Proposed Revisions to Ecology's US Forest Protocol

Draft for Public Comment

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Contents

Introduction

The following proposed revisions summarize and propose an approach to revise Ecology's adopted US Forest protocol, informed by input from Ecology's US Forest protocol technical working group and Environmental Justice working group. This process also identified significant areas for future research, and areas where Ecology believes no action is warranted at this time. The considered revisions outlined below reflect Ecology's preliminary research on this protocol. In addition to the revisions listed below Ecology has identified opportunities to clarify and make minor process updates to the adopted protocol, such as revisions to document submittal processes, which may not be included here.

Ecology's goals for this rulemaking include:

- Improving project feasibility for smaller landowners
- Increasing viability of less common project types and ownership types
- Removing unnecessary or unintended barriers or exclusions to project development
- Improving applicability of the protocol to forests in Washington state
- Increasing methodological rigor

The considered revisions identified in this document are intended to support those goals in the following ways:

Goal	**Associated revisions**
Improving project feasibility for smaller landowners	Revision 2, 7, 8, 9, 10, 12, 14
Increasing viability of less common project types and ownership types	Revision 1, 16, 18
Removing unnecessary or unintended barriers or exclusions to project development	Revision 10, 12, 13, 14, 16, 17, 18
Improving applicability of the protocol to forests in Washington state	Revision 7, 10, 11
Increasing methodological rigor	Revision 1, 2, 3, 4, 5, 6, 15, 19

The following proposed revisions are intended to be responsive, as appropriate, to 1) input received from Ecology's technical and environmental justice working groups 2) public comments received during the initial Cap-and-Invest program rulemaking 3) input received from Tribes in staff-to-staff meetings and tribal comments 4) relevant innovations and updates in the voluntary carbon market made since publication of the existing protocol in 2015 5) recommendations made in the California Air Resources Board (CARB) 2021 Offset Taskforce report 6) critiques or proposed alterations to the existing protocol from peer-reviewed research.

Revision 1. Adopt select process, structure, and quantification revisions in CAR US Forest 5.1 Protocol

Proposed change: The US Forest Protocol developed by the California Air Resources Board (CARB) and adopted by Ecology is closely based on the Climate Action Reserve's (CAR) US Forest Protocol version 3. In the time since CARB's protocol was last revised (2015), the Reserve has published a 4.0, 5.0, and 5.1 version of this protocol. Ecology proposes to make select revisions to our adopted protocol to reflect revisions in CAR's US Forest protocol between version 3 and the current version 5.1. Revisions reflected in CAR's 5.1 protocol that Ecology believe may have a meaningful impact on project development, quantification, eligibility, and crediting are addressed individually in the subsequent sections (for example, Ecology proposes to reduce verification intensity for smaller projects in line with the CAR's US Forest 5.1 protocol, which is discussed separately in this report). Less significant updates reflected in the US Forest 5.1 protocol, such as clarifications to terminology, are not covered separately in this report.

In some instances, Ecology retained references to supporting tools and documentation on the Climate Action Reserve's website, which may be used by project proponents and verifiers as appropriate.

Alignment with: CAR US Forest 5.1

Revision 2. Revise IFM – private lands projects baseline quantification and crediting approach

Proposed change: The US Forest Protocol adopted by Ecology requires the establishment of a baseline, which is intended to reflect the conditions of the project area over time if the project was not enrolled in the carbon market. The difference over time between the carbon stocks on site and those in harvested wood products and the same carbon stocks in the established baseline represent the impact of the project, which becomes eligible for offset credit issuance. Baseline setting for forestry projects is a critical component of the integrity of forest carbon offsets and is highly complex. Ecology worked with Dogwood Springs Forestry, with contributions from Washington Conservation Action (WCA) and the Climate Action Reserve to develop a proposed revision to the baseline setting component of Improved Forest Management (IFM) projects on private lands in the protocol. This proposed update to the baseline quantification approach includes several modifications from Ecology's current adopted protocol:

- Through the revised approach "common practice" values will be derived by Ecology from the US Forest Service EVALIDator Tool. This approach improves transparency and enables more timely updates to common practice values to better reflect the dynamics of changing social, legal, and market conditions affecting forest management.
- The common practice values are comprised of onsite live and dead trees and include both above-ground and below-ground carbon pools (defined as Standing Carbon Stocks), whereas the current protocol initiates the approach with only above-ground live carbon pools and proceeds to include the other pools through various steps. This is intended to simplify the quantification approach by making it more intuitive.
- Because common practice values are intended to represent an average of privately owned forest lands within the ecological region that the project is located, a project's baseline cannot fall outside of a 90% confidence interval (based on the FIA plots used to calculate common practice) from a project's initial carbon stocks (ICS). If the ICS is greater than the 90% confidence

interval of the derived common practice value, then the 90% confidence interval of the common practice statistic will be subtracted from the ICS to determine the project's baseline.

- Credits are issued based on an assumed sloped line from the Start Date Standing Carbon Stocks to common practice over the course of the 10-year crediting period, rather than as a lump sum in the first issuance to the project. This is intended to reflect the most realistic business-as-usual scenario and is similar to the existing crediting approach for avoided conversion projects.
- The revised approach requires an Ecology template to outline legal constraints and the financial viability of timber harvest within the project area to improve transparency of the additionality tests. These legal constraints and financial viability assumptions must be included within the project baseline. These draft templates are in development and will be published with a future draft of the forest protocol.
- The project's baseline must be recalculated at the end of each crediting period. Because the crediting period for IFM projects on private lands is reduced from 30 years to 10 years, and the baseline quantification includes identifying legal constraints and evaluating financial viability, a project's baselines will change over times in response to changing policies or market dynamics.

Taken together these revisions will significantly alter baseline development, and thus credit issuance for IFM projects on private lands, which are expected to make up the majority of credit issuances. Ecology believes this will be the most significant change proposed through this rulemaking.

Alignment with: Novel approach considered

Revision 3. Revise leakage rate assumption for improved forest management (IFM) projects

Proposed change: Leakage refers to emissions that are displaced rather than avoided as a result of offset project activities. For example, if a reduction in timber harvesting in the offset project area results in more harvesting elsewhere this displaced harvesting would be considered "leakage". To ensure that offsets issued through the protocol represent real, permanent, quantifiable, and verifiable emissions reductions it is important that offset protocol adequately address and account for leakage.

There are two types of leakage that are commonly observed related to IFM projects: 1) activity shifting leakage and 2) market shifting leakage. Activity shifting leakage describes forest carbon activities that directly cause harvests to be shifted to another location outside of the project boundaries, cancelling out some of the project's carbon benefits. If a landowner enrolls a deferred harvest project on one tract of land in the carbon market, and then more intensively harvests another tract of land that they own to compensate for the lost harvest, this would be considered activity shifting leakage.

Market shifting leakage occurs when a project changes the supply and demand for timber products, leading to higher prices and other market actors shifting their activities. Market shifting leakage could occur if deferred or reduced harvests in a project area lead to less supply in the market, which in turn increases market prices, inducing other producers to increase production.

