington State Climate Legislative and Executive Workgroup (CLEW), Final Reports by Leidos Task 1 Final Report- Part 1: Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State. Page 13: According to the EPA’s Greenhouse Gas Reporting Program (GHGRP), the Centralia plant emitted 5.6 MMTCO_{2e} in 2011.20. One of the two 670 MW coal burning units will shut down in 2020, the other in 2025.

Ecology should include emission from the data tables into the rulemaking documents and limit the reduction pathways to match the emissions goals.

Declining “Hard Cap” and the Reserve

Given the: 1. declining cap, 2. additional reduction allocated to the reserve, and 3. lack of sufficient ERUs, this program is designed in a manner that overcomplies with the purported purpose of the rule.

While we appreciate Ecology providing a path forward for existing facilities to grow similarly to new facilities, it is unclear how the reserve would be administered to allow for growth of existing facilities. The conceptual design also requires overcompliance and while the percentage is small, the overall number of credits in the reserve grows over each compliance period. The concept appears to:

- Penalize the existing businesses that Ecology is trying to help to accommodate growth.
- Create the potential that an existing business might pay twice for the credits – both in terms of the additional shave (compliance obligation) to fund the reserve and then again when they need to access the reserve for growth.
- Fall short in terms of adequate credit supply, as more information is required on supply and demand in quantitative terms.
- Estimating quantities in the reserve using the numbers in the projected reductions overall, ignoring the benchmarking projects, and not showing sufficient quantities for known projects, let alone projects that may be needed in the future⁶⁸.

The program, as designed, needs to have the structure to accommodate capability growth at any given facility. An automatic baseline increase for GHG emissions should be allowed based on GHG increases from permitted projects at the facility.

Given these concerns, WSPA recommends that the whole concept be replaced by a system which calculates a new or increased baseline for new and modified existing facilities based on permitted emissions.

Section 8 -RULE ADMINISTRATION

Credit verification

In other programs, cases of credits and offsets being unreliable, even fraudulent, have occurred. If credits and offsets are authorized, WSPA requests a verification process and fraud provisions. The current third-party verification requirements in WAC 173-442-220 are too strict however. There should be no term limits on the use of a verifier. Third-party verification can include

⁶⁸ Projects listed on Page 9 of the SEPA provided in the rulemaking documents have a set number of possible increases in GHG emissions, which are calculated in the EIS documents. This is compared against a straightline-1.7% reduction for the overall GHG emissions described in the Cost Benefit analysis in the rulemaking documents. The straight-line 1.7% reduction is the goal of the program, so it was used as a proxy since it is unknown how many reserve credits would be available from EITE.

statements of no conflict of interest from third party verifiers – for example, if they work for a different sector of a company that does other business at a facility.

Penalties

As WSPA understands it, the purpose of penalties, generally, is to encourage and assure compliance. The penalties should not be set at levels that far exceed the impacts of noncompliance. The enforcement provisions in the rule are overly burdensome, and unnecessary to encourage compliance with the rule.

Time should be provided to modify reports, if needed - without compliance implications. Accuracy requirements for refinery emission monitoring equipment should be consistent with the existing reporting systems.

The enforcement provisions of WAC 173-442 should be consistent with RCW 70.94:

WAC 173-442-340 Enforcement. (1) Violations. A violation of any requirement of this chapter subjects the violator to enforcement as provided in chapter 70.94 RCW.

This proposed wording is consistent with typical penalty sections in other rules. Determining days of non-compliance is more complicated.

The workload on both the agency and the covered parties to modify major structural provisions of the rule, within the stated timeframe, has precluded sufficient discussion of the penalty section, although it is of significant concern.

Section 9 - MISCELLANEOUS TECHNICAL ITEMS

- The economic statement specifically provides that any reductions in GHG emissions that could be achieved by the state would not reduce the impacts of climate change on the state. It goes on to say zero emissions nationally would not of itself change the climate change impacts expected. Thus, the benefits described throughout the SEPA document, which arise from planet-scale GHG emission reductions, are not the result of implementation of this rule. Ecology should perform analysis focused on the benefits and adverse environmental impacts that directly result from implementation of WAC 173-442.
- SEPA Page 3 #9: Several specific projects are mentioned, for which a known quantity of reserve ERUs will be needed in order for the projects to be viable. The availability of reserve credits would directly impact the viability of known projects⁶⁹. This section should be revised with the impacts analyzed and described.

