



Preliminary Regulatory Analyses:

Including the:

- Preliminary Cost-Benefit Analysis
- Least-Burdensome Alternative Analysis
- Administrative Procedure Act Determinations
- Regulatory Fairness Act Compliance

Chapter 173-446A WAC

*Criteria for Emissions-Intensive, Trade-Exposed
Industries*

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For the
Air Quality Program

Washington State Department of Ecology
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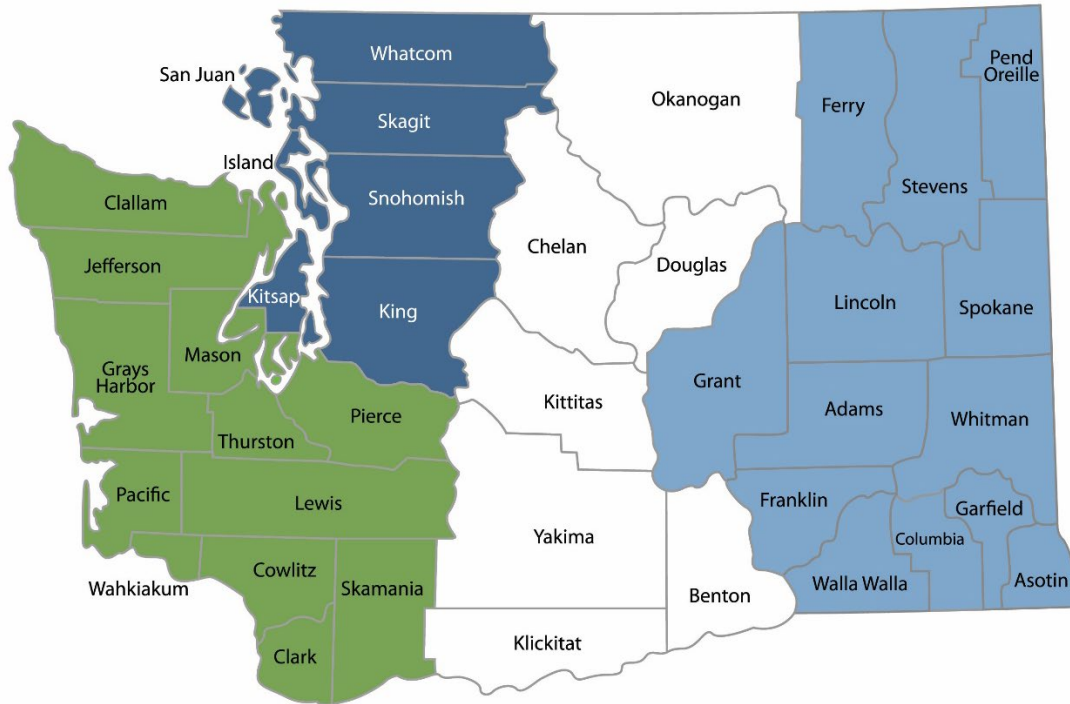
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Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400
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Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	P.O. Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
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Including the:

Preliminary Cost-Benefit Analysis

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Administrative Procedure Act Determinations

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*Chapter 173-446A WAC, Criteria for Emissions-Intensive,
Trade-Exposed Industries*

Air Quality Program
Washington State Department of Ecology
Olympia, WA

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DEPARTMENT OF
ECOLOGY
State of Washington

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Acronyms

APA	Administrative Procedure Act
CBA	Cost-Benefit Analysis
CCA	Climate Commitment Act
CO ₂ e	Carbon dioxide equivalent
EITE	Emissions-intensive and trade-exposed
GHG	Greenhouse gas
IWG	Interagency Working Group
LBA	Least-Burdensome Alternative Analysis
MTCO ₂ e	Metric tons of carbon dioxide equivalent
NAICS	North American Industry Classification System
OMB	(US) Office of Management and Budget
RCW	Revised Code of Washington
RFA	Regulatory Fairness Act
SCC	Social Cost of Carbon
TSD	Technical Support Document
WAC	Washington Administrative Code

Executive Summary

This report presents the determinations made by the Washington State Department of Ecology as required under Chapters 34.05 RCW and 19.85 RCW, for the proposed Criteria for Emissions-Intensive, Trade-Exposed Industries rule (Chapter 173-446A WAC; the “rule”). This includes the:

- Preliminary Cost-Benefit Analysis (CBA)
- Least-Burdensome Alternative Analysis (LBA)
- Administrative Procedure Act Determinations
- Regulatory Fairness Act Compliance

In 2021, the Washington State Legislature passed the Climate Commitment Act (CCA), which establishes a comprehensive program to reduce carbon pollution and achieve the greenhouse gas limits set in state law. The program is codified in Chapter 70A.65 RCW, Greenhouse Gas Emissions – Cap and Invest Program, and will start Jan. 1, 2023. In the CCA, the Legislature directs Ecology to adopt rules to implement a cap on carbon emissions, including mechanisms for the sale and tracking of tradable emissions allowances, along with compliance and accountability measures. We are also required to adopt rules that allow, to the maximum extent practicable, for linkage of the program with similar programs in other jurisdictions.