The protocol seeks to prevent activity shifting leakage by setting IFM project baselines in consideration of the "Logical Management Unit" (LMU) in which the project is located. The LMU includes all other lands owned by project landowner(s) within the same assessment area. By considering carbon stocks within the LMU during baseline calculations, the protocol seeks to prevent landowners from shifting harvest to other landholdings within the same assessment area.

Leakage rates are impacted by a variety of factors such as the size of the project and the dynamics of local or regional markets for the associated wood products. Smaller projects are likely to result in less market shifting leakage than larger projects. Projects in regions with high intensity forestry production are more likely to cause market shifting leaker than project in regions with lower intensity forestry production. However, Ecology does not believe that sufficient research exists at this time to quantify leakage at the project scale.

In the absence of a robust approach to project-specific leakage, application of a default leakage rate assumption remains the logical approach to consider market shifting leakage in credit issuance, while not creating additional quantification burdens for project proponents. Literature published in recent years has suggested the leakage rate of IFM projects could be higher than the existing rate in 2015 protocol. In order the ensure Ecology's issued offset credits reflect a conservative business-as-usual scenario, per WAC 173-446-020, Ecology is considering a revision of the leakage rate for IFM projects in the protocol from 20% to 40%. Specifically, Ecology is considering a revision to the Secondary Effect Emissions calculation equation 5.10 from a 20% leakage rate (.20) to a 40% leakage rate (.40)[1] reflecting findings of comprehensive forest leakage analysis published in 2020.

[1] Carbon leakage in energy/forest sectors and climate policy implications using meta-analysis - ScienceDirect

In addition, Ecology is proposing to adopt equations 6.13.B and 6.13.C from the Climate Action Reserve US Forest Protocol 5.1 which allow for a positive carryover of leakage when the actual amount of carbon harvested in a reporting period at a project site exceeds the estimated average baseline amount of onsite carbon harvested in a reporting period. This may happen because project interventions (such as extending rotations) increase the amount of merchantable timber on a project site, and thus when those trees are harvested the amount of carbon harvested in that reporting exceeds what would have been expected in a business-as-usual scenario. This positive carryover can reduce future leakage deductions but cannot be used to issue offset credits. In no circumstances can the net balance of leakage deductions be positive – the amount of carbon harvested from a projects site over the life of the project must always be less than the modeled baseline scenario.

Alignment with: Novel approach considered; partial alignment with CAR US Forest Protocol 5.1

Revision 4. Adopt revised Common Practice statistics, and updated assessment area dataset.

Common practice values are an important component of project baseline setting for Improved Forest Management projects. These values are derived from Forest Inventory and Analysis (FIA) datasets, based on plot-based field surveys. Ecology is proposing to provide revised common practice statistics sourced from the US Forest Service EVALIDator tool. The source of the data is the tool is the same FIA plots used to derive the prior common practice statistics. EVALIDator provides a few advancements. EVALIDator provides plot data for standing live and dead carbon, as well as belowground carbon. EVALIDator also includes more updated FIA plot data (as recently as 2021 in the Pacific Northwest region), Ecology intends to adopt updated assessment area data as available. The tool also allows for more seamless updates periodically as more updated data becomes available. Lastly, the tool allows for the calculation of confidence intervals for common practice statistics which are used as a component of revision 1.

Ecology is also proposing to adopt portions of updated Assessment Area dataset published by the Climate Action Reserve in 2019. Ecology will provide alternative common practice values for this dataset via the aforementioned approach.

Ecology's revised Assessment Area dataset is in development and will be published with a future draft of the forest protocol.

Alignment with: Novel approach considered

Revision 5. Revise property appraisal requirements for avoided conversion projects, including third party verification of appraisal

Proposed Change: Avoided conversion projects must be appraised by a qualified appraiser in order to identify and quantify the highest-value alternative land use for the project area. The value identified by the appraiser must be more than 80% greater than the value of the current forested land use, and a discount factor is applied to the issuance of credits to reflect uncertainty about the likelihood of conversion. If the appraised value is not more than 40% greater than the value of the current forested land-use no credits can be issued to the project. When the highest value identified use is residential conversion the appraisal plays a role in the annual conversion estimates (table 6.4 of the protocol). Appraisals must be conducted in accordance with the Uniform Standards of Professional Appraisal Practice and the appraiser must meet the qualification standards outlined in Internal Revenue Code, Section 170(f)(11)(E)(ii).

Reflecting the critical role of appraisals in avoided conversion projects, Ecology is considering revising appraisal requirements in the following ways.

1. Revise the protocol to adopt the additional requirements in the Reserve's 5.1 Protocol section 3.3.23. This revision makes several clarifications and additions to the existing verification requirements including requiring that appraisal reports include verifiable data on the development potential of the land, and that such reports include a separate valuation for ongoing forest management signed by a certified or registered professional forester.
2. Ecology is seeking comments on approaches to further revise appraisal requirements. Our initial proposed approach is requiring two (rather than one) appraisals to be submitted by the project proponent. Each appraisal must be completed by a different appraiser. Appraisers must not be employed by or affiliated with the same firm. The project would use the appraisal which presents the lower of two the highest appraised alternative land uses.

Alignment with: CAR US Forest Protocol 5.1 (partial alignment); novel approach considered

Revision 6. Set buffer pool contributions in consideration of regional risks

Proposed change: Ecology's adopted US Forest Offset protocol directs a portion (between approximately 10-20%) of offset credits from every forest carbon offset issuance to the shared "buffer pool." The buffer pool is intended to function as an insurance mechanism to guard against unintentional reversals, such as fire, disease, natural disasters, or proponent insolvency.

The risk is assessed to be higher for privately owned forest projects that have not completed fire risk reduction work, while projects on public lands or tribal lands that have a fire risk mitigation strategy approved by an applicable local for state fire will have a lower assessed buffer pool contribution. The risks associated with wildfire can be reduced through approved fire risk mitigation work, but the baseline fire and disease risk in the current protocol is assessed equally for all projects, regardless of location or forest type. The protocol assumes a default 4% risk rating for wildfire, and 3% for disease or insect outbreaks, indicating a 4% and 3% chance, respectively, that a forest carbon offset credit will be reversed due to wildfire or diseased over the 100-year life of the credit.

Many of the voluntary offset protocols updated since the original publication of this protocol in 2015 (including protocols developed by ACR and Verra) have adopted buffer pool contribution rates that generally assume a higher probability of loss due to wildfire or disease. Many of these voluntary offset programs have also adopted project-specific fire risk quantification methods, which seek to estimate the baseline fire risk and disease risk on a more local level. Ecology is considering revising the buffer pool contributions in this protocol to assess wildfire and disease risk at a more localized level, using crosswalks derived from empirical models and publicly available datasets, and is also considering increasing average buffer pool contributions in the program.

Ecology has contracted with SIG GIS, a national leader in fire risk modeling, to establish an appropriate dataset and quantification approach for fire and disease risk. Key proposed data inputs include TreeMap 2022, USFS Annual Burn Probability (ABP), and the National Insect and Disease Risk Map (NIDRM). Wildfire risk is estimated at the HUC10 scale by simulating forest carbon loss using FVS-FFE models under severe wildfire scenarios and linking it to ABP-derived likelihood categories. The resulting severity and likelihood midpoints are multiplied to determine a project's wildfire risk multiplier, which is then scaled to a buffer pool contribution percentage, up to a maximum contribution of 12%.