⁶⁹ Stationary sources within the state are subject to the Washington State Air Permitting Program regulation as it applies to the installation of new or modified equipment. The permitting program combined with the State Environmental Policy Act (SEPA) Guidance (June 2011) from Ecology requires that Greenhouse Gas emissions be mitigated for projects over 25,000 tpy CO₂e. The SEPA guidance includes many options to achieve the 11% reduction as stated in RCW 70.235.020 by 2020. 1. The state has permitted various projects that have incorporated GHG mitigation: A. Facilities subject to Prevention of Significant Deterioration

- SEPA: The data cited by Littel et al are from the Fourth Assessment of Climate Change by the IPCC. The current IPPC document, out in 2013, is the Fifth Assessment of Climate Change by IPCC. Since newer data are available, both internationally and locally, Ecology should update to current, peer-reviewed literature.

(PSD) requirements under the Clean Air Act that have been determined to meet “Best Available Control Technology” for GHGs. Emissions mitigated to 2020. B. Facilities that have paid third parties to reduce GHG emissions – BP Clean Fuels Project - \$4,376,000 – 20% of emissions were offset for 30 years, (2040). C. PSD project normally have GHG emissions in the range of 500,000 tpy CO₂e, which there is limited offset if the PSD program does not accommodate the change in the baseline CO₂ emissions.

Attachment 2
Western States Petroleum Association Comments
Product Distribution Discussion
July 22, 2016

Outline of Washington Refinery Product Distribution Channels

Explanation of Terms:

- PRD – Washington integrated refinery/producer/supplier
- TP – Third Party – Could be another PRD, Washington state licenced supplier, distributor or exporter
- Head of pipe – title transfer to TP as product is injected into the pipeline
- Ex-pipe – title transfer to TP as product is offloaded from the pipeline
- BoL – Bill of Lading
- NGL – Natural Gas Liquid (Propane, Butane, Pentane)
- FOB – “Free On Board” where transfer of ownership occurs at the point it is loaded on a seagoing vessel
- Blendstock – A refinery product that is used for blending into finished motor fuel typically to meet specifications including but not limited to, Octane, Cetane, RVP, Oxygenate content.
- VGO – Vacuum gas oil; a heavy oil that is a product of the crude distillation process that is further processed in a catalytic cracking unit (FCCU) or hydrocracker
- Intermediate – A refinery product that requires further processing before it can be used for commercial or general use

Product transportation options from Washington PRD’s:

Washington refineries (PRD’s) have a variety of methods for moving products ex refinery gate. There are various points at which ownership of product is transferred (e.g. Head of Pipe, Ex-pipe, FOB) and point of final distribution is difficult to track and isn’t always known at the refinery gate. Typically, transportation of product is done by one of the following means however; this list may not be all-inclusive.

1. On-Site PRD-owned terminal - PRD loads product (primarily gasoline and diesel) at an on-site truck rack or terminal
2. On-site rail facility - PRD loads product at an on-site rail loading facility. This includes transportation fuels such as gasoline and diesel but also includes other products like NGL’s, calcined coke and green coke
3. PRD-owned marine facility - (PRD can also take product, primarily transportation fuels such as gasoline and diesel via barge or tanker from marine facilities to the following destinations. In some terminal locations, multiple PRD’s and TP’s have leased or owned storage or terminal capacity at WA and OR locations. :
 - a. PRD-owned terminal/tankage or title transfer to TP in Seattle, WA – should also add Tacoma, WA
 - b. PRD-owned terminal/tankage or title transfer to TP in Portland, OR
 - c. PRD-owned terminal/tankage or title transfer to TP in Umatilla, OR
 - d. PRD-owned terminal/tankage or title transfer to TP in Pasco, WA
 - e. Once loaded by barge in Pasco, shipment by pipeline to PRD-owned terminal/tankage or title transfer (Head of Pipe or Ex-pipe) to TP in Spokane, WA (note: a portion of the volumes that enter Pasco and Spokane are imported from out of state)
 - i. Product can also be routed from Spokane to a distribution terminal in Moses Lake (note: some volumes imported from out of state)
 - f. Export to California or other states