Under the CCA, most facilities or businesses in Washington that produce more than 25,000 metric tons of carbon emissions (MTCO₂e) per year are required to obtain emissions allowances. Some of these allowances are sold in auctions, while others are awarded at no cost.

Under the CCA, facilities designated as emissions-intensive and trade-exposed (EITE) will be given a portion of emissions allowances at no cost until at least 2034. These are industries with emissions-intensive processes that are likely to face competition that would result in greenhouse gas (GHG) emissions leakage if not addressed. Leakage is an increase in GHG emissions outside of Washington resulting from emissions reduction requirements in the state.

Summary of the proposed rule

The proposed rule would:

- Set definitions necessary to identify and approve EITE facilities.
- List NAICS codes for facilities currently designated as EITE.
- Establish the EITE petition process and approval criteria for facilities not currently designated as EITE.

Costs

We estimate that the proposed rule amendments are likely to cost \$673 per facility petitioning to be designated EITE. This amount is the cost of additional effort to gather known facility and emissions data, and prepare and submit the petition.

Benefits

To offset estimated cost, we estimate that a single facility would need to avoid leakage of up to three pounds CO₂e of GHG emissions in one year, or avoid ongoing annual leakage of up to 0.19 pounds CO₂e each year through 2041.

The highest necessary avoided leakage of three pounds CO₂e in one year represents 0.000004 percent of emissions at a facility emitting 25,000 MTCO₂e. Avoided leakage is likely to be higher, as EITE facilities are inherently at risk of large percentages of their production being displaced by production in other jurisdictions. Even avoided leakage of one percent of emissions at a facility at the 25,000 MTCO₂e threshold would be 2,500 MTCO₂e (or over 5.5 million pounds CO₂e).

Conclusion

We conclude, based on a reasonable understanding of the quantified and qualitative costs and benefits likely to arise from the proposed rule, as compared to the baseline, that the benefits of the proposed rule are greater than the costs. The costs associated with the rule are approximately \$673 per facility filing a petition. To offset that cost, a facility would need to avoid leakage of only a few pounds of GHG emissions. In fact, any avoided leakage would likely be thousands of metric tons per year, rather than just a few pounds. Also, the program is voluntary, and a facility is unlikely to spend the resources to file an EITE petition unless it is likely that Ecology would approve the petition.

Least-Burdensome Alternative

RCW 34.05.328(1)(c) requires Ecology to “...[d]etermine, after considering alternative versions of the rule and the analysis required... that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives [of the authorizing statute].”

The authorizing statute for this rule is Chapter 70A.65 RCW, Greenhouse Gas Emissions – Cap and Invest Program. Its goals and objectives include:

- Create climate policy that recognizes the special nature of emissions-intensive, trade-exposed industries by minimizing leakage.
- Encourage EITE industries to continue to innovate, find new ways to be more energy efficient, use lower carbon products, and be positioned to be global leaders in a low carbon economy.
- Promote a growing and sustainable economy and to avoid leakage of emissions from manufacturing to other jurisdictions.
- Contribute to a healthy environment for all of Washington's communities.

The authorizing statute also sets requirements and provides throughout for the possibility and desirability of linkage agreements with other jurisdictions with GHG allowance markets. RCW 70A.65.100(10) states:

“The department shall design allowance auctions so as to allow, to the maximum extent practicable, linking with external greenhouse gas emissions trading programs in other jurisdictions and to facilitate the transfer of allowances when the state's program has entered into a linkage agreement with other external greenhouse gas emissions trading programs. The department may conduct auctions jointly with linked jurisdictions.”

We considered the following alternative rule content, and did not include it in the proposed rule for the reasons discussed in this document.

- Petitions for proposed facilities: Include a pathway for a proposed facility to petition to be designated as EITE.
- Additional EITE industries: Include two additional NAICS codes to list as EITE. These two codes correspond to the only two manufacturing businesses that are current GHG reporters, but under the CCA threshold, in Washington that do not already have their NAICS code on the list.
- Alternative EITE criteria: Different criteria for emissions intensity or trade exposure.

