Greenhouse Gas Assessment for Projects (GAP) Rule
Washington Administrative Code (WAC) 173-445

Draft GAP Rule Conceptual Framework for Informal Review

Washington State Department of Ecology
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Purpose of the Draft GAP Rule Conceptual Framework

This conceptual framework summarizes progress on the development of the Greenhouse Gas Assessment for Projects (GAP) rule. This will be a new rule, Washington Administrative Code (WAC) 173-445.

This document provides a narrative description of the concepts being used to draft the GAP rule. It includes changes to the initial ideas presented by the Washington State Department of Ecology (Ecology) in five public webinars from June to November 2020, based on public input and feedback. This document provides information as of the time of release for informal comment.

This document is being released for informal comment to get additional public input and feedback for drafting the proposed rule. In addition to this document, draft GAP rule language for the definitions and the applicability sections and questions on mitigation are being provided separately for feedback. The three documents for review and information on how to provide informal comment are described on the GAP rule webpage.

The draft GAP rule is planned for release in spring 2021 for formal public comment. The final rule is planned to be adopted later in 2021. The draft or final rule language may be different from what is presented in this document.

In addition to describing the GAP rule, this framework document describes how the rule relates to other statutes and rules, how it would be used under the State Environmental Policy Act (SEPA), and how the rule would be implemented.

Purpose of the GAP Rule

Global climate change poses a threat to the health and well-being of all Washingtonians. Our state is already experiencing the effects of climate change in the form of intensifying wildfires, drought, floods, sea level rise, ocean acidification, and ecosystem decline. Climate change threatens the health and prosperity of future generations, particularly for the most vulnerable communities.

The Washington Legislature set limits to reduce greenhouse gas (GHG) emissions to protect our climate and our people. 50 years ago, the Legislature enacted a law requiring the probable environmental impacts of projects be identified for the public and decision makers to consider. Large fossil fuel and industrial projects have the potential to emit high amounts of GHGs, which result in adverse environmental impacts. The GAP rule will provide methods to assess GHG emissions from these projects and require a plan to eliminate, reduce, or offset the environmental impacts. It will require the analysis use the most current climate science and provides flexibility for the rapidly changing energy picture in Washington and worldwide.

The GAP rule will enable consistent, predictable, and transparent consideration of GHG emissions related to industrial and fossil fuel projects. The GAP rule will:

- Address analysis and mitigation of GHG emissions for environmental assessments of public and private industrial and fossil fuel projects.
- Provide consistent and comprehensive assessment methods for projects covered by the rule.
- Provide clarity and transparency to industry, the public, and agencies.

The GAP rule will have three main sections.

1. Applicability: The rule will include an applicability screening process to identify which projects will use the rule.
2. Environmental Assessment: The rule will include environmental assessment methods for GHG emissions to be used during the State Environmental Policy Act (SEPA) environmental review process.
3. Mitigation Plan: The rule will include requirements for a GHG emissions mitigation plan to address potential environmental impacts.

In accordance with WAC 197-11-050, which states the lead agency has the main responsibility for complying with SEPA procedural requirements, SEPA lead agencies will be required to comply with the GAP rule. The SEPA rule also states the lead agency is responsible for the threshold determination and preparation and content of environmental impact statements. The environmental assessment and mitigation plan required in the GAP rule could be done by either an applicant or the lead agency, but the lead agency remains responsible for the content of the SEPA review.

Regulatory Context

During the rule development phase, there have been questions about how the GAP rule would relate to several existing rules. This section provides information on those rules and how the GAP rule relates to them. This language is provided for background and context and will not be included in the draft GAP rule language.

Governor's Directive #19-18

Governor Inslee issued a directive to Ecology to adopt rules to "cover major industrial projects and major fossil fuel projects; and establish uniform methods, processes, procedures, protocols or criteria that ensure a comprehensive assessment and quantification of direct and indirect greenhouse gas emissions resulting from the project." The GAP rule is being developed to meet the Governor's directive.

The directive states the environmental assessments and reporting should include:

- "20-year and 100-year global warming potentials for all greenhouse gases attributable to the project, as provided by the most recent international assessment;
- An assessment of any induced load or growth in fuel or energy consumption or electricity generation from the project;
- Criteria for assessing upstream and likely downstream lifecycle emissions attributable to the project, including transportation, leakage, and market and indirect effects; and
- Methods, procedures, protocols, criteria or standards for mitigation of greenhouse gas emissions, as necessary to achieve a goal of no net increase in greenhouse gas emissions attributable to the project."

RCW 43.21C State Environmental Policy Act (SEPA) and WAC 197-11 SEPA Rules

SEPA is intended to ensure that environmental values and impacts are fully considered during decision-making by state and local agencies. SEPA directs state and local agencies to consider environmental information (impacts, alternatives, and mitigation) before committing to a particular course of action. For a proposed project, the SEPA process begins when an applicant applies for a permit or license from a state or local agency or submits a proposal.

The GAP rule will not change SEPA law or language in WAC 197-11, the SEPA rule. The GAP rule supplements the SEPA rule by providing detailed instructions regarding the analysis and mitigation of GHG emissions. GHGs are already considered in the SEPA environmental review process as an air pollutant. However, WAC 197-11 does not describe detailed methods for analyzing any particular pollutant or resource; typically, other rules, guidance, and policies direct the analysis of impacts. For example, water quality standards are used for analysis of water quality impacts. For GHG emissions, the analysis is currently done on a case-by-case basis as determined by the SEPA lead agency. The GAP rule will provide a consistent and comprehensive methodology for performing analysis of projects. The analysis can be conducted at several points in the SEPA process, as described later in this document.

It is important to note that the GAP rule does not exempt any projects from considering GHG emissions in an environmental review. For projects where the GAP rule does not apply, GHG emissions will still need to be considered, in a manner determined by the SEPA lead agency.

RCW 43.21C.110 requires Ecology to "adopt and amend rules of interpretation and implementation of this chapter." The statute lists a variety of different subject areas that Ecology may address, including "scope of coverage and contents of detailed statements" (i.e. Environmental Impact Statements or EISs). The GAP rule would provide information for coverage and contents of GHG assessments in detailed statements, such as EISs.

The GAP rule supplements the existing SEPA rules in WAC 197-11 by providing detailed instructions regarding the analysis and mitigation of GHG emissions. Under RCW 43.21C.060, agencies with governmental actions, such as permits, have discretionary authority to require mitigation for significant adverse environmental impacts if the requirements of that statute are met. This authority is supplemental to all other existing authority and may be utilized regardless of whether the proposal meets permit requirements.

40 CFR Parts 1500-1508, National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) 42 U.S.C. 4321 et seq. requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. 40 CFR 1500-1508 implements NEPA. SEPA is separate from the NEPA regulations, so this act does not apply for the GAP Rule.

RCW 70A.15 Washington Clean Air Act (CAA)

The Clean Air Act (CAA) has been recodified to RCW 70A.15 (previously RCW 70.94). The intent of the CAA is 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." RCW 70A.15.3000(2)(a) authorizes Ecology to adopt rules establishing "air quality." The CAA provides authority to regulate air pollutants including GHGs; require reporting and tracking of emissions including GHGs; set standards, objectives, and limitations; require information and records to facilitate goals of the act; and limit air emissions. It provides supporting authority for the adoption and content of the GAP rule.

RCW 70A.45 Limiting GHG Emissions and WAC 173-441 Reporting of Emissions of Greenhouse Gases

RCW 70A.45 (previously RCW 70.235) directs Ecology to establish a GHG reporting program consistent with RCW 70A.15.2200. The GHG Reporting Rule, WAC 173-441, developed under these two statutes, establishes mandatory GHG reporting requirements for owners and operators of certain facilities that directly emit GHGs as well as for certain suppliers of liquid motor vehicle fuel, special fuel, or aircraft fuel. The reporting requirements apply to emissions from biogenic sources as well. The GAP rule will use WAC 173-441 as the basis for calculating on-site emissions, so the methods are consistent between the rules.