- g. Exports out of country including Canada (Primarily Vancouver BC)
- 4. Marine facility (FOB sales) - The PRD can also load products via marine facility on to barge/ship as an FOB sale. This will include transportation fuels such as gasoline and diesel but, will also include intermediates such as vacuum gas oil (VGO) and gasoline blendstocks such as isomate or alkylate, and aviation fuel. For FOB sales the PRD will not know the final destination of the refinery product
- 5. Direct pipeline shipments - PRD loads gasoline or diesel from on-site tankage onto the Olympic Pipeline and ships it in bulk quantities to various terminals listed below. PRD's can send portions of those bulk shipments of product down the pipeline into PRD-owned or leased storage at each terminal for direct distribution (at PRD-owned retail sites) or sale by the truck load to TP's. To reiterate, in some terminal locations, multiple PRD's and TP's have leased or owned storage or terminal capacity. Additionally, title transfers of bulk amounts of gasoline/diesel from PRD to TP can occur within the Olympic/Kinder-Morgan Pipeline distribution system in a variety of ways including head-of-pipe and ex-pipe making the final destination unknown to the PRD
 - a. Bayview Mt. Vernon terminal is the first stop for the several refineries in Skagit/Whatcom Counties on the Olympic pipeline, which ends in Portland. The second Kinder Morgan pipeline originates in Portland, OR and flows to Eugene OR .
 - b. Seattle, WA
 - c. Renton, WA
 - d. Tacoma, WA
 - e. Vancouver, WA
 - f. Portland, OR
 - g. Eugene, OR (Kinder Morgan)
- 6. Other complex transportation scenarios PRD's can also move product via a combination of trucks intermediate pipeline transfers, and railcars (primarily diesel or gasoline) to inland terminals:
 - a. PRD on-site terminal or "truck rack" to secondary location for loading from trucks onto railcars destined for Eastern WA terminals such as Spokane where it could be placed in PRD leased-owned tankage for distribution or transferred to a TP. "Final distribution" may or may not occur in WA
 - b. PRD delivers via pipeline to Seattle-Area terminals . Trucks carry product from terminal to a train loading facility, loads onto a railcar and takes it to Spokane Holly Terminal

Examples of complex delivery and transfer arrangements to Oregon and Eastern Washington:

The following two examples of complex product movements in and out of WA that exhibit why it is extremely problematic for the producer or PRD to track individual product shipments and where they will ultimately be distributed

1. PRD sends gasoline/diesel to Portland via Olympic Pipeline – At Portland product loads on to a barge – Some product is delivered to the Umatilla OR terminal, where the PRD holds tank space – the remainder of the split shipment goes to the Pasco WA terminal, where the PRD holds tank space; or ownership could be transferred to a TP – Product then is loaded onto Tesoro Pipeline – Product is delivered to Holly Spokane Terminal where the PRD or TP holds tank space
 - a. Important to note here is that the Tesoro Pipeline is an open stock system moving fungible or mutually interchangeable products. When a PRD pumps gas/diesel at Pasco into the pipeline, it will not necessarily get the same molecules at Spokane. The PRD might get someone else's molecules off the pipe as long as the product has the same specifications as the one the PRD injected into the pipeline. Since that portion of the pipeline originates in Utah, some of those molecules could also be imported from places other than the PRD's facility in WA.
2. Assuming that a majority of product at Spokane is sourced from the originating PRD's barrels delivered to Portland, there can also be times when a PRD is low on inventories and bulk product can be purchased from a TP (even from producers outside of WA) at Pasco as it's

injected onto the Tesoro pipeline. In those cases, a PRD will not be able to reconcile volumes generated from Subpart MM reports

Other problematic PRD transfer arrangements:

1. WA PRD fuel sales to rail carriers (e.g. BNSF)
 - a. PRD sells bulk quantities of diesel to rail carrier via pipeline head of pipe or ex-pipe
 - b. Rail carrier transfers fuel to rail logistics/fuelling platforms in Vancouver WA via pipeline or other locations in Washington or outside of Washington where they have a bulk storage and fuelling capability. Although the initial transfer of ownership from PRD to the rail carrier occurred in Washington, the PRD has no way of knowing if those products were consumed on railways in Washington (since trains cross state lines) or if they were transferred out of state for rail fuelling operations.
2. PRD transfer of product off of pipeline to TP's (See Item 5 under "Product transportation options" above)
 - a. On occasion PRD's can sell bulk volumes (gasoline and diesel) to TP's off the pipeline as a head of pipe sale or ex-pipe sale
 - b. TP's frequently lease or own storage and/or terminals at those locations where they will take ownership of the bulk volume
 - c. The PRD has no way of certifying or definitively determining if the product will ultimately end up being consumed in Washington State; especially if product is transferred to terminals that have export capability or if the terminal is in proximity to a state boundary (e.g. Vancouver, Pasco, Spokane)
3. Sales/transfer of ownership at PRD owned marine facilities (See item 4 under "Product transportation options" above):
 - a. There are scenarios where a TP will buy and take possession of refinery products at PRD marine facilities most frequently via barge. This is known as an FOB transfer.
 - b. This type of transfer can occur with finished transportation fuels, refinery feedstocks/intermediates (e.g. VGO) or blendstocks
 - c. For FOB sales of fuels, the PRD will have no way of certifying or definitively determining if the fuel was consumed in Washington, exported out of Washington, or even split; part of the shipment staying in Washington and the other portion exported.
 - d. For FOB sales of blendstocks and intermediates, there is the added complication of incorrect accounting of carbon molecules, especially if the product(s) is sent by the PRD to another Washington refinery (PRD-B) for further processing. The resulting final product(s) may be exported out of Washington by PRD-B in which case they should not be counted in the first place; or the final products could be distributed in Washington in which case the resulting CO2 emission would be counted twice
4. In cases where the Olympic Pipeline is unavailable due to malfunctions or maintenance or lack of pipeline space allocation, PRD's can load at marine facilities and send barges to Seattle, Tacoma and Portland
 - a. PRD's can choose to sell all or portions of product off those barges to TP's in the Seattle or Portland areas
 - b. The PRD will not know where the product will ultimately end up if it is not lifted from PRD-owned truck racks.



Western States Petroleum Association
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Catherine H. Reheis-Boyd
President

July 22, 2016

Mr. Sam Wilson
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

via e-mail: AQComments@ecy.wa.gov

Re: WSPA Comments on the Proposed Clean Air Rule: WAC 173-442 and WAC 173-441

Dear Mr. Wilson:

The Western States Petroleum Association (WSPA) is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products and other energy supplies in five western states, including Washington. WSPA appreciates the opportunity to provide comments on the Washington Department of Ecology's Clean Air Rule (CAR), published as a proposed rule on June 1, 2016.

WSPA endorses and incorporates by reference the comments to the Department of Ecology (Ecology) on the proposed CAR made by the Association of Washington Business (AWB) dated July 22, 2016. In addition, WSPA has the following concerns, which are addressed in greater detail in Attachments 1 and 2:

- **Program Design and Implementation:** The proposed CAR is not feasible. The rule lacks a clear pathway for implementation and compliance. The rule should be phased-in to allow adequate review, analysis, and development.
- **Energy Intensive Trade Exposed (EITE):** In Washington, refiners are in fact EITE, but they are not considered such by the rule. The proposed CAR would place the petroleum product industry at risk and shift family wage jobs out of the state.
- **Point and Scope of Fuel Obligation:** The Ecology does not have the authority to include petroleum products in the program. If Ecology nevertheless includes them, the appropriate and legally defensible point of obligation for transportation fuels is at the loading rack. The use of the EPA Subpart MM data to calculate emissions is inaccurate and creates a bureaucratic morass. The most logical and straightforward method of product accounting is to focus on transportation fuel, and to use the Department of Licensing (DOL) data.