After considering alternatives to the proposed rule content, within the context of the goals and objectives of the authorizing statute, we determined that the proposed rule represents the least-burdensome alternative of possible rule contents meeting the goals and objectives.

Regulatory Fairness Act Compliance

The proposed rule is exempt from the Regulatory Fairness Act under RCW 19.85.025(4), which states, “This chapter does not apply to the adoption of a rule if an agency is able to demonstrate that the proposed rule does not affect small businesses.” A small business is defined under RCW 19.85.020(3) as, “any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, and that has fifty or fewer employees.”

The proposed rule:

- Is a voluntary pathway to petition to reduce compliance costs under Chapter 70A.65 RCW: Businesses will only undertake the costs of the EITE petition process if they expect a net benefit in the form of EITE designation, which entitles them to no-cost allowances for a portion of their emissions, under the Cap and Invest Program.
- Is limited in likely impacted parties: The proposed rule applies to manufacturing facilities in Washington that are covered under the Cap and Invest Program (Chapter 70A.65 RCW). Such facilities are a subset of facilities required to report their GHG emissions under the GHG reporting rule (Chapter 173-441 WAC).

We cannot predict what types of additional industries not listed as EITE under Chapter 70A.65 RCW and the proposed rule will begin operations in the state in the future, but based on the list of facilities reporting GHG emissions under Chapter 173-441 WAC:²

- All manufacturing facilities in Washington covered by the Cap and Invest Program are designated as EITE under the list of industries in Chapter 70A.65 RCW and under the proposed rule.
- There are two manufacturing facilities in industries that are not designated as EITE under Chapter 70A.65 RCW or the proposed rule. Based on their current reported emissions, however, they are not covered by the Cap and Invest Program. If their emissions increase to over 25,000 MTCO₂e, then they would be covered and might choose to petition to be designated as EITE. These two manufacturing facilities are not small businesses.

We therefore do not expect the proposed rule to affect any small businesses currently operating in Washington. Based on our experience, if new manufacturing facilities locate in Washington, and petition for EITE designation under this rule, we expect they will be large businesses.

² WA Department of Ecology, 2021. GHG Reporting Program dataset. WA Department of Ecology Climate Policy Section. Updated February 1, 2021. <https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/data>

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Chapter 1: Background and Introduction

1.1 Introduction

This report presents the determinations made by the Washington State Department of Ecology as required under Chapters 34.05 RCW and 19.85 RCW, for the proposed Criteria for Emissions-Intensive, Trade-Exposed Industries rule (Chapter 173-446A WAC; the “rule”). This includes the:

- Preliminary Cost-Benefit Analysis (CBA)
- Least-Burdensome Alternative Analysis (LBA)
- Administrative Procedure Act Determinations
- Regulatory Fairness Act Compliance

The Washington Administrative Procedure Act (APA; RCW 34.05.328(1)(d)) requires Ecology to evaluate significant legislative rules to “determine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the law being implemented.” Chapters 1 – 5 of this document describe that determination.

The APA also requires Ecology to “determine, after considering alternative versions of the rule...that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives” of the governing and authorizing statutes. Chapter 6 of this document describes that determination.

The APA also requires Ecology to make several other determinations (RCW 34.05.328(1)(a) – (c) and (f) – (h)) about the rule, including authorization, need, context, and coordination. Appendix A of this document provides the documentation for these determinations.

The Washington Regulatory Fairness Act (RFA; Chapter 19.85 RCW) requires Ecology to evaluate the relative impact of proposed rules that impose costs on businesses in an industry. It compares the relative compliance costs for small businesses to those of the largest businesses affected. Chapter 7 of this document documents that analysis, when applicable.

All determinations are based on the best available information at the time of publication. We encourage feedback (including specific data) that may improve the accuracy of this analysis.

1.1.1 Background

In 2021, the Washington State Legislature passed the Climate Commitment Act (CCA), which establishes a comprehensive program to reduce carbon pollution and achieve the greenhouse gas limits set in state law. The program is codified in Chapter 70A.65 RCW, Greenhouse Gas Emissions – Cap and Invest Program, and will start Jan. 1, 2023. In the CCA, the Legislature directs Ecology to adopt rules to implement a cap on carbon emissions, including mechanisms for the sale and tracking of tradable emissions allowances, along with compliance and accountability measures. We are also required to adopt rules that allow, to the maximum extent practicable, linkage of the program with similar programs in other jurisdictions.

1.1.2 The CCA and Emissions-Intensive and Trade-Exposed Facilities

Under the CCA, most facilities or businesses in Washington that produce more than 25,000 metric tons of carbon emissions (MTCO₂e) per year are required to obtain emissions allowances. Some of these allowances are sold in auctions, while others are awarded at no cost.