As established in RCW 70A.15.2200(5)(a), the GHG Reporting Rule statutory threshold is 10,000 metric tons CO_2e. For consistency and alignment, the applicability level for the GAP rule is also based on 10,000 metric tons CO_2e. The GHG Reporting Rule also provides a view of the types of projects that would likely be covered by the GAP rule. For projects where the GAP rule applies, the GHG reporting rule is also expected to apply for at least some portion of the project emissions. The GHG reporting rule does not require the reporting of life cycle emissions.

To help slow climate change, the Washington Legislature set GHG emission reduction limits for the state. The GAP rule helps support these legislative limits. The current limits in RCW 70A.45.020 are:

- By 2020, reduce total GHG emissions to 1990 levels.
- By 2030, reduce total GHG emissions to 45% below 1990 levels.
- By 2040, reduce total GHG emissions to 70% below 1990 levels.
- By 2050, reduce total GHG emissions to 95% below 1990 levels and achieve net zero emissions.

RCW 70A.45 establishes statewide GHG reduction limits and mandates a GHG reporting program along with other provisions. It provides supporting authority for the adoption and content of the GAP rule.

40 CFR 98, Mandatory Greenhouse Gas Reporting Program (GHGRP)

The federal GHGRP requires reporting of GHG data from large GHG emission sources, fuel and industrial gas suppliers, and CO_2 injection sites in the United States. Facilities determine if they are required to report based on the types of industrial operations at the facility, their emission levels, or other factors. Nationally, approximately 7,600 facilities are required to report their emissions annually. Facilities are generally required to submit annual reports if:

- GHG emissions from covered sources exceed 25,000 metric tons CO_2e per year.
- Supply of certain products would result in over 25,000 metric tons CO_2e of GHG emissions if those products were released, combusted, or oxidized.

The GAP Rule uses the methodologies in WAC 173-441 for estimating on-site GHG emissions. WAC 173-441-120 adopts 40 CFR Part 98 by reference and uses the federal GHGRP as a technical reference. Therefore, the calculation methods in Washington's rule are consistent with the federal rule.

WAC 173-444, Clean Energy Transformation Rule and RCW 19.405 Clean Energy Transformation Act (CETA)

Ecology has adopted a new rule, WAC 173-444, the Clean Energy Transformation Rule. This rule will implement parts of the Washington Clean Energy Transformation Act or CETA, RCW 19.405, transitioning away from electricity sources that depend on fossil fuels. CETA requires:

- By 2030, at least 80% of the electricity used in Washington must be clean (from either renewable sources or sources that do not emit GHGs).

- By 2045, all electricity used in Washington must be from non-emitting sources.

The CETA rule provides criteria that determine which energy projects may be eligible for compliance with CETA. The types of projects are still being determined. A methodology to estimate GHGs for these energy projects will emerge from the CETA process, although it is likely that these projects will be below the GAP rule applicability level. Where there may be overlap between the two rules, they are complementary since the CETA protocols for these projects may provide useful methods or data.

RCW 43.21F, State Energy Strategy

RCW 43.21F requires a state energy strategy be developed to support Washington's goals to protect our climate, safeguard consumers, and promote a green economy. The state energy strategy provides recommendations to align Washington's policies and actions to meet the state's GHG reduction limits. The GAP rule supports the state energy strategy by providing for a consistent and comprehensive assessment of GHG emissions for projects and providing for alignment for the state's GHG reduction limits.

WAC 173-485, Petroleum Refinery Emission Requirements

WAC 173-485 requires reasonably available control technology (RACT) for five petroleum refineries. Refineries have until 2025 to meet the requirements. If the GAP rule applies to a project at these refineries, the RACT and energy efficiencies would be accounted for as part of the environmental assessment. The GAP Rule would be complementary to this rule.

WAC 463-80, Carbon Dioxide Mitigation Program for Thermal Electric Generating Facilities

RCW 80-70 and WAC 463-80 require mitigation for 20% of the total CO_2 emissions over 30 years for all new and certain modified fossil-fueled thermal electric generating facilities with station-generating capability of greater than 350 megawatts of electricity (MWe). EFSEC is the SEPA lead agency for projects with a capability of 350 MWe or greater. Ecology is the SEPA lead agency for projects with a capability of 25 to 349 MWe.

SEPA substantive authority would allow mitigation in addition to what is specifically required under WAC 463-80, provided the requirements for use of that authority in RCW 43.21C.060 are met. Therefore, the GAP rule would be complementary to WAC 463-80.

WAC 173-400, General Regulations for Air Pollution Sources

WAC 173-400-110 states GHG emissions are exempt from new source review requirements except to the extent required under WAC 173-400-720, Prevention of Significant Deterioration. The owner or operator of a source or emission unit may request that the permitting authority impose emission limits and/or operation limitations for GHG in any new source review order of approval. For GHGs, for an air permit, Best Achievable Control Technology (BACT) must be applied if there is more than 75,000 tons/year increase in CO_2e.

SEPA substantive authority would allow mitigation in addition to what is specifically required in air permits under WAC 173-400, provided the requirements for use of that authority in RCW 43.21C.060 are met. Therefore, the GAP rule would be complementary to WAC 173-400.

Definitions

This section includes definitions for the draft GAP rule. *Please see the GAP rule webpage for the separate document with draft rule language on definitions for informal review.*

Activity data – a measurement or estimate used to calculate GHG emissions. This includes but is not limited to: organic compound mass or volume, flow rate, combustion unit rating, input use, output generation, and electricity use.

Actual emissions – the actual rate of emissions in metric tons per year of any GHG emitted from a project over the preceding calendar year. Actual emissions shall be calculated using each emissions unit's actual operating hours, production rates, and types of emissions during the preceding calendar year.

Applicability level – the amount of an activity for a project, or combination of activities, that if met or exceeded means the project is subject to this rule.

Applicant – any person or entity, including an agency, applying for a license or permit from an agency.

Best Available Control Technologies (BACT) – the most effective technologies, techniques, or practices, including emerging technologies that can be technically and economically feasible for reducing GHG emissions during the lifetime of the project.

Biomass – nonfossilized and biodegradable organic material originating from plants, animals, or microorganisms, including products, by-products, residues and waste from agriculture, forestry, and related industries as well as the nonfossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material.

Carbon dioxide equivalent (CO_2e) – a metric measure used to compare the emissions from various GHGs based upon their global warming potential.

Downstream greenhouse gas emissions – the emissions that may occur as products or outputs of a project.

Environmental impact statement (EIS) – an environmental review for a project that is likely to result in significant adverse environmental impact(s).

Facility – as defined in WAC 173-441-020. Facility, with respect to an electric power system, organic compound transmission pipeline system, or organic compound pipeline distribution system means the entire electric power system, organic compound transmission pipeline system, or organic compound pipeline distribution system under common ownership or control in Washington State.

Fossil fuel – natural gas, petroleum, coal, or any form of solid, liquid, or gaseous fuel derived from such a material.

Global warming potential (GWP) – a measure of how much energy the emissions of a GHG will absorb over a given period of time, relative to the emissions of the same amount of CO_2.

Greenhouse gas (GHG) – includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. It also includes any other gas or gases designated by Ecology by rule in Table A-1 in WAC 173-441-040.

Input or *feedstock* – a material or energy flow that enters a unit process. As used in the International Organization for Standardization (ISO) lifecycle assessment, this includes raw materials, intermediate products, and co-products.