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- **Fuel Baseline:** The rule treats the fuels market like a point source for emissions, with a declining cap on individual sources. While fuels across the state may seem static, the fuels market is dynamic. The rule alters the fundamental way the fuels economy functions in the state of Washington. Such a dramatic change to the way we do business should be carefully analyzed before implementation.
- **Facility Baseline:** Facilities should be encouraged to operate at full capacity, and allowed to accommodate this capacity by adjusting the facility baseline accordingly.
- **Emission Reduction Units (ERUs).** This is the only compliance pathway for fuel suppliers, and the primary compliance pathway for the sector as a whole. Currently, this pathway is poorly evaluated and appears to lack sufficient quantities of ERUs to make the program feasible.
- **Declining “Hard” Cap and Reserve.** The current reduction curve is too strict if fairly evaluated against the broader reductions in the state, and the population growth since 1990. There do not appear to be sufficient reserve ERUs for projects “on the books”, let alone new projects. As a result, growth for existing and new sources may be hampered, and the feasibility of the program further questioned.

For the reasons put forth in these comments, and the comments made by AWB, WSPA requests that the proposed CAR be withdrawn and that Ecology pursue a consensus approach to the development of a major regulatory initiative that respects the limits on its authority and that incorporates the guidance of the regulated community and other interested parties.

Thank you for the opportunity to provide our input on the proposed CAR and we look forward to continued stakeholder conversations. Should you have any questions, please feel free to contact me at this office or Jessica Spiegel of my staff at jessica@wspa.org and (360) 352-4512.

Sincerely,



Attachment 1. WSPA Comments Proposed Clean Air Rule
Attachment 2. Product Distribution Discussion

Cc: Sarah Rees, Special Assistant to the Director for Climate Policy, Department of Ecology
Chris Davis, Governor’s Advisor on Carbon Markets
Jessica Spiegel, Western States Petroleum Association
Frank Holmes, Western States Petroleum Association



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VERN M. REDIFER, P.E. - Director

July 19, 2016

Washington Department of Ecology
Attn: Sam Wilson
P.O. Box 47600
Olympia, Washington 98504-7600

Subject: Washington Clean Air Rule Comments

Dear Mr. Wilson:

Yakima County Public Services (YCPS) operates two active municipal solid waste (MSW) landfills near Yakima, Washington. YCPS has the goal of providing Yakima County residents with an environmentally sound, cost effective, and efficient waste management system. As we understand, Ecology is currently accepting comments on the draft Clean Air Rule (CAR) that would cap and reduce greenhouse gas (GHG) emissions from specific sources within Washington. The purpose of this letter is to provide formal comments to Ecology on the draft rule.

Landfills are an essential component in handling and storing MSW generated by the public. YCPS is concerned that Ecology has not fully reviewed the impacts the CAR could have on MSW landfills operating in Washington. There are existing and proposed federal regulations designed to control landfill gas (LFG), including methane, generated by MSW landfills. The draft CAR language seemed to imply that existing MSW landfills in Washington would no longer be able to accept waste after the landfill becomes subject to the CAR requirements. The organic fractions of MSW will generate biogenic carbon dioxide (CO₂) and methane (CH₄) emissions regardless of whether it occurs at an existing landfill in Washington or if MSW is shipped to a landfill located out-of-state.

Our comments on specific aspects of the draft rule are presented separately below. YCPS requests Ecology revise the draft CAR language to exempt GHG emissions from MSW landfills located in Washington.

Comment 1. Exclude All Biogenic CO₂ Emissions from the CAR

The draft CAR includes GHG emission exclusions for CO₂ from combustion of wood biomass and GHG emissions from coal-fired power plants. Biogenic CO₂ is generated from sources other than wood biomass combustion, and YCPS requests that biogenic CO₂ emissions from all sources should be excluded from the CAR. Ecology already includes references to biogenic CO₂ and biomass definitions from EPA's mandatory GHG reporting rule, but biogenic CO₂ emissions from sources other than wood combustion are not incorporated in the draft CAR.

Yakima County ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin, or sex in the provision of benefits and services resulting from its federally assisted programs and activities. For questions regarding Yakima County's Title VI Program, you may contact the Title VI Coordinator at 509-574-2300.