Under the CCA, facilities designated as emissions-intensive and trade-exposed (EITE) will be given a portion of emissions allowances at no cost until at least 2034. These are industries with emissions-intensive processes that are likely to face competition that would result in greenhouse gas (GHG) emissions leakage if not addressed. Leakage is an increase in GHG emissions outside of Washington resulting from emissions reduction requirements in the state.

Emissions leakage occurs when an industry faces high costs of GHG emissions reductions (due to emissions intensity) that impact the prices of goods they produce, and outside competition (due to trade exposure) shifts demand to similar or identical products from other locations with lower prices. This can result in reduced production volumes within Washington, or a facility may move outside the state. If leakage occurs, GHG emissions reductions in the state may be offset by emissions increases outside the state. This is particularly important for GHG emissions, since their impacts on climate do not depend on where the GHGs are emitted; GHG emissions in Washington have the same impact on climate as emissions outside the state.

The number of no-cost allowances an EITE facility receives depends on several factors:

- During the first compliance period, 2023-2026, facilities designated as EITE will receive allowances equal to their carbon intensity benchmark for their emissions for 2015-2019 multiplied by their actual production metric for each year in the compliance period. The carbon intensity benchmark establishes the amount of emissions a facility generates relative to a given production metric. That means that a facility would receive free allowances above their emissions baseline if their emissions increase due to increased production. In some cases, an EITE facility may use a mass-based baseline that does not reflect production volumes.
- During the second compliance period, 2027-2030, EITE facilities will receive no cost allowances equal to 97 percent of their carbon intensity benchmark multiplied by their actual production metric or their mass-based baseline.
- During the third compliance period, 2031-2034, EITE facilities will receive allowances equal to 94 percent of their carbon intensity benchmark multiplied by their actual production metric or their mass-based baseline.
- For compliance periods starting in 2035, Ecology is required to propose and report on an approach for the EITE category to be responsible for their proportionate share of the reductions necessary to achieve the state's GHG reduction limits.

If an EITE facility's emissions exceed the number of no-cost allowances it is given, it will have to purchase additional allowances to cover its full emissions.

If an EITE facility emits fewer emissions than its no-cost allowances, it can bank the unused allowances for future use, or sell them to other emitters to generate revenue. The facility may or may not use the revenue to invest in lower carbon technologies.

While the CCA explicitly lists certain industries and their North American Industry Classification System (NAICS) codes that it designates as EITE, it also directs Ecology to establish a process and criteria for facilities whose industries are not listed in the CCA to be designated as EITE. The purpose of this rulemaking is to establish that process.

1.2 Summary of the proposed rule

The proposed rule would:

- Set definitions necessary to identify and approve EITE facilities.
- List NAICS codes for facilities currently designated as EITE.
- Establish the EITE petition process and approval criteria for facilities not currently designated as EITE.

1.3 Document organization

The remainder of this document is organized in the following chapters:

- **Baseline and the proposed rule (Chapter 2):** Description and comparison of the baseline (what would occur in the absence of the proposed rule) and the proposed rule requirements.
- **Likely costs of the proposed rule (Chapter 3):** Analysis of the types and sizes of costs we expect impacted entities to incur as a result of the proposed rule.
- **Likely benefits of the proposed rule (Chapter 4):** Analysis of the types and sizes of benefits we expect to result from the proposed rule.
- **Cost-benefit comparison and conclusions (Chapter 5):** Discussion of the complete implications of the CBA.
- **Least-Burdensome Alternative Analysis (Chapter 6):** Analysis of considered alternatives to the contents of the proposed rule.
- **Regulatory Fairness Act Compliance (Chapter 7):** When applicable. Comparison of compliance costs for small and large businesses; mitigation; impact on jobs.
- **APA Determinations (Appendix A):** RCW 34.05.328 determinations not discussed in chapters 5 and 6.

Chapter 2: Baseline and Proposed Rule

2.1 Introduction

We analyzed the impacts of the proposed rule, within the context of all existing requirements (federal and state laws and rules). This context for comparison is called the baseline, and reflects the most likely regulatory circumstances that entities would face if the proposed rule were not adopted. The baseline is discussed in Section 2.2, below.

2.2 Baseline

The baseline for our analyses generally consists of existing rules and laws, and their requirements. This baseline allows us to make a consistent comparison between the state of the world with and without the proposed rule.

For this rulemaking, the baseline includes:

- Greenhouse Gas Emissions – Cap and Invest Program, Chapter 70A.65 RCW.
- Reporting of Emissions of Greenhouse Gases, Chapter 173-441 WAC.