Life cycle – consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal.

Life cycle analysis or life cycle assessment (LCA) – compilation and evaluation of the inputs, outputs, and the potential environmental impacts of a product system throughout its life cycle.

Organic compound - any of a large class of chemical compounds in which one or more atoms of carbon are covalently linked to atoms of other elements, most commonly hydrogen, oxygen, or nitrogen. Fossil fuels, biofuels, biomass, hydrocarbons, petrochemicals, and alcohols are organic compounds. The following are not considered organic compounds for purposes of this rule: carbides, carbonates, cyanides, carbon monoxide, carbon dioxide, foods, medicines, or other substances intended for human or animal consumption, and unprocessed or processed biogenic inputs or outputs that are not intended for combustion such as finished wood products or textiles. Waste products are not included in this exemption.

Output or *product* – a material or energy flow that leaves a unit process. As used in the ISO life cycle assessment, products and materials include raw materials, intermediate products, co-products, and releases.

Potential to emit (PTE) – the maximum capacity of a source to emit a GHG under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a GHG, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, may be treated as part of its design only if the limitation or the effect it would have on emissions is enforceable.

Project or *proposal* – a proposed action by a private individual, entity, or public agency. A project includes all project facilities, transportation, inputs, outputs, and related actions.

Project facility or *project facilities* – one or more facilities under operational control of the applicant that are associated with the project. Project facility only means the emissions sources and processes modified by the project for projects that include an existing facility.

SEPA lead agency – the agency with main responsibility for complying with SEPA's procedural requirements and the agency responsible for the threshold determination and preparation and content of environmental impact statements.

Significant – a reasonable likelihood of more than a moderate adverse impact on environmental quality.

Upstream greenhouse gas emissions – emissions from inputs or feedstocks for a project.

Rule Applicability

The GAP rule will apply to:

- A project that requires an environmental review under SEPA, if it meets the applicability level discussed below.
- It is expected to apply to proposals for industrial and fossil fuel projects that emit large amounts of GHGs.
- The term "project" includes a new public or private facility or a change to an existing facility.

The GAP rule will not apply to:

- Projects that have already completed a SEPA environmental review.
- Projects exempt from SEPA under WAC 197-11-800.
- Maintenance actions that are already permitted.
- Highway, road, or passenger rail projects.
- Housing projects.
- Nonproject proposals, such as rulemaking, policies, comprehensive plans, zoning, or development regulations.

An applicant or lead agency will use the initial screening process to determine if the GAP rule applies or not for a project. The screening process will be a simple calculation of GHG emissions for organic compounds (such as fossil fuels, biofuels, biomass, hydrocarbons, petrochemicals, and alcohols), purchased electricity, and industrial processes.

Applicability is based only on eligible potential GHG emissions, not on a code or industrial classification. To provide some context of the types of projects likely to be covered by the GAP rule, in 2018, about 150 Washington public and private facilities reported GHG emissions over 10,000 metric tons of CO_2e under the GHG Reporting Rule. These included a variety of facility types, including: power plants, petroleum refineries, pulp and paper plants, metals (aluminum, steel), glass plants, chemical producers, electronics manufacturers, general manufacturing, facilities with large boilers, food processors, and waste facilities.

Initial screening process

An initial screening process will determine if a project must follow the GAP rule. If a project is determined to be applicable using the screening process below, the environmental assessment methods in the GAP rule must be used and a mitigation plan developed.

The applicability level is approximately 10,000 metric tons of CO_2e. For replacement, modification, or expansion projects, only GHG emissions associated with the changes would be part of the screening process. Applicants or lead agencies must sum the potential GHG emissions from the following sources to determine if the project exceeds the applicability level.

- GHG emissions from the potential combustion or oxidation of organic compounds used at the project facility, as inputs used by the project, and as outputs from the project. This

includes projects that result in a potential infrastructure expansion, such as increasing the capacity of a pipeline moving organic compounds.
- GHG emissions from the potential use of purchased electricity.
- GHG emissions from certain industrial processes at project facilities. These processes are defined by WAC 173-441-120 and 40 CFR Part 98.

Applicability calculations

All calculations will be done using an annual potential to emit (PTE) basis and the global warming potentials (GWP) in WAC 173-441-040. The GAP rule will include a table with applicability values for organic compounds based on mass or volume and with combustion unit ratings to make this process as quick and simple as possible for most projects (Attachment A).

The rule will also include calculation methods for potential GHG emissions for sources not covered in the table in Attachment A. These include:

- Determining the PTE for each organic compound using carbon content or methods from 40 CFR Part 98 as adopted in WAC 173-441-120.
- Determining the PTE for purchased electricity utilized by the project using the unspecified electricity method from CETA (WAC 173-444-040(4) Equation 4).
- Determining any remaining eligible GHG emissions from certain industrial processes at project facilities using the methods in WAC 173-441-120.

If these values, alone or combined, equal or exceed the applicability level, then the GAP rule assessment and mitigation plan applies to a project. The applicability level is pass or fail, so once the level is met or exceeded, no further calculations are necessary.

Please see the GAP rule webpage for the separate document with draft rule language on applicability.

Environmental Assessment

Applicable projects will be required to provide an assessment of the project's potential GHG emissions and energy impacts using the environmental assessment methods in the GAP rule. A consistent and comprehensive approach to identifying a project's GHG emissions and energy impacts will ensure fairness during the impact assessment process.

The environmental assessment will include two key parts:

1. Greenhouse Gas Emissions Analysis, including:
    a. Facility emissions – for emissions from the project facility or core project infrastructure.
    b. Life cycle analysis (LCA) of emissions – for the life cycle of GHGs associated with the project, including inputs and outputs.
2. Energy Analysis – for direct or indirect effects on energy supply, output, load, or other energy impacts associated with the project.

The GHG emissions assessment for new projects would reflect the full scope and design capacity of the project. For replacement, modification, or expansion projects, only GHG emissions associated with the changes would be assessed.

Analysis conditions

- **Baseline condition.** The environmental assessment will use current (existing) conditions as the baseline for GHG emissions. The future potential GHG emissions from the project will be compared to the baseline to determine the potential impacts. The mitigation plan will also use this baseline.

  The use of current conditions as the baseline will show how the total GHG emissions from a project compare to current conditions. The assessment will consider the project emissions starting with this baseline and looking at future conditions that would include state and federal GHG reduction limits.

- **No Action Alternative conditions.** For the environmental assessment, the No Action Alternative will evaluate future conditions without the project and with consideration of state and federal GHG reduction limits.

  The No Action Alternative will include state and federal GHG reduction limits and international goals approved by the U.S. government. The Washington Legislature set GHG reduction limits for 2020, 2030, 2040, and 2050. A project doing an assessment today would include a No Action Alternative with a future where these Washington State GHG reduction limits will be met. If these limits change, then the updated information should be included in the analysis of the No Action Alternative.

  The No Action Alternative will show the impact of the project relative to potential future conditions without the project.

Global warming potential values

Global Warming Potential (GWP) is a measure of how much energy the emissions of a GHG will absorb over a given period of time, relative to the emissions of the same amount of CO_2. The larger the GWP, the more a given gas warms the earth compared to CO_2 over the measurement time period.