Biotic risk is similarly quantified by comparing NIDRM-based basal area mortality projections against a defined project failure threshold. Risks are converted into buffer contributions, with a maximum contribution of 8%, via lookup tables based on HUC10 watershed risk levels.

Ecology can facilitate continual updates to buffer pool contributions reflecting changes in climate and forest health by updating these datasets. Updates to these datasets will not require a rulemaking.

Ecology is also proposing to adopt the Vegetation Management Treatment contribution reduction structure from the Climate Action Reserve's 5.1 Protocol.

As a whole, these revisions significantly increase to potential maximum contribution to the shared buffer pool. Including contributions attributed to financial risks, over-harvesting, and natural disasters the total maximum buffer pool contribution could be over 30% for the highest risk projects, an increase from the current 19%. This revision also significantly increases the wildfire and disease buffer contribution reductions that a project can receive for comprehensive, approved, implemented, and verified risk reduction work. Taken together, these revisions are intended to more accurately reflect the risk of carbon loss within the project area and increase the incentive for project proponents to implement risk mitigation measures.

Alignment with: ACR Reversal Risk Tool 2.0 (partial), CAR US Forest Protocol 5.1 (partial), novel approach considered

Revision 7. Adopt aspects of project aggregation guidance from CAR 5.1 Protocol

Proposed change: Ecology is directed in RCW 70A.65.170(4)(b) and (d) to consider offset protocols that make use of project aggregation and other mechanisms to facilitate project development by small forest landowners. Project aggregation is the process through which multiple tracts of land may enroll in the carbon market as a single project, thus reducing some of the fixed costs associated with project development for the individual landowners.

In the existing protocol the cost structure of offset project development creates barriers for small forest landowners to participate in the market. Inventory and verification costs are not proportionate to project acreage; smaller projects experience a disproportionate cost burden from project inventory and verification costs. The existing protocol does not prohibit project aggregation – a project area can be contiguous or separated into tracts. In the existing protocol multiple pieces of forest land owned by different owners could "aggregate" and enroll as a single project as long as they don't extend across more than two adjacent supersections. However, in the existing protocol enrolling separate parcels into the market as a single project may not generate much cost savings compared with enrolling each tract individually – due to inventory, sampling, and verification requirements in the protocol which would typically require that each individual tract be treated as a standalone project for the purposes of sampling. In the existing protocol the Forest Carbon Inventory Confidence Deduction states that forest carbon inventory methods need to be designed to not exceed a greater than 20% sampling error compared with the inventory estimate, and there is crediting deduction for any error above a 5% difference from the inventory estimate. Mitigating error to achieve this standard generally means a large amount of sampling and measurement at the tract level, which in turn increases costs for inventory and verification.

The Climate Action Reserve's 5.1 protocol supports project aggregation, via the Climate Action Reserve's programmatic Guidelines for Aggregating Forest Projects by reducing sampling intensity for individual projects within an aggregate – which reduces both inventory and verification costs. The Reserve's guidelines allow the target sampling error for each individual project's inventory (the level above which a confidence deduction is applied) to increase based on the number of projects in the aggregate.

The intended impact of this approach would allow the total number of sample plots on a project of a certain size to remain roughly consistent regardless of whether the project was made up of a single landholding or multiple tracts of land. This approach retains a 5% target sampling error for the aggregate, while allowing higher target sampling errors at the individual sites in the aggregate that is scaled based on the number of projects enrolling in the aggregate. For one non-aggregated project non-aggregated the target sampling error is 5% - as in the existing compliance protocol. This approach to aggregation also revises verification requirements for aggregated projects – requiring all landholdings in the aggregate receive on site verification at least once every 12 years (as opposed to six years in the existing protocol). All sites in the aggregate must receive site verification at time of project enrollment, and at least 50% of sites must receive 3rd party verification at least every six years.

Ecology is considering adoption of an amended version of the Climate Action Reserve's Guidelines for Aggregating Forest Projects as an appendix to the US Forest Protocol and adopting associated sections from the Reserve's 5.1 protocol. Ecology is considering a few alterations to this aggregation guidance for use within the Cap-and-Invest program: 1) retaining the requirement that all lands enrolled in a project not extend across more than two supersections 2) requiring that no single forest owner in the aggregate enroll more than 5,000 acres 3) and limiting the project-level target sampling error for projects in the aggregate to no more than 10%. Because these guidelines will result in a reduction in the number of sampling sites required for aggregated projects, Ecology believes it is appropriate to ensure that enrolled projects are ecologically similar, and to restrict large landowners (which would typically be feasible as standalone projects) from using this aggregation option.

Alignment with: CAR US Forest Protocol 5.1 (partial)

Revision 8. Reduce verification frequency intensity for smaller projects

Proposed change: Ecology is directed in RCW 70A.65.170(4)(d) to adopt protocols that "make use of aggregation or other mechanisms, including cost-effective inventory and monitoring provisions, to increase the development of offset and carbon removal projects by landowners across the broadest possible variety of types and sizes of lands, including lands owned by small forestland owners." In addition to the adoption of the aggregation approach described above, Ecology can further support project development by smaller landowners by reducing verification frequency and intensity for projects with few or no new offset accruals, in line with CAR's 5.1 US Forest Protocol.

Ecology is proposing to reduce verification frequency for small offset issuances from every 6 years to up to 12 years for projects generating less than 4,000 credits each year or until 48,000 credits have accumulated. A site visit would still be required for the initial verification. In line with CAR's 5.1 US Forest Protocol projects that experience an avoidable reversal, regardless of the volume of credit issuance, will be required to complete a site verification on a 6 year verification cycle. Ecology also reserves the right to require a project to adhere to a 6 year verification if the project proponent appears to be reporting artificially low numbers to delay site verification visits.

This rule change would reduce ongoing project verification costs for small projects, which are a significant expense as well as a source of delay in credit issuance. Allowing small project proponents to undergo fewer site verifications will generate a significant cost savings, while retaining the role of project verification prior to any credit issuance. This rule change would not change the requirement that every offset project data report receive 3rd party verification, or that projects submit monitoring reports. Rather, this change would provide the proponents the flexibility to either request issuances of offset credits as infrequently as every 12 years, and schedule site visits accordingly, or pursue less costly desk verification (rather than onsite verification) between site visits to receive more frequent credit issuances.

Alignment with: CAR US Forest Projects 5.1

Revision 9. Reduce verification intensity for projects seeking no credit issuance

Proposed change: In addition to the adoption of an aggregation framework and reducing verification frequency for small projects, as described above, Ecology is considering adoption of the Climate Action Reserve's US Forest Project 5.1 approach to verification of project monitoring when no credits are issued. The Reserve's protocol allows proponents to pursue a desk verification, rather than a site verification of monitoring reports if no credits are being requested at the time when a site visit would normally be required. The desk review must include all monitoring reports submitted since the last verification. If canopy cover has declined by more than 5% in the project area, or if the project has experienced a reversal, then a site visit will be required.