2.3 Proposed rule

The proposed rule would:

- Set definitions necessary to identify and approve EITE facilities.
- List NAICS codes for facilities currently designated as EITE.
- Establish the EITE petition process and approval criteria for facilities not currently designated as EITE.

2.3.1 Definitions

Baseline

Chapter 70A.65 RCW includes many definitions to support the Cap and Invest Program. These include, but are not limited to, definitions of:

- Covered parties.
- Allowances.
- Auctions.
- Various emissions sources.
- Leakage.
- Overburdened communities.

The GHG reporting rule, Chapter 173-441 WAC refers to definitions in Chapter 70A.65 RCW, as well as additional definitions necessary to implement the reporting program. These definitions include, but are not limited to:

- GHGs.
- Product data.
- Facility.
- Supplier.

Proposed

The proposed rule would incorporate the baseline definitions above by reference, and add one definition for “manufacturing facility.”

A manufacturing facility would be defined as, “a facility, as defined in WAC 173-441-020, that produces a physical product as its primary activity.”

The referenced definition of “facility” in the current GHG reporting rule (WAC 173-441-020) is:

"Facility" unless otherwise specified in any subpart of 40 C.F.R. Part 98 as adopted by September 1, 2016, means any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right of way and under common ownership or common control, that emits or may emit any greenhouse gas. Operators of military installations may classify such installations as more than a single facility based on distinct and independent functional groupings within contiguous military properties. All source categories in WAC 173-441-120 are considered facilities even if the source category name includes the word "supplier."

We note that at the time of this publication Ecology has proposed amendments to the GHG reporting rule, but has not yet adopted an amended rule.³ The proposed definition of “facility” in the proposed GHG reporting rule is:

³ <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-441>

"Facility" unless otherwise specified in WAC 173-441-122, 173-441-124, or any subpart of 40 C.F.R. Part 98 as adopted in WAC 173-441-120, means any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right of way and under common ownership or common control, that emits or may emit any greenhouse gas. Operators of military installations may classify such installations as more than a single facility based on distinct and independent functional groupings within contiguous military properties."

Expected impact

We do not expect the proposed additional definition of manufacturing facility to have impacts on its own. Any actual impacts would result from the use of this definition in the proposed rule, and are included in relevant sections of this analysis. Moreover, RCW 70A.65.110(2) specifies that eligibility for EITE designation under the rule includes "any covered party that is a manufacturing business" and the proposed definition is consistent with this direction.

2.3.2 List of Emissions Intensive and Trade Exposed North American Industry Classification System codes

Baseline

RCW 70A.65.110 lists the following industries as EITE, and facilities engaged in these processes, "must receive an allocation of allowances for the covered emissions at those facilities under this subsection at no cost." For each industry, the law specifies a North American Industry Classification System (NAICS) code or set of codes. NAICS codes are between two and six digit numbers identifying industry classifications, with two-digit codes being broader industry groupings, while additional digits reflect specific industries within that broad group.

Table 1: Baseline EITE industries and their NAICS codes

Industry	NAICS Code(s)
Food manufacturing	beginning with 311
Wood products manufacturing	beginning with 321
Paper manufacturing, including pulp mills, paper mills, and paperboard milling	beginning with 322
Petroleum refining	324110
Asphalt paving mixtures and block manufacturing from refined petroleum	324121
Asphalt shingle and coating manufacturing from refined petroleum	324122
All other petroleum and coal products manufacturing from refined petroleum	324199
Chemical manufacturing	beginning with 325
Nonmetallic mineral manufacturing, including glass container manufacturing	beginning with 327
Cement manufacturing	327310
Metals manufacturing, including iron and steel making, ferroalloy and primary metals manufacturing, secondary aluminum smelting and alloying, aluminum sheet, plate, and foil manufacturing, and smelting, refining, and alloying of other nonferrous metals	beginning with 331
Computer and electronic product manufacturing, including semiconductor and related device manufacturing	beginning with 334
Aerospace product and parts manufacturing	beginning with 3364

Proposed

The proposed rule lists EITE industries from the baseline law without making any changes.

Expected Impact

Since this part of the proposed rule does not differ from the baseline, we do not expect any costs or benefits to result from it.

2.3.3 Emissions Intensive and Trade Exposed petition process and criteria for approval

Baseline

RCW 70A.65(110)(2) states, “By July 1, 2022, the department must adopt by rule objective criteria for both emissions intensity and trade exposure for the purpose of identifying emissions-intensive, trade-exposed manufacturing businesses during the second compliance period of the program and subsequent compliance periods.”