- Consistent with the Governor's directive, the rule will require the assessment to use both 20-year and 100-year GWPs.
- The most recent work of the U.N. Intergovernmental Panel on Climate Change (IPCC) will determine which GWP values to use. The IPCC provides two types of relevant guidance:
    - Assessment Reports: These provide an exhaustive summary of the best available, peer-reviewed climate change science. These reports are typically abbreviated as the AR# reports, where the # represents the relevant update (AR5 is the most recent report).
    - IPCC Guidelines for National GHG Inventories: These guidelines, updated periodically, provide a methodology by which entities can use the best available science from the IPCC to measure and report greenhouse gas emissions in a consistent and equitable manner over time. The 2019 refinements of the guidelines are the most recent updates, and the ways for implementing these guidelines are set by the United Nations Framework Convention on Climate Change (UNFCC). These methods are also used globally by GHG reporting programs, including the EPA GHG reporting program and the State of Washington GHG reporting program.
- The assessment must use the 20- and 100-year GWP values recommended by both the most recent IPCC Assessment report, and the most recent GWP values derived from the guidance and guidelines from the UNFCC and IPCC, respectively. As a result, the assessment may include up to four separate GHG estimates using the 20- and 100-year GWP values from the most recent IPCC Assessment Report, and from the 20- and 100-year GWP values from the most recent IPCC/UNFCC inventory guidance.
- For example, a project doing an assessment now would use the most current guidance from the IPCC and UNFCC that would use all of the following GWP values for GHGs in Table 1.

Table 1: Example of Global Warming Potentials

	Most Recent IPCC Assessment Report	**Most Recent IPCC/UNFCC Inventory Guidance**
20-year GWP Estimate	Include AR5 value	Optional
100-year GWP Estimate	Include AR5 value	Include AR4 value

Environmental assessment parameters

These parameters apply to the GHG emissions analysis of the environmental assessment.

- **Timeframe.** The assessment will cover all phases for the lifetime of a project including: construction, operations, and decommissioning phases of the project. The length of time

used for project operations will be informed by the nature of the project and determined by the lead agency consistent with SEPA and the overall environmental review.

- **Geographic and life cycle boundaries.** The assessment will include upstream inputs and downstream outputs for the project. The boundaries for these will vary based on the project.
  - For upstream inputs, the boundary will be the source of the resource acquisition or extraction, e.g. a mine or oil field.
  - Downstream, if the output is an energy product, the boundary is the point(s) of combustion or oxidation of the product. For a non-energy product output, the boundary is the location(s) of the first potential use of that product. If an output has multiple possible first uses, then all of these possible first uses should be analyzed (e.g., combinations of energy uses and non-energy uses).
    - For example, for a project to build an aircraft component, the first use for the purpose of assessment in this rule would be the installation of the aircraft part. The first use would not include the energy for flying the aircraft.

Facility emissions

Facility emissions include GHG emissions that are generated on or near the facility site during the construction, operation, and decommissioning of the project, such as emissions from smokestacks, on-site generators, and industrial processes. This would also include the footprint for linear projects, such as pipelines.

Facility operational emissions

Facility operational emissions will be calculated using the existing state GHG reporting methods in WAC 173-441-120. These methods are based on EPA's federal reporting program in 40 CFR Part 98. The EPA has developed methods for calculating emissions that were exempted from use in the federal reporting program for various reasons. These exempt EPA methods will be used if the emissions are not already covered under the state or federal program methods. For example, GHG emissions from mobile sources, flares, emergency generators, and wastewater may still use the methods in 40 CFR Part 98 regardless of the amount of emissions or sector. Examples of facility operational emissions include:

- Emissions from stationary combustion (e.g., boilers, burners, reciprocating engines, etc.).
- Emissions from industrial process (e.g., chemical processes, mineral and metal production, wastes, etc.).
- Flaring, venting and fugitive emissions.
- Employee commuting.
- Local transportation impacts (congestion).
- On-site use of electricity.

Construction emissions

Construction emissions include GHG emissions from building structures or infrastructure, transportation for construction work, and equipment used for construction. This includes emissions

from the operation of machinery, equipment, and vehicles used to construct buildings, infrastructure, and other physical structures. It also encompasses emissions from land use changes during construction. Embedded GHG emissions are considered in the LCA.

Consistent with SEPA, the GAP rule requires consideration of impacts during construction. GHG emissions for any construction work done for the project will be analyzed. Examples of construction emissions include:

- Emissions for construction equipment.
- Emissions for transport of construction materials.
- Emissions from land use change (e.g., land clearing including deforestation, vegetation changes, wetland cover change, biomass decay, etc.).

Decommissioning emissions

Decommissioning emissions include any emissions that are generated on-site during the decommissioning process. Emissions include GHG emissions from demolishing structures or infrastructure, transportation for decommissioning activities, and equipment used for decommissioning. This includes emissions from the operation of machinery, equipment, and vehicles used to decommission buildings, infrastructure, and other physical structures. GHG emissions from decommissioning are likely to be similar to construction activities. However, given the long lifespan of typical fossil fuel and industrial projects, requirements for equipment may change by that phase, so GHG emissions may be different from construction emissions. Additional permits would likely be needed for decommissioning of a facility that would trigger a new environmental review process.

WAC 463-72 sets forth rules for site restoration or preservation plans for implementation at the conclusion of a power-generating plant operating life. PHMSA has requirements that apply to the decommissioning of crude oil pipelines in 49 CFR 195.59. Decommissioning activities would be required to be consistent with all applicable regulatory requirements in place at the time of decommissioning.

Examples of decommissioning emissions include:

- Reverse construction (waste, etc.).
- Emissions for decommissioning equipment.
- Emissions for transport of materials.

Life cycle analysis (LCA) of GHG emissions

The Governor's Directive says the assessment should include, "Criteria for assessing upstream and likely downstream lifecycle emissions attributable to the project, including transportation, leakage, and market and indirect effects." Upstream, downstream, and transportation emissions are part of a typical life cycle analysis (LCA). A LCA of GHG emissions captures direct and indirect emission effects. Geographic carbon leakage and market effects are not necessarily part of a LCA. LCAs quantify environmental impacts but do not typically address the economic or social aspects of a project.

The purpose of a LCA is to assess the environmental aspects and impacts of a project from the extraction or acquisition of raw material inputs to the end boundary of the project as described in the environmental assessment parameters.

The International Organization for Standardization (ISO) has put in place standards that establish a conceptual framework and guidance to conduct a LCA. The GAP rule uses the (ISO) 14040:2006 and 14044:2006 standards as the foundation for the LCA.

- ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework.
- ISO 14044:2006 Environment management – Life cycle assessment – Requirements and guidelines.

The ISO 14040 standard establishes the principles and framework for how a LCA should be done. It focuses on terminology and process steps and defines framework elements like system boundaries and functional units. It also addresses interpretation and reporting of results.

The ISO 14044 standard provides general requirements and guidelines for a LCA. It includes:

- Requirements for collecting, calculating, and validating data.
- Guidance for the selection of impact categories and category indicators and the classification and characterization of impact categories and results.
- Completeness, consistency, and sensitivity checks, with detailed reporting and critical review.

Together, the two standards (ISO 14040 and 14044), create a holistic protocol for conducting a LCA. As described above, the GAP rule establishes parameters for timeframes, geographic boundaries, and baseline conditions for comparison that would be used in the LCA. Additional detail to frame the analysis will be contained in the GAP rule, although sufficient flexibility to address the myriad of potential projects to which this rule may be applied in the future is also important.

A traditional LCA would incorporate a wide range of "impact categories" such as water pollution, ground contamination, noise pollution, and so forth. The GAP rule LCA is focused solely on GHG emissions. Impacts to other environmental resources would be studied as part of the SEPA analysis, as appropriate. The impact category of concern to the GAP rule is the bundle of GHGs associated with the project. Because the GHG accounting world has already created a single metric for the impacts of GHGs (carbon dioxide equivalent, or CO2e) this is the sole "functional unit" of interest to this rule.