If this letter pertains to a meeting and you need special accommodations, please call us at 509-574-2300 by 10:00 a.m. three days prior to the meeting. For TDD users, please use the State's toll free relay service 1-800-833-6388 and ask the operator to dial 509-574-2300.

Biodegradable organic fractions in MSW begin to breakdown after it is deposited in a landfill. Over-time the aerobic and anaerobic organisms in the landfill will generate LFG containing biogenic CO₂ and CH₄. LFG is emitted as either fugitive emissions from the landfill surface or from a type of LFG collection system. Fugitive LFG is impossible to measure accurately across the entire landfill surface; therefore, EPA's mandatory GHG reporting rule includes a set of first-order decay equations to estimate cumulative LFG generation rates from a landfill based on annual MSW acceptance rates, MSW composition, and the number of years the MSW has been in place.

EPA's GHG reporting rule and the California GHG Cap and Trade regulations exclude biogenic CO₂ emissions from MSW landfills. YCPS is unaware of a method to handle MSW without generating biogenic CO₂ emissions, and requiring landfills to reduce naturally occurring CO₂ released from MSW biodegrading would result in the closure of landfills. Even then organic fractions in MSW shipped to other landfills will continue to generate biogenic CO₂. Ecology already proposed an exclusion for CO₂ emissions from wood biomass combustion, and YCPS asks Ecology expand the exclusion to include all biogenic CO₂ emissions.

Comment 2. Exclude MSW Landfills Subject to Federal New Source Performance Standards from the CAR

Almost all GHG emission calculation methods are based on some form of carbon mass balance. Carbon is immediately released from a fossil fuel during combustion primarily as CO₂, but biodegradation of MSW by bacteria is a slow process. In fact, LFG (~50/50 split of CO₂ and CH₄) is slowly released over the life of a landfill as organic material in MSW biodegrades. Draft CAR compliance options for fuel combustion would include reducing future fuel usage in-line with CAR reduction pathway requirements. Compliance pathways for landfills are much more complex because MSW in a landfill will generate LFG over the entire life of the landfill, and the highest LFG generation rate will occur the year after the landfill accepts the final ton of MSW. In other words, cumulative LFG generation rates increase every year MSW is placed into the landfill.

EPA's GHG reporting rule provides a first-order decay equation to estimate LFG generation from each ton of accepted MSW at specific point in time. LFG generation peaks shortly after initial waste placement (lag time between aerobic and anaerobic conditions) and then decreases exponentially as organic material is consumed by bacteria. Total annual LFG emissions are the cumulative sum of annual MSW acceptance and the amount of time the MSW has been in the landfill (i.e. the location on the first-order decay curve). This difference in GHG calculations for landfills, compared to fuel combustion sources, severely limits compliance options in the draft CAR.

A landfill could completely stop accepting MSW and still not be able to meet Ecology's draft CAR reduction pathway because the first-order decay rate for landfills does not decrease annual GHG emissions by the proposed 1.7 percent annual reduction rate. This is especially true for landfills located in arid regions where the first-order decay rates are significantly slower compared to landfills located in areas with higher precipitation rates that encourage bacteria

activity. Closing a landfill would require all future waste to be shipped to a different landfill in Washington or to a landfill located out of the state that is not subject to the same regulations. Beyond no longer accepting MSW (which would not meet Ecology's required GHG reductions), landfills would need to pay to further reduce GHG emissions.

Smaller landfills could be required to install gas collection and control equipment based on CAR requirements. Most, if not all, larger landfills already operate gas collection and control equipment based on existing federal regulations (discussed in the following section), although the draft CAR currently penalizes landfills for biogenic CO₂ emissions from LFG control equipment. LFG collection and control systems have capital investment costs on the order of several million dollars with additional annual operating costs. These costs are unreasonable for smaller landfills that are typically operated by city or county governments.