This revision would revise the existing language in WAC 173-446-530 which states "For offset projects that do not renew their crediting period, verification must still be conducted at least once every six years for the remainder of the project life. However, after a successful full offset verification of an offset project data report indicating that actual on-site carbon stocks (in MT CO2e) are at least 10 percent greater than the actual on-site carbon stocks reported in the final offset project data report of the final

crediting period that received a positive offset verification statement, the next full offset verification service may be deferred for 12 years."

This revision would also include adoption of sections of CAR's US Forest 5.1 Protocol. This revision would significantly reduce the costs of long-term maintenance of offsets projects, increasing feasibility for smaller landowners are verification costs are likely to carry a disproportionate cost burden for smaller projects.

Alignment with: CAR US Forest Protocol 5.1

Revision 10. Allow project boundary reductions, treated as an avoidable reversal

Proposed change: The existing protocol requires that Improved Forest Management and Avoided Conversion projects finalize their project area by the conclusion of the initial verification; reforestation projects may finalize their project area by conclusion of the second verification period. Project boundary reductions (termination of a portion of the project) are not explicitly permitted in the protocol, however CARB has provided project proponents guidance to allow removal of acreage from a project in some circumstances – specifically when there has been a mapping error or a portion of the project was found to be owned by the federal government and thus ineligible. Project boundary expansions are not permitted after the project area has been finalized.

Ecology's technical working group noted that there are variety of reasons why a project proponent may wish to change project boundaries, in addition to identification of a mapping error, such as a change in ownership of some or all of the project area. One of the goals of the forest offset program is to incentivize forest management changes and facilitate long term maintenance of those management practices. Providing greater flexibility for project boundary changes (with appropriate compensatory crediting) would reduce the likelihood for changes in project ownership or other circumstances to result in a full project termination. Allowing for additions of land to the project boundary could allow for increased carbon sequestration and storage on a landscape scale without necessitating the development of new offset projects, thus reducing the costs of project monitoring, reporting, and verification.

For either type of boundary change (a boundary reduction or a boundary addition) an appropriate crediting mechanism would be required. The Reserve's US Forest Protocol 5.1 allows for boundary reductions, treated as avoidable reversals. In the event of an avoidable reversal must surrender credits equal to the associated decrease in carbon stocks in the project area within four months of approval of the verification. The Reserve's 5.1 protocol does not include a mechanism for project boundary additions. Ecology is proposing to adopt the allowance for project boundary reductions, treated as avoidable reversals, in section 4.3 of the Reserve's 5.1 protocol.

Project boundary additions would merit re-quantification of the project baseline, and policies would be required to ensure that these project boundary additions and baseline re-quantification meet the same additional standards as the initial enrolled lands. While there is a clear opportunity to for a project boundary addition component to be included in this protocol, Ecology believes this merits further research and analysis to ensure that additionality requirements are met. A proposed approach to boundary additions is not included in this draft rule revision.

Alignment with: CAR US Forest Protocol 5.1

Revision 11. Revise natural forest management criteria

Ecology's adopted US Forest Protocol has more restrictive forest management requirements than Washington's Forest Practice rules, including a 40-acre even-aged harvest limit. Tribes and other prospective project developers have indicated that the 40-acre maximum is not aligned with typical practices for Washington's Douglas fir forests, which are usually harvested in larger even-age blocks. In the U.S. Forest Protocol revision, Ecology is proposing an adjustment to the even-aged harvest maximum size.

Even-aged harvest has been a controversial forestry issue for decades. There are several key factors to consider when determining harvest size limits in carbon offset protocols:

- *Ecological impact and benefit.* Clearcutting can reduce ecological diversity, water retention, soil health, and habitat. Thus, even-aged harvest limits are intended to maximize forestry's environmental benefits and minimize environmental harm associated with timber. Forest offset protocols typically seek to further sustainable forestry standards, like limits to harvest size, in part because high species diversity and ecological forest practices tend to enhance carbon storage.
- *Regional forest ecology.* Tailoring management standards to regional forest ecology is a related priority in forest offset protocols. In WA, forests historically experienced larger scale, patchy disturbance events due to wildfire. Ideally, forest management in the region would mimic this type of disturbance to maintain forest health. In other areas of the U.S., forest disturbances include smaller-scale impacts from disturbances such as insects and wind throw. Harvest size limits in those areas should seek to replicate those smaller-scale disturbances.
- *Forest Project development feasibility.* Carbon offset protocols must also ensure that project development is feasible given standard forest management practices. If WA uses overly constraining harvest limit standards, it may reduce the number of enrolled projects - unintentionally limiting the carbon offset creation that the protocol seeks to promote.

In response to input from in state forest landowners, and recent research on the ecological forest management in the region,[2] Ecology is proposing to adopt even-aged harvest requirements in the Climate Action Reserve's US Forest Protocol 5.1. The maximum even-aged harvest unit size in the Reserve's protocol increases with greater basal area retention within the harvest unit.

[2] Franklin, J.F., Donato, D.C. Variable retention harvesting in the Douglas-fir region. *Ecol Process* **9**, 8 (2020). https://doi.org/10.1186/s13717-019-0205-5

Harvest Retention (Sq. Ft. Basal Area/Acre of All Species)	Maximum Size of Harvest Block (acres)
0	40
>=15 < 20	60
>=20 < 25	80
>=25 < 30	120
>=30 < 40	400
>=40 < 50	600
>= 50	Unlimited

All projects must also follow all applicable laws and regulations, including state and federal forest management rules. In Washington, clearcut harvest units may not exceed 120 acres (which may increase to 240 acres subject to Washington Department of Natural Resources approval).

Revision 12. Alternative approaches for quantifying certain types of reversals

The US Forest Protocol adopted by Ecology distinguished between two different types of reversals – intentional and unintentional. As defined in WAC 173-446-020 "Unintentional reversal" means any reversal, including wildfires or disease, that is not the result of the forest owner's negligence, gross negligence, or willful intent. "Intentional reversal" means any reversal, which is caused by a forest owner's negligence, gross negligence, or willful intent, including harvesting, development, and harm to the area within the offset project boundary, or caused by approved growth models overestimating carbon stocks. A reversal caused by an intentional back burn set by, or at the request of, a local, state, or federal fire protection agency for the purpose of protecting forestlands from an advancing wildfire that began on another property through no negligence, gross negligence, or willful misconduct of the forest owner is not considered an intentional reversal but, rather, an unintentional reversal.

Per WAC 173-446-570, unintentional reversals are compensated via a withdrawal from the shared buffer pool while intentional reversals are compensated by the offset project operator or authorized project designee and must be accompanied by a full verification with a site visit within one year of the reversal. Upon acceptance of this verified carbon estimate the proponent must surrender a quantity of valid compliance instruments equal to the metric tons of CO2 reversed for all reporting to Ecology within 6 months of notification by Ecology.