Using the ISO 14040 and 14044 standards and the parameters described above, the applicant will do the following:

1. Goal and Scope Definition: Identify the scope of the study using the GAP assessment parameters, including processes, inputs, and outputs, e.g. energy inputs, raw material inputs, products, and outputs. A flow diagram should be used to show the relationships between the processes and the inputs and outputs.

2. Life Cycle Inventory Analysis: Inventory processes, inputs and outputs and calculate GHG emissions at all steps of the life cycle process. This includes the use of sensitivity analyses, validating the data, documenting calculation procedures and assumptions used.
3. Life Cycle Impact Assessment: Summarize GHG impacts based on the inventory results.
4. Life Cycle Interpretation: Interpret the results from a critical perspective, including identification of assumptions, limitations, value choices, and an assessment of data quality.

The LCA will also identify the data sources, assumptions, and approaches used for estimating potential GHG emissions. It will describe the uncertainties associated with the project's GHG emissions in the LCA estimates, including uncertainty related to data and uncertainty related to methods and models.

The ISO standards allows for the inclusion of a variety of tools and methods. There are many ways GHG emissions can be measured. For example, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy uses the Argonne National Laboratory's Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model for to simulate energy use and emissions output of vehicles and fuels. The use of other GHG emission accounting methods and tools that have been developed or approved by other government agencies, standards bodies, or that have been substantially validated through peer review processes would be allowed as part of the assessment.

It is important to note the life cycle of a project that creates products will be different from the life cycle of the products themselves. Although there will be overlap, the analytical process intended in this rule is not as broad as a product LCA since the boundary condition set in this rule stops at the first use of the product. A typical product LCA would normally continue to the last possible use of that product and whatever disposal or end-of-life processes exist. [1]

As an example of how a LCA done for the GAP rule might consider an input: For a project using methane as a feedstock, the LCA would use the boundary parameter described above and evaluate methane GHG emissions from the project site upstream to the point of extraction. The LCA would consider the extraction and production processes and transmission of methane to the project site and the processing of methane on-site. The analysis would include identifying the leakage rate for methane pipelines and identifying the data sources used. It would identify uncertainties and assumptions used. This would also include a sensitivity analysis that considers different leakage rates that accounts for bottom-up and top-down accounting methods using the most recent available science.

Energy analysis

The Governor's Directive requires the GAP rule to include an "assessment of any induced load or growth in fuel or energy consumption or electricity generation from the project." The Energy Analysis portion of the environmental assessment will address these energy use concerns, as well as

[1] For more information about product life cycle accounting, see the Product Life Cycle Accounting and Reporting Standard.

provide a basis for assessing geographic carbon leakage and energy market effects the project may induce.

Energy use, renewable capacity, and new technologies are changing quickly worldwide. Therefore, the Energy Analysis is intended to identify where energy will change and describe the likelihood and potential magnitude of a shift in energy use on a larger scale. It will include both quantitative and qualitative analysis. It will also identify potential changes in energy use and the effect of increased renewable capacity or new technologies. Much of the information necessary for the Energy Analysis will likely be included in the LCA analysis.

The Energy Analysis will include quantitative analysis. Depending on the project, the scope and boundaries of the Energy Analysis may differ from that used for the LCA. Energy projects in particular may have multiple input or output supply chains that extend beyond the project facility. The Energy Analysis is intended to allow for a simple, but also flexible, approach to ensure that the full energy implications of the project are disclosed.

The Energy Analysis will include:

- Itemization and quantification of all energy inputs and outputs of the projects: in original units (e.g., ccf, tons), units of energy (joules or BTU), and repeating and/or referencing of any GHG estimation done in the LCA for those inputs and outputs. This includes the generation of electricity, heat, steam or cooling purchased from a third-party.
- Exports of raw materials for energy purposes should be qualitatively described from the point of origin to the most likely points of destination for first use and/or combustion. If possible, estimates should be made as to what proportion of the materials end up in what destinations. If specificity is not possible, such estimation should be done based on regions or countries.
- Qualitative description of the potential changes in energy supply resulting from the project. If a project creates a new line or route of energy supply, or a new type or form of supply, the analysis would have to address the implications of those changes quantitatively if GHG emissions may be affected. This includes:
    - A new or increased line or route of energy supply. For example, if a project would increase flow or capacity of energy supply, then these would be considered potential impacts. This analysis is included regardless of whether the increased energy or commodity flow is part of the project itself.
        - Any increase in flow or capacity, whether actual or potential, needs to be quantified to the degree possible. For example, noting the increase in physical size and translating that to increase in flow or capacity, in units of mass or quantity as well as in terms of energy.
    - A new type or form of energy supply, or a transition from one state to another (e.g., gas to liquid), needs to be explained qualitatively and, to the extent possible, the implications needs to be quantified (e.g., energy loss from transition, fewer potential supply options after change in state, etc.).

- Geographic carbon leakage. The Energy Analysis will identify potential changes in GHG emissions based on the energy outputs of a project.
- Alternative energy sources. The Energy Analysis will describe the potential for a project's use of alternative or clean energy, including fossil fuels with lower CO_2 and renewable energy sources.

The Energy Analysis is not intended to be a quantitative market analysis with a dynamic price model or require the development of a project's global supply and demand curve in the assessment. If the Energy Analysis identifies that a project has the potential to significantly affect an energy market, for example, by opening a new export capability that could significantly affect global demand and supply, then a lead agency could determine additional quantitative analysis is needed.

Elements of this type of energy analysis have been considered in prior environmental reviews, such as the crude oil market analysis done for the proposed Westway Expansion Project in Grays Harbor and the market analysis for the proposed Contanda expansion project at the Port of Grays Harbor.

Environmental assessment report

An environmental assessment report will be provided by the applicant as part of the project submission to the lead agency or will be completed as part of an EIS. The report will provide a summary of the three parts of the environmental assessment discussed above. The GHG analysis (Facility Analysis and LCA) and the Energy Analysis will be included as appendices.

The report will include the following information:

- A description of the project's sources of GHG emissions and their estimated average annual GHG emissions over the lifetime of the project.
    - Identify emissions for Facility emissions, LCA emissions, and Energy Analysis emissions. This includes processes, inputs, and outputs.
    - Include results using 20-year and 100-year GWP using the Annual Report referenced in WAC 173-441-040 as well as others from the IPCC.
    - All final emission numbers will be converted to CO_2e for consistency.
- Estimate maximum potential GHG emissions by year for each phase of the project. For a new project, this is based on the project's maximum throughput or capacity. For an expansion, modification or replacement project, this is based on additional throughput or capacity. The breakdown of phases will be:
    - Construction.
    - Operations based on the lifespan of the project.
    - Decommissioning.
- Describe baseline condition assumptions used for the GHG analysis.
- Describe the No Action Alternative assumptions used for the GHG analysis.
- Identify methodologies used for the GHG analysis.
- Identify data sources and quality used for the GHG analysis.

- Identify assumptions used to quantify each element of the LCA GHG emissions.
- Describe uncertainties related to data and to GHG methods and models.
- Describe any changes in GHG emissions over time during the life of the project.
- Include sensitivity analysis with a high, medium, and low estimate of GHG emissions.
- Include the noted qualitative and quantitative elements of the Energy Analysis.

Mitigation Plan

The Governor's Directive says the rule should include "Methods, procedures, protocols, criteria or standards for mitigation of greenhouse gas emissions, as necessary to achieve a goal of no net increase in greenhouse gas emissions attributable to the project."

The rule will require an applicant or lead agency develop a mitigation plan that will describe the mitigation needed to reduce GHG emissions as described below for all phases of the project.

WAC 197-11-660 states that mitigation measures "shall be reasonable and capable of being accomplished." It further states that "responsibility for implementing mitigation measures may be imposed on an applicant only to the extent attributable to the identified adverse impacts of its proposal." This section discusses how mitigation will be addressed in the GAP rule, consistent with SEPA requirements and practice.