EPA developed federal regulations designed to control LFG emissions from MSW landfills. New Source Performance Standards (NSPS) Subpart WWW has LFG generation thresholds that trigger requirements for designing, installing, and operating LFG collection and control systems (i.e. flares, engines, pipelines, etc.) The current threshold is 50 megagrams per year (Mg/yr) of non-methane organic carbon (NMOC), which also serves as a surrogate for CH₄. These federal requirements reduce fugitive LFG emissions and control CH₄ emissions in the collected LFG. EPA estimates methane emissions from MSW landfills have decreased by over 30 percent from 1990 to 2012 even though the total MSW generation rate from the public continues to increase.¹

President Obama's 2013 Climate Action Plan and corresponding 2014 Strategy to Reduce Methane Emissions directed EPA to pursue additional CH₄ emission reductions from landfills and encourage LFG energy recovery. In August 2015, EPA proposed two new NSPS Subparts to significantly lower the LFG generation threshold triggering installation and operation of LFG collection and control systems (from 50 Mg/yr to 34 Mg/yr). Subpart XXX will apply to new, modified, and reconstructed MSW landfills after July 17, 2014.² Subpart Cf will apply to existing landfills.³ The primary goal of the two proposed NSPS Subparts is requiring smaller landfills to control CH₄ emissions, and EPA estimates the proposed subparts will reduce total methane emissions by over 226,000,000 metric tons of carbon dioxide equivalent (CO₂e). EPA has indicated that both of the proposed NSPS Subparts will be promulgated in the summer of 2016.

YCPS believes the existing and proposed NSPS Subparts for MSW landfills adequately address GHG emissions from MSW landfills and incorporate the unique LFG generation rate calculation methodology. YCPS requests the CAR exclude MSW landfills that are subject to existing and proposed NSPS requirements.

¹ 79 FR 41772

² 79 FR 41796 and 80 FR 52162

³ 79 FR 41772 and 80 FR 52100

Comment 3. Exclude New Sources and Expansion of Existing Sources from the CAR

Ecology's latest State Environmental Policy Act (SEPA) guidance document requires each project to evaluate GHG emissions.⁴ Projects resulting in GHG emission increases above 10,000 metric tons of CO₂e per year are required to disclose emission information in SEPA; and projects resulting in GHG emission increases above 25,000 metric tons of CO₂e per year need to include proposed GHG mitigation measures. In addition, Ecology's current major new source review regulations requires any project triggering Prevention of Significant Deterioration (PSD) review for GHG emissions to complete a detailed Best Available Control Technology (BACT) analysis to review GHG reduction options for a project.⁵ GHG BACT analyses typically evaluate and review low carbon fuels options, energy efficient designs, and add-on control technologies. GHG emission limits for a project are then based on the BACT analysis findings.

The draft CAR places a barrier for companies looking to move into Washington or expand their current operations within Washington. Currently they are first required to first prove they are mitigating GHG emissions through SEPA and/or BACT review. Ecology is proposing that a source also start reducing GHG emissions upon startup of the facility or expansion of the facility. The draft CAR includes some language about Ecology providing reserve ERUs to facilities that are new or expanding. However, the rule language does not provide any details on how Ecology will accomplish this goal. It would be very helpful for Ecology to describe how they will decide the number of ERUs they will provide to a new/expanding facility and how long Ecology will continue providing ERUs for future operation of the facility.

YCPS suggests Ecology modify the CAR to exempt GHG emissions new or expanding sources as they are already mitigating GHG emissions through SEPA and/or new source review regulations. If Ecology plans to continue with the ERU reserve concept, YCPS also requests additional time to review and provide comments on the draft CAR once Ecology clarifies how they will implement the ERU reserve for new or expanding sources.

Comment 4. Requests to Clarify Draft CAR Language

YCPS requests clarification on several sections of the draft CAR, as described below.

- Ecology has defined an Emission Reduction Unit (ERU) as one metric ton of CO₂e. We understand that ERUs may be generated by having actual GHG emissions less than the CAR emission reduction requirement, by purchasing allowances from external markets, and by implementing emission reduction projects/programs. Ecology plans to permanently retire an ERU after it is applied to meet a CAR compliance obligation.

The ERU generation techniques are fundamentally different. Purchasing allowances and having actual annual GHG emissions less than a compliance obligation can be measured as one ton of CO₂e. However, permanently reducing or eliminating a source of GHG should be measured as one ton of

⁴ Guidance for Ecology, Including Greenhouse Gas Emissions in SEPA Reviews. June 3, 2011.