Ecology is considering a reclassification of reversal types, in line with the Reserve's US Forest Protocol 5.1. The change would revise categories of reversal to include three types: unavoidable reversals, avoidable reversals, and computational reversals. Unavoidable reversals operate in the same way as unintentional reversals, with reversed offsets compensated by the buffer pool. Avoidable reversals are comparable to intentional reversals, with a few alternations. As with intentional reversals, avoidable reversals are any reversals due to the Project Operator's negligence, gross negligence, or willful intent. The Reserve's US Forest Protocol 5.1 allows for an avoidable reversal to be verified by desk audit, rather than site verification --unless a regularly scheduled site visit coincides with the year of the reversal or the loss represents 35% or more of the previous year's onsite carbon stock or peak carbon stocks in all previous years of the carbon project.

Computational reversals are a new type of reversal added in the Reserve's protocol. Computational reversals occur because of required protocol calculations and are not the result of project proponent actions or changes in site conditions. Confidence deductions and accounting for secondary effects may cause computational reversals when a forest's growth in a reporting period is not significantly greater than the modeled baseline. Computational reversals do not require an additional verification (site or desk), instead they may be verified at the next regularly scheduled verification. The Project Operator must compensate for a computational reversal during the next regularly scheduled verification period by deducting the reversed quantity from the to-be-issued offsets. If growth has not compensated for the amount of the reversal, then the proponent must turn in valid compliance instruments to compensate for the reversed carbon, as with an avoidable reversal.

These revisions reduce the verification costs to proponents of some kinds of reversals, particularly reversals that are classified as "computational" – while ensuring that all reversals are adequately compensated for.

Alignment with: CAR US Forest Protocol 5.1

Revision 13. Revise eligibility restriction of previously listed projects

The existing US Forest Protocol prohibits projects that take place on land that was part of a previously listed compliance offset project, unless the previous project was terminated due to an unintentional reversal. The language prohibits lands that have ever been listed in a compliance program for developing an offset project in the future. Restrictions here are appropriate to eliminate the risk of double counting, however Ecology is considering revising this language in this section of the protocol to prohibit forest offset projects that have previously been *registered* as part of compliance offset project for registering in a new project, rather than *listed.* Projects may *list* with a compliance program with the intention of developing of offset project but never proceed to registration and issuance of credits due a variety of reasons, such missed deadlines, changes in ownership, or natural disturbances between inventory and verification. This change would allow lands that have previously listed in a compliance program but never proceeded to registration and credit issuance be a part of future compliance offset project, allowing for project reconfiguration, boundary changes, or incorporation of ownership changes. Projects that were previously terminated due to an unintentional reversal would remain eligible for re-enrollment in the market with a revised baseline.

Alignment with: CAR US Forest Protocol 5.1 (partial)

Revision 14. Revise Definition of Forest Owner

"Forest Owner" is defined in the protocol as *the owner of any interest in the real (as opposed to personal) property involved in a forest offset project, excluding government agency third-party beneficiaries of conservation easements. Generally, a Forest Owner is the owner in fee of the real property involved in a forest offset project. In some cases, one entity may be the owner in fee while another entity may have an interest in the trees or the timber on the property, in which case all entities or individuals with interest in the real property are collectively considered the Forest Owners, however, a single Forest Owner must be identified as the Offset Project Operator.*

This is an impactful definition in the protocol because forest owner(s) are the liable parties in the event of an intentional reversal. The California Air Resources Board 2021 Taskforce Report recommended a

revision to this definition to specifically state that the holders of easement that do not have management or ownership control over the timber or the land will not be deemed to be Forest Owners. This change is recommended in order exclude potential liability for entities such as non-governmental beneficiaries of a conservation easements, water rights holders, or tenants and licensees of the property.

The Reserve's 5.1 protocol defines Forest Owner as *"A corporation or other legally constituted entity, city, county, state agency, individual(s), or a combination thereof that has legal control (described in section 2.2) of any amount of forest carbon within the Project Area.*"

Section 2.2 goes on to state that: *"A Forest Owner is an individual or a corporation or other legally constituted entity, city, county, state agency, or a combination thereof that has legal control of any amount of forest carbon within the Project Area. Control of forest carbon means the Forest Owner has the legal authority to effect changes to forest carbon quantities, e.g., through timber rights or other forest management or land-use rights. Control of forest carbon occurs, for purposes of satisfying this protocol, through fee ownership and/or deeded encumbrances, such as conservation easements.*

[…]

The Reserve maintains the right to determine which individuals or entities meet the definition of "Forest Owner."

There are wide range of ownership structures that may enroll in forest offset projects. Ecology is proposing adoption of the Reserve's definition of Forest Owner, including the relevant text in section 2.2. This definition appears to provide greater clarity regarding treatment of conservation easements (it identifies easement holders who have legal control of any amount of forest carbon within the Project Area as owners) and also provides the Reserve with the authority to determine which individuals or entities meet the definition of Forest Owner in the event of ambiguity. Ecology is considering adopting, with minor modifications, this section of the Reserve's 5.1 Protocol.

Alignment with: CAR US Forest Protocol 5.1

Revision 15. Require that projects be developed in line with a Protocol adopted by Ecology in order to receive a DEBs designation

If Washington's Cap-and-Invest program links with other jurisdictions the Climate Commitment Act regulation allows offsets issued by a linked jurisdiction to fulfill a specific and limited role in compliance use in Washington's program. RCW 70A.65.170 (modified by SB 6058) establishes two categories of offsets in a linked jurisdiction:

"Type 1" Offsets: Offsets that provide direct environmental benefits (DEBs) to WA, which must represent at least 50% of an entity's offset usage in the first compliance period (2023 through 2026) and 75% thereafter (per RCW 70A.65.170(3)(a)).

"Type 2" Offsets: Offsets that do not provide DEBs to WA, which can fulfill no more than 50% of an entity's offset usage in the first compliance period and no more than 25% thereafter (per RCW 70A.65.173(3)(b)). Type 2 offsets may only come from projects located *in* a linked jurisdiction, per RCW

70A.65.170(5)(c) (as modified by SB 6058), or projects located in Washington which do not already qualify as Type 1.