GHG emissions to be mitigated

This section is to be developed after the informal comment period. Please see the GAP rule webpage for the separate document with questions on what GHG emissions should be included in the GAP rule mitigation plan.

Actions which reduce emissions as part of the project description

The applicant may take actions to reduce GHG emissions as part of their project design and operations. These actions are accounted for in the environmental assessment and are expected to reduce the total amount of GHG emissions of a project. However, these are not considered mitigation measures since they have already been accounted for in the overall GHG emissions as part of the environmental assessment.

Examples of actions which may be part of a project design or operations which would be expected to reduce GHG emissions include: Best Achievable Control Technology (BACT), energy efficient technologies or practices, modernization of existing equipment, or use of a fuel with lower GHG emissions. These are not considered mitigation in the GAP rule.

Mitigation quantification

The mitigation plan will specify the scope of required mitigation based on actual emissions. The mitigation amount will be calculated annually for the previous calendar year based on measured or estimated actual emissions. This process will be defined in the rule. The rule will also establish methods for quantifying the portion of GHG emissions to be mitigated for projects at existing facilities.

Mitigation types and criteria

The rule will require the mitigation plan identify the type(s) of mitigation used. The rule would allow for mitigation of GHG emissions by: funding projects directly and/or buying offsets through established carbon markets.

The rule would require the mitigation be all of the following:

- Real.
- Permanent.
- Enforceable.
- Verifiable.
- Additional.

Both offsets and mitigation projects funded or implemented directly by an applicant would be required to meet quality standards established through internationally recognized registries and standards bodies. Directly funded projects should use protocols and methodologies derived from those used for carbon offset markets, even if the decision is made not to purchase offset credits. For example, the methodologies used by the international Clean Development Mechanism (CDM) provide the means to measure the greenhouse gas benefits of most types of projects that may be of interest to greenhouse gas mitigation project developers. In other cases, offset protocols from the types listed below should also suffice. At a minimum, mitigation projects should conform to generally accepted standards of quality as outlined in the GHG Protocol for Project Accounting.

Specific examples of offset protocols, and their corresponding registries, that would potentially qualify for use include:

Climate Action Reserve

- Adipic Acid Production Protocol Version 1.0 (September 30, 2020)
- Grassland Protocol Version 2.1 (February 13, 2020)
- Nitrogen Management Protocol Version 2.0 (October 17, 2018)
- Organic Waste Digestion Protocol Version 2.1 (January 16, 2014)
- Forest Protocol V5.0 (October 16, 2019)
- Landfill Protocol Version 5.0 (April 24, 2019)
- Urban Forest Management Protocol V1.1 (April 18, 2019)
- U.S. Livestock Protocol Version 4.0 (January 23, 2013)
- Soil Enrichment Protocol Version 1.0 (September 30, 2020)
- U.S. ODS Protocol Version 2.0 (June 27, 2012)
- Organic Waste Composting Protocol Version 1.1 (July 29, 2013)
- Nitric Acid Production Protocol Version 2.2 (April 18, 2019)

American Carbon Registry

- Methodology for GHG Emission Reductions through Truck Stop Electrification v1.1
- Advanced Refrigeration Systems v2.0
- Certified Reclaimed HFC Refrigerants v1.1
- ACR Methodology for the Destruction of ODS and High GWP Foams v1.1
- Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use v2.0
- Methodology for Afforestation and Reforestation of Degraded Lands v1.2
- Avoided Conversion of Grasslands and Shrublands to Crop Production (ACoGS) v2.0
- Compost Additions to Grazed Grasslands v1.0

- Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands v1.3
- Restoration of California Deltaic and Coastal Wetlands version 1.1
- Restoration of Pocosin Wetlands
- GHG Emissions Reductions from Carbon Capture and Storage Projects v1.0
- Methane Recovery in Animal Manure Management Systems
- Reduction in Emissions from the Recycling of Transformer Oil v1.0
- Landfill Gas Destruction and Beneficial Use Projects v1.0

Verra

- VM0001 Infrared Automatic Refrigerant Leak Detection Efficiency Project Methodology, v1.1
- VM0002 New Cogeneration Facilities Supplying Less Carbon Intensive Electricity to Grid and/or Hot Water to One or More Grid Customers, v1.0
- VM0003 Methodology for Improved Forest Management through Extension of Rotation Age, v1.2
- VM0004 Methodology for Conservation Projects that Avoid Planned Land Use Conversion in Peat Swamp Forests, v1.0
- VM0005 Methodology for Conversion of Low-productive Forest to High-productive Forest, v1.2
- VM0008 Weatherization of Single Family and Multi-Family Buildings, v1.1
- VM0009 Methodology for Avoided Ecosystem Conversion, v3.0
- VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest, v1.3
- VM0011 Methodology for Calculating GHG Benefits from Preventing Planned Degradation, v1.0
- VM0012 Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2
- VM0013 Calculating Emission Reductions from Jet Engine Washing, v1.0
- VM0015 Methodology for Avoided Unplanned Deforestation, v1.1
- VM0016 Recovery and Destruction of Ozone-Depleting Substances (ODS) from Products, v1.1
- VM0017 Adoption of Sustainable Agricultural Land Management, v1.0
- VM0018 Energy Efficiency and Solid Waste Diversion Activities within a Sustainable Community, v1.0
- VM0019 Fuel Switch from Gasoline to Ethanol in Flex-Fuel Vehicle Fleets, v1.0
- VM0020 Transport Energy Efficiency from Lightweight Pallets, v1.0
- VM0021 Soil Carbon Quantification Methodology, v1.0
- VM0022 Quantifying N2O Emissions Reductions in Agricultural Crops through Nitrogen Fertilizer Rate Reduction, v1.1
- VM0023 Reduction of GHG Emissions in Propylene Oxide Production, v1.0
- VM0024 Methodology for Coastal Wetland Creation, v1.0
- VM0025 Campus Clean Energy and Energy Efficiency
- VM0026 Methodology for Sustainable Grassland Management (SGM)

- VM0027 Methodology for Rewetting Drained Tropical Peatlands, v1.0
- VM0028 Methodology for Carpooling
- VM0029 Methodology for Avoided Forest Degradation through Fire Management, v1.0
- VM0030 Methodology for Pavement Application using Sulphur Substitute, v1.0
- VM0031 Methodology for Precast Concrete Production using Sulphur Substitute, v1.0
- VM0032 Methodology for the Adoption of Sustainable Grasslands through Adjustment of Fire and Grazing
- VM0033 Methodology for Tidal Wetland and Seagrass Restoration, v1.0
- VM0034 British Columbia Forest Carbon Offset Methodology, v1.0
- VM0035 Methodology for Improved Forest Management through Reduced Impact Logging v1.0
- VM0036 Methodology for Rewetting Drained Temperate Peatlands, v1.0
- VM0038 Methodology for Electric Vehicle Charging Systems, v1.0
- VM0039 Methodology for Use of Foam Stabilized Base and Emulsion Asphalt Mixtures in Pavement Application, v1.0
- VM0041 Methodology for the Reduction of Enteric Methane Emissions from Ruminants through the Use of 100% Natural Feed Supplement, v1.0
- VM0042 Methodology for Improved Agricultural Land Management, v1.0
- VMR0005 Methodology for Installation of Low-Flow Water Devices, v1.0

Prioritization of mitigation projects

The rule will require mitigation projects be prioritized for:

- Minorities and communities of color.
- Tribal communities.
- Low-income populations.
- Communities disproportionately affected by climate change.
- Communities that are affected by other impacts from the project, such as local transportation, water quality, or other air quality impacts.