⁵ WAC 173-400-730

CO₂e per year. The benefit of a GHG emission reduction project/program is not a one-time event. It is a continuous benefit each year because the reduction is permanent by Ecology definition. For this reason, funding GHG reduction projects/programs can have significantly higher costs compared to the other to ERU generating methods.

Current CAR language requires an ERU to be retired after use, even though some ERU generating methods will provide continuous benefits every year. YCPS requests Ecology modify the draft language in WAC 173-442-150 and 160 to allow for ERUs to be generated every year from a GHG reduction project/program.

- YCPS suggests that Ecology revise the use of “efficiency reduction rate” within the draft CAR to “efficiency improvement rate”. It is our understanding that Ecology’s goal is to require efficiency improvements to reduce the GHG intensity (lb CO₂e per product output). We believe the use of “efficiency reduction rate” within the CAR is counter-intuitive to the goal of improve manufacturing efficiency.
- YCPS requests that Ecology revise WAC 173-442-070(3)(b)(i) & (ii) of the draft CAR to benefit the facilities with lower output-based emissions with a lower efficiency improvement rate. As currently drafted it appears the draft CAR language requires highly efficient facilities (i.e. lower lb CO₂e per product output) to have a higher efficiency improvement rates.
- YCPS requests that Ecology clarify the proposed changes to efficiency improvement rates for more efficient and less efficient facilities in WAC 173-442-070(3)(b)(i) & (ii) of the draft CAR. Current draft language only states “greater than” or “less than”. There is no clarification on how these rate increases/decreases will be determined. YCPS requests additional time to review and provide comments on the draft CAR after Ecology clarifies how they will determine the efficiency improvement rates.
- YCPS requests that Ecology clarify what information a facility is required to supply in WAC 173-442-070(3)(b)(iv) of the draft CAR. The draft language implies a more stringent efficiency improvement rate for facilities that do not supply sufficient information to Ecology, but fails to provide a list of information being requested. The draft language also states “greater than”, but does not provide the methodology for how Ecology will determine the efficiency improvement rate.
- YCPS requests that Ecology clarify the methodology that will be used to complete the efficiency intensity distribution analyses will be completed for Energy Intense and Trade Exposed (EITE) facilities. The draft CAR language around these analyses is ambiguous and requires clarification before comments can be provided.

For example, will the EITE sectors be determine by NAICS, by product produced, or by industry type and location? Carbon content of raw materials can vary significantly based on location within the United States.

For EITE facilities that manufacture several different types of products, how will Ecology chose which product will be the basis of the efficiency intensity distribution analyses?

Most companies keep production records confidential. How will Ecology obtain annual production data from facilities located outside of Washington?

These are only a few of our concerns regarding how Ecology plans to determine energy efficiency improvement rates for EITE facilities. YCPS requests additional time to review and provide comments on the draft CAR after Ecology provides the methodology they will use to conduct the efficiency intensity distribution analyses.

In summary, YCPS is concerned the draft CAR will unintentionally result in the closure of MSW landfills in Washington and the shipment of MSW to landfills located out-of-state. YCPS believes existing federal regulations effectively control CH₄ emissions from MSW landfills as EPA has documented in proposed rule update submittals. YCPS requests the CAR include a compliance pathway for MSW landfills based on compliance with existing and proposed NSPS requirements for MSW landfills. YCPS also requests that all biogenic CO₂ emissions be excluded from the CAR. Without a biogenic CO₂ exclusion, the draft CAR effectively requires landfill closure after becoming subject to the CAR. Even MSW landfills controlling LFG will emit biogenic CO₂ emissions from the control device. Shipping MSW to out-of-state landfills is not the answer because natural biodegradation of organic material will occur regardless of the landfill location.

Please feel free to contact me at 509-574-2455 if you have any questions regarding this letter or would like to further discuss my concerns.

Sincerely,



Wendy Mifflin
Solid Waste Manager

Yakima County Public Services – Solid Waste Division

Cc: Kyle Heitkamp, Ramboll-Environ