Table 1. Utility and eligibility of offset credits in a linked Washington market

Offset attributes			***Use in Washington's program in a linked market***		
Issuing jurisdiction	**Location**	**DEBs to**	**Type 1 Offsets: 50%+ (CP1) 75%+ (CP2 and beyond) Offsets that provide DEBS to WA**	**Type 2 Offsets: 50% (CP1) 25% (CP2 and beyond) Offsets that do not provide DEBS to WA**	**Justification**
WA	WA	WA	Yes	NA	RCW 70A.65.170(2)(a)
WA	non-WA	WA	Yes	NA	RCW 70A.65.170(2)(a)
WA	non-WA	non-WA	NA, Ecology cannot issue	NA, Ecology cannot issue	RCW 70A.65.170(2)(a)
CA	CA	Any	No	Yes	RCW 70A.65.170(5)(c)
CA	non-CA	CA	No	No	RCW 70A.65.170(5)(c)
CA	WA	WA	Yes	Yes	RCW 70A.65.170(5)(c)
CA	non-WA	WA	No	No	RCW 70A.65.170(5)(c)

In the existing linked California-Québec market, neither jurisdiction's protocols can be used to develop a project in the other jurisdiction due to the geographic limitations in each protocol (location in the United States, and Québec, respectively). In a linked market with California, Québec, and Washington there is the potential for offsets issued by CARB for projects located in Washington to be eligible for compliance use in WA as "Type 1" offsets. There are two situations where offset project developers may seek issuance by CARB for projects in Washington for utilization by a Washington state covered entity:

Early Adopter Projects: Offset projects that were developed in Washington and listed in CARB's program prior to market linkage. These credits may be sold to buyers in Washington's market as they provide DEBs to Washington but do not necessarily provide DEBs to California, thus would be more valuable to a covered entity in Washington than California. Examples include forestry projects developed by the Confederated Tribes of the Colville Reservation and Spokane Tribe of Indians, and several livestock digester projects. While the vast majority of the credits issued to these projects do not meet the

reporting period cut-off date (pre-2019 credits are ineligible for use in Washington's program), these projects generate a small volume of recurring credit issuances that may be procured by Washington covered entities in the future.

Protocol Selection Projects: Offset projects that are located in Washington and are developed after program linkage may choose which jurisdiction to list with based on which protocol is more favorable to their project, or other factors related to the jurisdiction's review and verification processes. As long as offsets issued by CARB and located in Washington can qualify as "Type 1" offsets, developers are incentivized to choose to develop their projects through whichever jurisdiction is more favorable to their particular project. The potential for this kind of activity in a linked market has been raised multiple times in our US Forest Offset Protocol working group meetings by members concerned that program linkage will reduce the effectiveness of the revisions made to that protocol through this rulemaking process.

While Ecology's protocols are largely identical to California's currently, we anticipate differences to develop over time. This potential for "venue shopping" constrains either jurisdiction's ability to strengthen or improve their protocols over time, as developers can simply opt to enroll with the less strict jurisdiction and attain the same value for their offsets. Even if Washington and CARB intend to closely align their offset protocols throughout the life of the program, differences in rulemaking timelines and processes will result in periods where either party may have a programmatic advantage over the other, creating opportunities for venue shopping behavior.

Washington is proposing to limit the potential for "protocol selection" between jurisdictions for projects located in Washington, while allowing flexibility for "early adopter" offset projects that were developed prior to market linkage. An option to accomplish this is to revise WAC 173-446 to constrain this behavior. WAC 173-446-595 establishes the criteria through which an offset project can demonstrate that it generates "Direct Environmental Benefits" to the state of Washington. Washington could add a new clause to this section of the rule to state:

"(4) Offset projects listed after January 1, 2027 must be consistent with offset protocols adopted by the department in order to receive a designation of providing direct environmental benefits to the state."

An associated edit to WAC 173-446-595(1) is also warranted:

"(1) Except as specified in subsection (4), offset projects that are located within the state of Washington, or that reduce or avoid GHG emissions that would otherwise occur within the state of Washington, are presumed to provide direct environmental benefits in the state."

This rule language would allow credits from "early adopter" projects to receive offset credits that may be used as "Type 1" offsets through the duration of the program. Meanwhile, it would limit the utility of "protocol selection" offset credits to be used only as "Type 2" offset projects in Washington's market (because they could not be assigned DEBs to Washington).

The statute does not provide direction to Ecology on the specific requirements that a project must meet to receive a designation of Direct Environmental Benefits, leaving this to the agency's discretion via rulemaking. The existing rule establishes additional stipulations and clarifications to the DEBs designation process.

Alignment with: Novel approach considered

Revision 16. Revise DEBs requirements for Tribal offset usage

In order for covered entities in Washington's Cap-and-Invest program to maximize their offset use, a portion of their offsets must be sourced from projects on federally recognized Tribal lands. In the first compliance period in order for a covered entity to use offsets to fulfill the maximum 8% of their compliance obligation, 3% of those offsets must come from project on Tribal lands, while the remaining 5% may come from Tribal or non-Tribal projects. For the 2nd compliance period and thereafter the total amount of offsets that an entity can use for compliance reduces to 6%, of which 2% must come from projects on Tribal lands. This is separate from the requirement that all offsets used by an entity for compliance provide DEBs to Washington (in an unlinked market), and that 50% of offsets used by an entity for compliance provide DEBs to Washington (in a linked market in the first compliance period), increasing to 75% in the second compliance period and thereafter.

Ecology is considering a change in rule to clarify that this additional 3% (in the first compliance period) and 2% (in the second compliance period and thereafter) of offsets that must be sourced from project on Tribal lands must also provide DEBs to the state of Washington. This change would mitigate a potential reduction in demand for Tribal projects that provide DEBs to Washington in a linked market, which has been identified by some Tribes as a concern.

WAC 173-446-600(7) lists the requirements for the portion of a covered or opt-in entity's compliance obligation that may be met with offset credits. That section is out of scope for the US Forest Protocol rulemaking. Therefore, this potential change in rule to revise DEBs requirements for Tribal offset usage would occur through the Cap-and-Invest Program Updates and Linkage rulemaking.

Alignment with: Novel approach considered

Revision 17. Revise CITSS Registration requirement at time of project listing

WAC 173-446-520(1) states that "Before an offset project can be listed by ecology or an offset project registry, the party with legal authority to implement the offset project must be registered with ecology as an offset project operator under WAC 173-446-055." This provision requires that the offset project operator complete registration as a general market participant in the Compliance Instrument Tracking System Service (CITSS). This provision ensures the offset project operators are able and prepared to receive Ecology offset credits into a CITSS account before listing the project. However, because projects take a significant amount of time to develop many projects will submit a listing form to their selected offset project registry several months or even multiple years before they are prepared to request an issuance of Ecology offset credits. The provision requires that offset project operators have a CITSS account in place months or even years before they will have a reason to use the account. This may result in delays to project listing, as the process of establishing a CITSS account may take multiple months. Delays to project listing may be costly, burdensome, or even result in project ineligibility in some instances. For example, the US Forest Protocol requires that conservation easements established as part of an offset project must be recorded no more than one year prior to offset project commencement. To reduce delays in the offset project listing process, Ecology is considering the following revision to WAC 173-446-520(1):

(1) Registration requirements for offset project operators or authorized project designees who are submitting an offset project for listing. Before an offset project can be listed by ecology or an offset project registry, the party with legal authority to implement the offset project must be registered with ecology as an offset project operator under WAC 173-446-055, or attest in writing to subsection (v). To register as a general market participant, the registered offset project operator or its authorized project designee must:

[...]