RCW 70A.65(110)(2) also states, “[A]ny covered party that is a manufacturing business that can demonstrate to the department that it meets the objective criteria adopted by rule is also eligible for treatment as emissions-intensive, trade-exposed and is eligible for allocation of no cost allowances as described in this section. In developing the objective criteria under this subsection, the department must consider the locations of facilities potentially identified as emissions-intensive, trade-exposed manufacturing businesses relative to overburdened communities.”

Chapter 70A.65 RCW does not specify the process a covered party uses to petition Ecology to be designated as EITE, or the criteria we use to approve petitions.

Covered parties, including facilities, under the GHG Cap and Invest Program are also required to comply with the baseline GHG reporting rule (Chapter 173-441 WAC). As part of compliance with the reporting rule, they are required to calculate and report their GHG emissions. Those covered by the Cap and Invest Program are also required to periodically have their reporting data verified by a qualified third party.

Reporting annual GHG emissions under the GHG reporting rule necessitates calculating “the total annual emissions of each GHG in metric tons from all applicable source categories that are listed and defined in WAC 173-441-120.” The GHG emissions must be calculated using the calculation methodologies specified in WAC 173-441-120 and available company records.

Proposed

The proposed rule establishes a process facilities use to petition Ecology for designation as EITE:

- Petitions must include:
 - Contact information.
 - Facility identifying information consistent with reporting under the GHG reporting rule.
 - Annual total production data.
 - Five years of annual total production and the amount exported out of Washington.
 - Five years of annual on-site GHG emissions data as reported under the GHG reporting rule.
 - Facility location relative to overburdened communities, including the health disparity index rankings of those communities as listed in the Washington State Department of Health’s Environmental Health Disparities Map.
 - Other supporting data by request.
- Facilities must submit petitions:

- In an electronic format provided by Ecology.
- At least 180 days before January 1st of the first emissions year they wish to be considered EITE.
- Ecology must notify the facility, within 30 days, if more information is required, and has 90 days to issue a determination.

Under the proposed rule, Ecology must use the following criteria to approve a facility's EITE petition. The facility must:

- Be a manufacturing facility in Washington.
- Be a covered party under the Cap and Invest Program (or projected to be).
- Be in an industry other than the industries listed as EITE in the law and proposed rule.
- Meet the following criteria.
 - Emissions intensity: Facility emissions intensity greater than 25,000 MTCO₂e. Emissions intensity is the sum of annual emissions divided by the number of years of data used.
 - Trade exposure: Industry trade exposure with a trade share greater than or equal to 15 percent. Trade share is the total value of imports and exports, divided by the total value of product sold and imported, all at the national level.

In addition, Ecology must consider impacts to overburdened communities and recommendations by the state's Environmental Justice Council, when determining whether to approve an EITE petition.

All of the variables in the emissions intensity equation are based on data reported under the GHG reporting rule, Chapter 173-441 WAC. All of the variables used in the trade exposure equation are based on publicly available data from the US International Trade Commission DataWeb and the US Census Bureau Annual Manufacturing Survey. The data collected from these sources are at the 6-digit NAICS level.

Expected impact

We expect the proposed rule to result in costs associated with completing and submitting the petition, over and above baseline costs of calculating and submitting GHG emissions reports. We also expect the proposed rule to result in benefits related to reduced GHG emissions leakage.

Redistribution of Total Costs

While facilities petitioning to be designated as EITE would be doing so in hopes of receiving no-cost allowances under the Cap and Invest Program (a benefit of avoided compliance instrument purchases), the structure of the program would reallocate required total emissions reductions across other covered parties (an equivalent total cost of compliance instrument purchases). This is because the Cap and Invest Program's total cap would remain the same regardless of whether additional facilities are designated as EITE. Since these potential individual private benefits to newly approved EITE facilities, and distributed private costs to other covered parties, net out to zero across all covered parties purchasing compliance instruments we do not expect an overall cost or benefit of this reallocation of compliance costs.

We do note, however, that positive or negative indirect distributional impacts could occur as a result of the proposed rule, depending on the magnitude of no-cost allowances allocated to a newly approved EITE facility, and how they are compensated for through additional emissions reductions by other covered parties. This could be the case if compliance instrument purchase costs are reallocated to covered parties or industries with different attributes. For example:

- Covered parties in less labor-intensive industries may see less impact to employment than the new EITE facility would from the same Cap and Invest compliance costs.
- Covered parties with more ability to pass costs on to their customers (because they produce what are called “inelastic” goods, for which demand doesn't change much in response to price changes) may see less impact to revenues or employment than the new EITE facility would from the same Cap and Invest compliance costs.