The applicant or lead agency will include information in the mitigation plan about how mitigation projects were considered and justification for the choice of mitigation projects used.

Mitigation plan requirements

The applicant or lead agency will develop a mitigation plan that will identify mitigation measures for GHG emissions from the project. The mitigation plan applies for the lifetime of the project, and therefore may go beyond the life span considered in the environmental assessment.

The mitigation plan will include the following information:

- Identify the quantity of GHG emissions to be mitigated (in CO2e) for each year of construction and operations. *(The GHG emissions to be mitigated are still to be determined. Please see the separate document on the GAP rule webpage with questions on what GHG emissions should be included in the GAP rule mitigation plan.)*
- Identify the types of mitigation to be used for these GHG emissions.

- If carbon market offsets are proposed, identify the registry to be used.
- If mitigation projects are proposed, identify the types of projects and estimated scale.
- If mitigation projects are proposed, identify how the projects will be prioritized.

Mitigation is required through permits, as described in the Rule Implementation section. The mitigation plan is based on emissions over a long period of time and provides a framework for the mitigation based on these estimates. The exact amounts to be mitigated each year will be based on actual GHG emissions.

Consistency with the State Environmental Policy Act (SEPA)

The GAP rule will not change the SEPA rule language in WAC 197-11. The SEPA rule identifies the resources which should be considered in an environmental assessment. Other state and local rules, policies, and guidance are used to assess potential impacts and provide methodologies for the analysis. The GAP rule would be used in this way.

If a project is not required to do the environmental assessment under the GAP rule, GHG emissions would still be considered under SEPA on a case-by-case basis. This means projects are not exempt from having to consider GHG emissions if they are not covered by the GAP rule.

The methods described in the GAP rule may also be referenced or used by SEPA lead agencies for GHG emission assessments for projects not covered by the rule, but this would not be required.

Figure 1 is a simplified diagram of the SEPA process. The GAP rule could intersect with the SEPA process in three different places in the process, as shown by the stars. The first two are pre-threshold, meaning the GAP rule assessments and mitigation plan would be completed prior to a SEPA determination being made.

1. One option would be if the assessment and mitigation plan are done by the applicant as part of their initial application materials.
2. Another would be if the SEPA lead agency reviewing materials submitted by the applicant requires an assessment and mitigation plan be done prior to making a threshold determination.
3. The GAP rule assessment and mitigation plan could also be completed after the threshold determination and as part of the detailed environmental impact statement process.

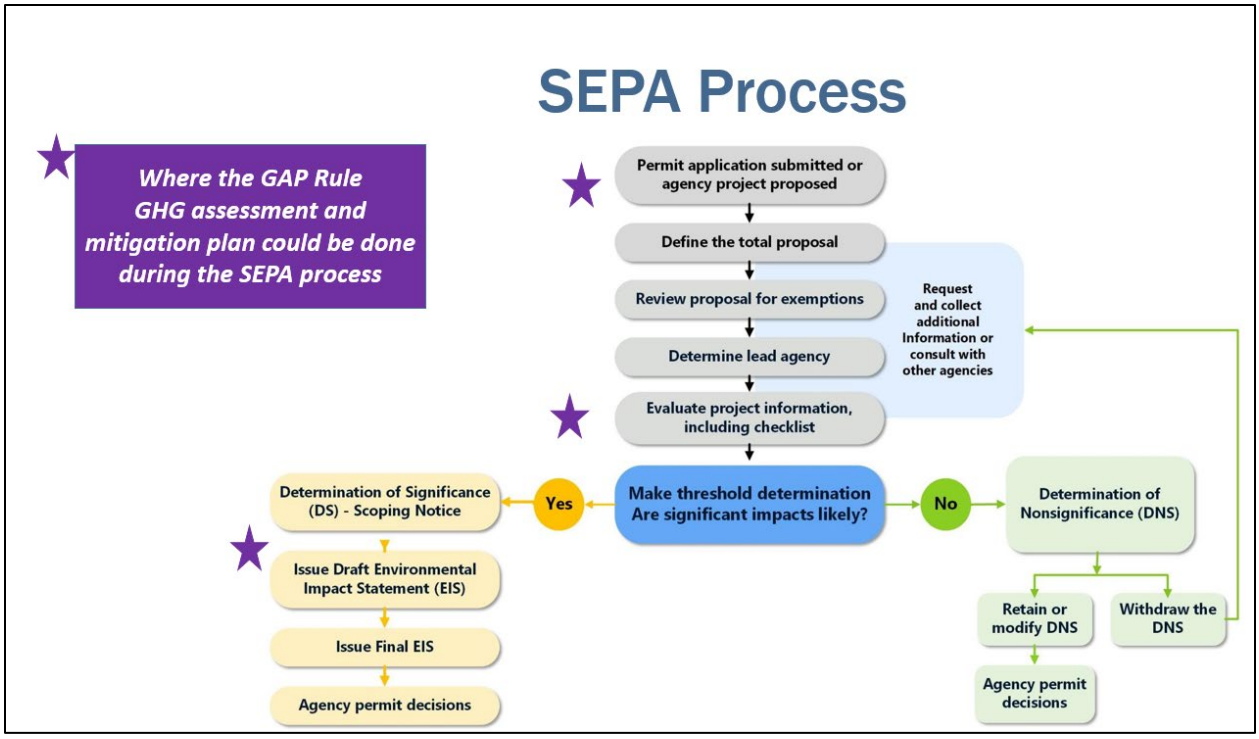

Figure 1: SEPA Process and GAP Rule

Rule Implementation

As described in the previous section, the implementation of the GHG emissions assessment and mitigation plan required by the GAP rule may happen at various points in the SEPA process. If an applicant completes the assessment and develops a mitigation plan that meets the mitigation requirements above, and there are no other significant environmental impacts, then a MDNS could be issued by the lead agency. If the assessment or mitigation plan is not done, or the lead agency determines they were not done adequately, then an EIS would be needed.

Consistent with SEPA, an environmental review identifies mitigation which would address potential GHG emissions. Mitigation is implemented through permits or on a voluntary basis which is then recorded as a permit condition. Projects often have many permits from federal, state, and local agencies and using SEPA substantive authority, any of these could include mitigation for GHG emission impacts, but are not required to do so.

Projects covered by the GAP rule are likely to require a permit from Ecology. Ecology may require implementation of the mitigation plan for GHG emissions as part of an Ecology permit using substantive authority, unless another agency has already required the mitigation in their permit. Ecology will make a permit decision as appropriate under its regulations.

For projects where EFSEC is the lead agency, the mitigation plan will be submitted as part of the site certification agreement and will be subject to approval by EFSEC.

Mitigation will be implemented on an annual basis using actual GHG emissions based on current emissions and activity data (as opposed to potential emissions estimated in the environmental assessment). Specific mitigation projects will be identified annually and the mitigation plan will be updated as needed to reflect changes in project availability and approved by the agency issuing the permit requiring the mitigation.