(v) If the party with legal authority to implement the offset project has been granted approval by Ecology to list the offset project before completing registration under WAC 173-446-055 the following attestation must be submitted:

> *I understand that before this offset project applies to Ecology for issuance of offset credits, the party(ies) with legal authority to implement the offset project must complete registration per WAC 173-446-520. I understand that if the party(ies) with legal authority to implement the offset project apply for issuance of offset credits before completion of registration per WAC 173-446-055, Ecology will decline to make a determination under WAC 173-446-555(3) that the information submitted is complete or that the greenhouse gas reductions meet the requirements of Chapter 173-446 WAC, and therefore Ecology will not issue offset credits for the Project.*

Alignment with: Novel approach considered

Revision 18. Revise Tribal dispute resolution requirement for project listing

For projects on Tribal lands, Ecology also required that Tribes enter into a dispute resolution agreement with Ecology prior to project listing (as well as prior to CITSS registration). The agreement is anticipated to involve government-to-government consultation in most cases and requires significant involvement from multiple parties within the agency and Tribe. As with the CITSS registration requirement, this poses a delay and barrier to project listing, which is the precursor to the multi-year project development process. To reduce barriers to Tribal project enrollment Ecology is considering the following change to WAC 173-446-520(1)(iv):

(iv) For federally recognized tribes who elect to participate as offset project operators pursuant to RCW 70A.65.090(5), the following attestation may be submitted in lieu of the attestation required by (b)(iii) of this subsection: "I understand I am voluntarily participating in this program. I understand that before this offset project applies to Ecology for issuance of offset credits, the tribal government on whose behalf I am authorized to make this submission will establish a dispute resolution process and/or other compliance mechanisms in order to ensure the enforceability of all program requirements applicable to the tribe in its role as an offset project operator. I understand that if the party(ies) with legal authority to implement the offset project apply for issuance of offset credits before establishment of a dispute resolution process and/or other compliance mechanism, Ecology will decline to make a determination under WAC 173-446-555(3) that the information submitted is complete or that the greenhouse gas reductions meet the requirements of Chapter 173-446 WAC, and therefore Ecology will not issue offset credits for the Project."

[...]

(e) For offset projects located on tribal land, land that is owned by a tribe, or land that is subject to an ownership or possessory interest of a tribe, prior to submitting a request for issuance of Ecology offset credits per WAC 173-446-555 the offset project operator must demonstrate that the tribe has entered into a written agreement, negotiated on an individual basis between ecology and the tribal government, that establishes a dispute resolution process and/or other compliance mechanisms in order to ensure the enforceability of all program requirements applicable to the tribe in its role as the owner of land on which an offset project is located.

Alignment with: Novel approach considered

Revision 19. Revise Status and Treatment of Harvested Wood Products

Proposed change: The existing protocol requires that Improved Forest Management and Avoided Conversion projects determine the total estimated amount of carbon stored in Harvested Wood Products (HWP) as part of baseline calculations. These estimates intend to average the HWP carbon storage potential of products in both in-use and landfill-based wood products as part of the project over a period of 100 years. The existing protocol only examines HWP considered to be of commercially viable size and species within the project area.

Members of Ecology's technical working group noted that there are circumstances in which a successful IFM project could result in increased HWP yields as a result of project activities. Conversely, the working group noted that decreasing HWP would lower quantified project impact and credits, while increasing HWP would increase quantified project impact and credits in such scenarios. These scenarios would lead to crediting imbalances that are only balanced far later in project activities. Further, it was noted that the current methodology does not account for the high variability of residence times for HWP in landfills and that the current 100-year timeframe may be an overestimation due to this high variability, with products with low residence times having significantly higher contribution in the current treatment of HWP.

In recognition of these challenges, Ecology is considering adoption of the Reserve's interpretation of Harvested Wood Products and adopting a conservative approach to HWP. In this case, conservative means that if, in a given reporting year, the amount of harvested wood products in the baseline exceeds the amount of harvested wood products in the project activity, the carbon in landfills is reported. If there is more harvesting of wood products in the project case than in the baseline case, harvested wood products in landfills are not considered in either case. In order to properly account for HWP, the updated methodology will focus instead on calculating the amount of carbon delivered to the mills, the portion of the carbon that is converted to wood products using a coefficient that estimates the mill's efficiency, and determining the wood product classes manufactured by the mill, as different wood products have different decay rates. Ecology is also considering adopting the Reserve's interpretation of HWP to include noncommercial size or species requirements in assessment. All considered adoptions originate from the Reserve's 5.1 Protocol.

Alignment with: CAR US Forest Protocol 5.1

Proposed topics for continued research

Topic 1. Adopt additional protocol exclusively for reforestation/afforestation projects

Ecology's current protocol allows for projects to generate offsets credits through reforestation of historically forested areas however reforestation projects have been rare in the CARB's program. While some reforestation-based projects have been listed, none have received credits in the program to date. Reforestation projects are highly costly to develop, due to tree planting costs, and typically would not generate offset credits for at least 10 years after planting because the amount of carbon stored in young trees is not sufficient to justify the cost of inventory and verification.

In the future Ecology may consider development and adoption of a protocol geared exclusively towards reforestation and/or afforestation projects to address some of the fundamental barriers to development of this project type in the existing protocol. To create a reforestation protocol that is viable for project development, Ecology should consider a significantly different approach to inventory of verification for reforestation projects, potentially including an approach minimizes on-site inventory and verification activities and provides some default carbon sequestration values that developers may use. Ecology should also consider what state, local, or federal co-funding programs are available for reforestation projects and whether a protocol could be developed that allows develops to make use of these programs while meeting the additionality requirements in RCW 70A.65.170(2)(b)(ii).

Reforestation based protocols have been developed in the voluntary carbon market, including by Climate Forward (a division of the Climate Action Reserve) and City Forest Credits. Many of these protocols include the issuance of "ex ante" offset credits, meaning credits that are issued prior to the associated emissions reduction or removal activity occurring. This can be an important mechanism to bridge project development costs however Ecology does not believe that "ex ante" crediting could be permissible in the Cap-and-Invest program due to the requirements of RCW 70A.65.170(2)(b)(i).

Topic 2. Revise treatment baseline setting approach for public lands

Ecology's current US Forest Protocol allows for Improved Forest Management or Reforestation projects to be developed on state or locally owned public lands (federal lands are ineligible). Avoided conversion projects must occur on privately owned lands, however private lands may be converted to public ownership as the eligible conservation activity. As of May 2025, there appear to be no projects on public lands registered in the program. Public lands projects have also been relatively uncommon in the voluntary carbon market, although some have been developed (including by King County). Many of the barriers to public lands project development are not created by the protocol, but rather by the project proponent's authority to enter into carbon markets, which involve long term encumbrances of a public asset. More research is needed to understand the barriers to offset project development on public lands that are within the offset protocol – which include the project length, ownership requirements, and the baseline quantification methodology. In the future Ecology may reconsider whether revisions to address these barriers could be pursued while adhering to the offset program requirements in RCW 70A.65.170.

Topic 3. Adopt protocol geared specifically towards enrollment by small landowners

Ecology is proposing to adopt several protocol revisions that will increase the viability of projects developed by small forest landowners, including adoption of a facilitating approach to project aggregation and reduction in verification requirements for smaller projects. In the future, Ecology may

consider adoption of a protocol geared specifically towards small landowners, such as Verra's VM0045 protocol. This protocol, for example, uses regional modeling in the Southeastern US for significantly reduced inventory and verification costs which make very large aggregates of very small parcels (as small as 10 acres) feasible for forest offset project development. At this time, Ecology believes that the necessary geospatial data for this region is not available to facilitate development of this type of for the Northwest. Ongoing research from the University of Washington's Natural Resource Spatial Informatics Groups may bridge this gap in the future and create an opportunity for a small parcel aggregation focused offset protocol in the Cap-and-Invest program. Ecology should continue monitoring advancements in this field of research to determine future opportunities for the program.