As we cannot be sure of the attributes of potential newly approved EITE facilities compared to other covered parties, we can not estimate the size or degree of these potential indirect benefits or costs. Again, in the aggregate and with covered parties purchasing compliance instruments from common markets, we expect the direct benefits and costs to net out to zero.

Denied Petitions

Finally, while it would be possible for a facility to submit a petition and for Ecology to deny it, we do not expect this to happen. All of the variables in the emissions intensity equation are based on data already known to the facility and reported under the GHG reporting rule. All of the variables used in the trade exposure equation are based on publicly available data from the US International Trade Commission DataWeb and the US Census Bureau Annual Manufacturing Survey. We expect that a facility will know, with minimal effort, whether it meets the criteria for EITE approval before it submits a petition, and if it does not, it will not file a petition.

Chapter 3: Likely Costs of the Proposed Rule

3.1 Introduction

We analyzed the likely costs associated with the proposed rule, as compared to the baseline. The proposed rule and the baseline are discussed in detail in Chapter 2 of this document.

3.2 Cost Analysis

The proposed rule would:

- Set definitions necessary to identify and approve EITE facilities.
- List NAICS codes for facilities currently designated as EITE.
- Establish the EITE petition process and approval criteria for facilities not currently designated as EITE.

3.2.1 Definitions

We do not expect the proposed additional definition of manufacturing facility to have impacts on its own. Any actual impacts would result from the use of this definition in the proposed rule, and are included in relevant sections of this analysis. Moreover, RCW 70A.65.110(2) specifies that eligibility for EITE designation under the rule includes “any covered party that is a manufacturing business” and the proposed definition is consistent with this direction. See section 2.3.1 for more information.

3.2.2 List of Emissions Intensive and Trade Exposed North American Industry Classification system codes

Since this part of the proposed rule does not differ from the baseline, we do not expect any costs or benefits to result from it. See section 2.3.1 for more information.

3.2.3 Emissions Intensive and Trade Exposed petition process and criteria for approval

We expect the proposed rule to result in costs associated with completing and submitting the petition, over and above baseline costs of calculating and submitting GHG emissions reports.

Under the baseline greenhouse gas reporting rule (Chapter 173-441 WAC) facilities emitting over 10,000 MTCO₂e must submit annual reports of their GHG emissions. The information required in the reports includes facility information and calculations of “the total annual emissions of each GHG in metric tons from all applicable source categories that are listed and defined in WAC 173-441-120” using specified calculation methodologies and company records.

Completing and submitting an EITE petition would mostly entail using information facilities already report under the GHG reporting rule or known to the facility from company records. Information that is not part of GHG reporting includes:

- Export quantities of primary product(s).
- Potential additional primary production data.
- Washington State Department of Health Environmental Health Disparities ranking and tribal land location.

Additional effort would be needed to gather and input the new information into the electronic format provided by Ecology. Based on experience administering the GHG reporting rule, we estimated additional work effort that would be needed for a facility to complete an EITE petition. We multiplied additional work hours by the median hourly wage for each type of position likely engaged in the work.⁴ Table 2 includes estimated hours of work, median wages, and total costs of this additional effort under the proposed rule. We estimated a total cost of \$687 per facility for submitting an EITE petition.

Table 2: Additional effort to complete EITE petition

Position Type	Hours	Wage	Cost
Senior Management	1	\$64.71	\$64.71
Middle management	8	\$60.46	\$483.67
Administrative	4	\$34.55	\$138.19
TOTAL	13	n/a	\$686.56

* High end of likely 4 – 8 hour range

The costs for filing a petition would be a one-time cost, and would have an equivalent present value⁵ if incurred immediately. Because a facility that wants to petition to be designated as EITE needs to be located in Washington⁶ and begin operations, and petition for EITE designation to be effective starting 2027 at the earliest, we conservatively assumed these costs would be incurred in 2023, with a present value of \$673.⁷

⁴ US Bureau of Labor Statistics, 2020. May 2020 State Occupational Employment and Wage Estimates for Washington. https://www.bls.gov/oes/2020/may/oes_wa.htm Updated to 2021-dollars using US Bureau of Labor Statistics, 2021. Consumer Price Index for all Urban Consumers. https://www.bls.gov/data/inflation_calculator.htm

⁵ Ecology typically presents streams of costs and benefits over time as 20-year present values – the discounted sum of future values in current dollars, accounting for inflation and the opportunity cost of having funds later instead of now.

⁶ Ecology is unaware of any facilities currently located in Washington that would be likely to petition to be designated as EITE at this time. See discussion in Section 4.2.3, p. 25.