Appendix A: Product Table for Initial Screening

Table 2: Product Table for Initial Screening

Organic Compound	Mass or Volume Value	Mass or Volume Units	Combustion Unit Rating Value (mmBTU)	Category	Biogenic
Natural Gas	183,000,000	standard cubic foot	21.2	Natural gas	No
Anthracite	3,800	short tons	10.8	Coal and coke	No
Bituminous	4,200	short tons	12.1	Coal and coke	No
Coal Coke	3,500	short tons	9.9	Coal and coke	No
Coal Mixed	4,000	short tons	11.8	Coal and coke	No
Lignite	7,100	short tons	11.5	Coal and coke	No
Subbituminous	5,900	short tons	11.6	Coal and coke	No
Asphalt and Road Oil	837,000	gallons	14.9	Petroleum product	No
Aviation Gasoline	1,190,000	gallons	16.3	Petroleum product	No
Butane	1,490,000	gallons	17.4	Petroleum product	No
Butylene	1,370,000	gallons	16.4	Petroleum product	No
Crude Oil	968,000	gallons	15.1	Petroleum product	No
DIPE	1,400,000	gallons	NA	Petroleum product	No
Distillate Fuel Oil No. 1	978,000	gallons	15.4	Petroleum product	No
Distillate Fuel Oil No. 2 (Diesel)	912,000	gallons	15.2	Petroleum product	No
Distillate Fuel Oil No. 4	909,000	gallons	15	Petroleum product	No
ETBE	1,370,000	gallons	NA	Petroleum product	No
Ethane	2,450,000	gallons	18.9	Petroleum product	No
Ethanol	1,730,000	gallons	16.5	Petroleum product	No
Ethylene	2,600,000	gallons	17.1	Petroleum product	No
Fuel Gas	120,000,000	standard cubic foot	19.1	Petroleum product	No
Gasoline	1,110,000	gallons	16	Petroleum product	No
GTBA	1,400,000	gallons	NA	Petroleum product	No
Heavy Gas Oils	898,000	gallons	15	Petroleum product	No
Isobutane	1,540,000	gallons	17.4	Petroleum product	No
Isobutylene	1,400,000	gallons	16.4	Petroleum product	No
Jet Fuel	1,020,000	gallons	15.6	Petroleum product	No
Kerosene	981,000	gallons	15	Petroleum product	No

Table 2: Product Table for Initial Screening

Organic Compound	Mass or Volume Value	Mass or Volume Units	Combustion Unit Rating Value (mmBTU)	Category	Biogenic
Liquefied Petroleum Gases (LPG)	1,750,000	gallons	18.3	Petroleum product	No
Lubricants	931,000	gallons	15.2	Petroleum product	No
Methanol	2,400,000	gallons	NA	Petroleum product	No
MTBE	1,420,000	gallons	NA	Petroleum product	No
Naphtha (<401 °F)	1,170,000	gallons	16.6	Petroleum product	No
Naphthas (< 401 °F)	1,170,000	gallons	16.6	Petroleum product	No
Natural Gasoline	1,350,000	gallons	16.8	Petroleum product	No
Other Oil (>401 °F)	940,000	gallons	14.8	Petroleum product	No
Other Oils (> 401 °F)	943,000	gallons	14.8	Petroleum product	No
Pentanes Plus	1,290,000	gallons	16.1	Petroleum product	No
Petrochemical Feedstocks	1,120,000	gallons	15.9	Petroleum product	No
Petroleum Coke	681,000	gallons	22	Petroleum product	No
Petroleum Coke	3,200	short tons	22	Petroleum product	No
Propane	1,740,000	gallons	17.9	Petroleum product	No
Propane Gas	64,400,000	standard cubic foot	18.3	Petroleum product	No
Propylene	1,610,000	gallons	16.6	Petroleum product	No
Residual Fuel Oil No. 5 (Navy Special)	976,000	gallons	15.4	Petroleum product	No
Residual Fuel Oil No. 6 (Bunker C)	884,000	gallons	15	Petroleum product	No
Residuum	824,000	gallons	15	Petroleum product	No
Special Naphtha	1,100,000	gallons	15.6	Petroleum product	No
Still Gas	1,040,000	gallons	19.1	Petroleum product	No
TAME	1,320,000	gallons	NA	Petroleum product	No
Unfinished Oils	961,000	gallons	15.1	Petroleum product	No
Used Oil	975,000	gallons	15.2	Petroleum product	No
Waxes	1,040,000	gallons	NA	Petroleum product	No
Blast Furnace Gas	396,000,000	standard cubic foot	4.1	Other fuels	No
Coke Oven Gas	356,000,000	standard cubic foot	24.1	Other fuels	No

Table 2: Product Table for Initial Screening

Organic Compound	Mass or Volume Value	Mass or Volume Units	Combustion Unit Rating Value (mmBTU)	Category	Biogenic
Plastics	3,400	short tons	15	Other fuels	No
Tires	4,000	short tons	13.1	Other fuels	No
Municipal Solid Waste	10,800	short tons	12.4	Other fuels	Mixed
Agricultural Byproducts	10,000	short tons	9.5	Biomass fuels	Yes
Biodiesel	1,050,000	gallons	15.3	Biomass fuels	Yes
Biogas (Captured Methane)	272,000,000	standard cubic foot	21.7	Biomass fuels	Yes
Landfill Gas	393,000,000	standard cubic foot	21.7	Biomass fuels	Yes
Peat	10,900	short tons	10.1	Biomass fuels	Yes
Rendered Animal Fat	1,120,000	gallons	15.9	Biomass fuels	Yes
Solid Byproducts	8,900	short tons	10.7	Biomass fuels	Yes
Vegetable Oil	1,020,000	gallons	13.8	Biomass fuels	Yes
Wood and Wood Residuals	6,000	short tons	12	Biomass fuels	Yes

Appendix B: Examples of How the GAP Rule Could Be Applied

Example 1: Large boiler installation

An existing facility (private or public) proposes to install a new boiler that will burn fossil fuels.

1) Project Design: The applicant chooses an energy efficient natural gas boiler for installation. This reduces the amount of fuel that will be needed overall and therefore, reduces the potential GHG emissions.
2) Applicability: Based on the boiler rating from the boiler design specifications and anticipated fuel type, the project would have GHG emissions on-site over the applicability level of approximately 10,000 MT CO_2e. The GAP Rule applies for this project.
3) Environmental Assessment: The applicant or lead agency assess GHG emissions based on the new boiler capacity and design.
    a. For the greenhouse gas assessment:
        i. Facility emissions – For operations, use the rating of the boiler and the emissions factor in the GAP rule table. Use available GHG calculation tools to quantify the potential GHG emissions for construction and decommissioning.
        ii. LCA – Calculate a range of upstream GHG emissions from extraction, processing, and transmission of natural gas using the potential natural gas use for the boiler and published emissions factors.
    b. For the Energy Analysis – The additional fuel needed for the boiler would be an increase in energy so this would be quantified. The analysis identifies qualitatively that there is not likely to be induced demand so no additional quantitative analysis is needed.
    c. The applicant or lead agency prepares an environmental assessment report.
4) Mitigation Plan: The applicant or lead agency identifies mitigation in a mitigation plan.

Example 2: New fossil fuel export facility

An applicant proposes building a new facility to bring in fossil fuel by rail, store the fuel on site, and export the fuel by ship.

1) Project design: The applicant uses best practices and implements energy efficiencies as part of the project design. This reduces the amount of energy use on site, therefore reducing the GHG emissions from the project.

2) Applicability: Based on the input of fossil fuel for the project, the project would have GHG output emissions over the applicability level of approximately 10,000 MT CO_2e. No further calculations are needed, the GAP Rule applies for this project.

3) Environmental Assessment: The applicant or lead agency assess GHG emissions.

    a. For the Greenhouse Gas Analysis:

        i. Facility emissions – Quantify GHG emissions for construction, operations, and decommissioning of the project.

        ii. LCA – Use information on fossil fuel extraction and the GREET model for transportation emissions to the locations of the first potential uses. For the fossil fuel, analyze GHG emissions based on combustion.

    b. For the Energy Analysis – The project requires energy from a third party. Quantitative analysis shows the project could increase energy supply. The analysis would quantitatively and qualitatively describe changes to U.S. and international energy use and potential changes to energy markets.

    c. The applicant or lead agency prepares an environmental assessment report.

4) Mitigation Plan: The applicant or lead agency identifies mitigation in a mitigation plan.