Topic 4. Allow project boundary additions

Ecology's technical working group discussed the potential for the US Forest protocol to be revised to accommodate both project boundary reductions and additions over time. Ecology is proposing a revision to accommodate project boundary reductions (see Revision #10), but believes additional research is needed to allow for project boundary additions over time. Allowing for project boundary additions allows for landowners to expand conservation activities over time and may encourage landowners to acquire addition lands to add to the project. Allowing for boundary expansion, rather than requiring development of a new project, reduces project development costs. However, existing protocols in the voluntary market generally do not allow for boundary expansions over time and there are several key issues to resolve, such as how added project lands impact the project baseline. Ecology should continue monitoring treatment of this topic in the voluntary market and considering pursuing this revision in the future.

Topic 5. Allow insurance mechanisms in lieu of buffer pool contribution

The technical working group discussed the potential for insurance mechanisms to be used in lieu of buffer pool contributions. The concept for this considered revision is that a forest offset project developer could acquire an insurance policy for a private insurer that would compensate for forest carbon loss in the event of fire, disease or other natural disaster. Several protocols in the voluntary market have allowed for this type of insurance policy to be used in lieu of a buffer pool contribution in recent updates. In theory, these private insurance policies would reduce some risk to the program because the insurer, rather than the program, would carry the risk of an insufficient buffer pool. Private insurers could diversity across different financial instruments in a way a public agency cannot and may also be able to set project level risk more precisely based on the individual project. However, the forest carbon insurance market appears to be largely speculative, and these policies do not appear to be widely available. If available, safeguards would be needed to ensure the insurance policies are held for the entire 100+ year life of the project, and to protect against insurer insolvency in what would be a very new insurance market. There would also be a risk of adverse selection among project proponents if private insurers are able to more accurately assess project risk. Presumably every project proponent would seek out the lowest cost option to comply with the protocol requires; either contributing to the buffer pool or acquiring a private insurance policy. If low-risk projects can attain private insurance policy for the less than the value of the buffer pool contribution, while high-risk projects would be better served by contributing to the buffer pool, then the program buffer pool would be comprised of contributions from a smaller number of higher-risk projects, which would increase the risks to the program.

Topic 6. Revise the standard of negligence for forestry reversals

The technical working group discussed a potential revision to the standard of negligence in the protocol regarding intentional reversals. The CARB Offset Taskforce Report recommended a revision to the protocol to state that intentional reversals must be caused by an owner's gross negligence or intentional misconduct (the current protocol defines intentional reversals as those caused by negligence, gross negligence, or willful misconduct). The report further recommended that the definition of intentional reversal be further updated to state that permitting third party access to the Project Area will not be deemed negligence or misconduct on the part of the Forest Owner. The rationale for these changes is to protect the forest owner(s) from liability related to the loss of carbon on the site that may not be within the forest owner(s) control. However, the proposed changes do not appear to significantly alter forest owner(s) liability, except for in the specific circumstance where the reversal was caused by the forest owner(s) permitting third party access to the project area. In that specific circumstance, Ecology believes the status quo of regulatory discretion to determine whether or not a reversal in intentional or unintentional is a more appropriate mechanism than a blanket prohibition on considering reversals caused by a third party as intentional reversals.

Topic 7. Revise requirements for approval to plant native species outside of their current distribution

Technical working group members identified the native species requirement in the protocol as a barrier to project development. The protocol requires that projects consist of 95% native species based on the sum of carbon in standing live tree carbon stocks, as identified in the "associated species" tab of the assessment area data file. If the project does not meet this criteria at the time of project listing, the project must demonstrate continuous progress towards meeting requirement and meet the requirement within 25 reporting periods. The protocol includes an exception to the native species requirement to support assisted climate migration. The protocol states that *"Where supported by scientific peer-reviewed research, the planting of native species outside of their current distribution is allowed as an adaptation strategy due to climate change. Such planting must be done in accordance with a state- or federally-approved adaptation plan, or a local plan that has gone through a transparent public review process. A written statement must be submitted from the government agency in charge of forestry regulation in the state where the project is located stipulating that the planting of native trees outside their current range is appropriate as an adaptation to climate change."*

Some technical working group members expressed interest in reducing the documentation requirements for planting non-native species as part of a climate adaptation strategy. In some cases, the state agencies in charge of forest regulations may not be able to provide the written statements required by this protocol within the timeframe needed for project development. However, revising this requirement to allow, for example, Ecology or the offset project registries to make project-level exceptions for planting native species outside of their current distribution would risk inadvertent approval of planting that conflict with state or local forestry plans. Neither Ecology nor the offset project registries are equipped to make informed decisions regarding assisted climate migration.

In addition, because native species are established at the supersection level – a fairly large geographic scale – there are typically a diversity of species identified as native within each supersection. Project proponents who wish to adapt their planting practices to reflect a changing climate may do so to by shifting the composition between species identified as native within that supersection or shifting between variants of a single species. For the Puget Trough supersection, which encompasses the low elevation areas in Western Washington, all of the following are listed as native species: Aspen, birch, bigleaf maple, cottonwood, willow, Douglas fir, fir, spruce, mountain hemlock, lodgepole pine, Oregon ash, Oregon white oak, Pacific madrone, Pacific silver fir, paper birch, red alder, Sitka spruce, western hemlock, western oak, western red cedar.

Lastly, in specific instances where planting of a native species outside of its range is deemed appropriate by the associated agency in charge of forest regulation in the state where the project is located, Ecology may issue a revised Assessment Area Data File to incorporate the additional specie(s) in the that supersection. While an initial approval by the appropriate authority will still be required, Ecology can streamline the process for subsequent projects by revising this assessment area data.

Topic 8. Revise 100-year project commitment within the US Forest Protocol

The protocol requires that removal enhancements must be maintained and monitored for a minimum of 100 years (US Forest Protocol 2015, section 3.5(a)). This extended commitment poses a barrier to enrollment for many landowners. Several offset protocols in the voluntary carbon market have adopted shorter project commitments, such as ACR's Improved Forest Management on Non-Federal U.S. Forestlands version 2.1 (minimum 40 year commitment). Ecology does not view shorter project time commitments as compatible with the requirements of the Cap-and-Invest program. As required by RCW 70A.65.170(2)(b)(i), offsets issued by the department must be permanent. In addition, Ecology is directed in RCW 70A.65.210(1) to seek to enter into a linkage agreement with other jurisdictions. In order to ensure program compatibility with other jurisdictions, Ecology believes it is important to ensure that key offset attributes, such as project duration, are consistent across jurisdictions. Both California and Quebec's adopted forest offset protocols require a minimum 100 year project commitment.