⁷ Discounted to present values using a real social rate of time preference of approximately one percent, based on the long-run average real rate of return on US Treasury I Bonds. US Treasury Department, 2021. Series I Savings Bonds Rates & Terms: Calculating Interest Rates. 1998 – November 2021. https://www.treasurydirect.gov/indiv/research/indepth/ibonds/res_ibonds_iratesandterms.htm

This cost would be incurred by each facility petitioning for EITE designation, but since we cannot forecast the number of facilities doing so with any certainty, we estimated both costs and benefits on a per-facility basis for this analysis.

While facilities petitioning to be designated as EITE would be doing so in hopes of receiving no-cost allowances under the Cap and Invest Program (a benefit of avoided compliance instrument purchases), the structure of the program would reallocate required total emissions reductions across other covered parties (an equivalent total cost of compliance instrument purchases). Since the potential individual private benefits to newly approved EITE facilities, and distributed private costs to other covered parties, net out to zero across all covered parties purchasing compliance instruments, we do not expect an overall cost of this reallocation of compliance costs.

We do note, however, that positive or negative indirect distributional impacts could occur as a result of the proposed rule, depending on the number of no-cost allowances allocated to a newly approved EITE facility, and how they are compensated for through additional emissions reductions at other covered parties. For discussion, see section 2.3.3.

Chapter 4: Likely Benefits of the Proposed Rule

4.1 Introduction

We analyzed the likely benefits associated with the proposed rule, as compared to the baseline. The proposed rule and the baseline are discussed in detail in Chapter 2 of this document.

4.2 Benefits analysis

The proposed rule would:

- Set definitions necessary to identify and approve EITE facilities.
- List NAICS codes for facilities currently designated as EITE.
- Establish the EITE petition process and approval criteria for facilities not currently designated as EITE.

4.2.1 Definitions

We do not expect the proposed additional definition of manufacturing facility to have impacts on its own. Any actual impacts would result from the use of this definition in the proposed rule, and are included in relevant sections of this analysis. Moreover, RCW 70A.65.110(2) specifies that eligibility for EITE designation under the rule includes “any covered party that is a manufacturing business” and the proposed definition is consistent with this direction. See section 2.3.1 for more information.

4.2.2 List of Emissions Intensive and Trade Exposed North American Industry Classification System codes

Since this part of the proposed rule does not differ from the baseline, we do not expect any costs or benefits to result from it. See section 2.3.1 for more information.

4.2.3 Emissions Intensive and Trade Exposed petition process and criteria for approval

We expect the proposed rule to result in benefits related to reduced GHG emissions leakage. Emissions leakage occurs when an industry faces high costs of GHG emissions reductions (due to emissions intensity) that impact the prices of goods they produce, and outside competition (due to trade exposure) shifts demand to similar or identical products from other locations with lower prices. This can result in reduced production volumes within Washington, or a facility may move outside the state. If leakage occurs, GHG emissions reductions in the state will be offset by emissions increases outside the state. This is particularly important for GHG emissions, since their impacts on climate do not depend on where the GHGs are emitted; GHG emissions in Washington have the same impact on climate as emissions outside the state.

Since all but two manufacturing facilities currently reporting their GHG emissions under the GHG reporting rule (Chapter 173-441 WAC) are designated as EITE under the baseline,⁸ and the remaining two manufacturing facilities have annual emissions below the GHG Cap and Invest Program threshold of 25,000 MTCO_{2e},⁹ it is unlikely that any currently existing manufacturing facilities in Washington will petition to be designated as EITE at this time. It is also difficult to predict what types of facility might locate in Washington in the future and petition for EITE designation. It is therefore difficult to forecast the specific interstate and international market circumstances a potential new EITE facility would face if it began operations in Washington and was a covered party under the GHG Cap and Invest Program. As a result, we can not forecast the specific quantity of emissions leakage that would be avoided under the proposed rule.

We chose to address this uncertainty by considering both the 25,000 MTCO_{2e} Cap and Invest Program threshold, as well as the 73,866 MTCO_{2e} median emissions of facilities designated as EITE under the baseline.¹⁰ By assuming a range of potential baseline leakage scenarios (in which a new or expanded facility was emissions-intensive and trade-exposed but was not designated as EITE, and therefore subject to emissions leakage), we identified ranges of emissions leakage per facility that would generate benefits equivalent to the \$673 per facility present value cost estimated in Chapter 3.

These benefits would be generated by each facility designated as EITE, but as we cannot forecast the number of facilities petitioning and qualifying for EITE designation with any certainty, we estimated both costs and benefits on a per-facility basis for this analysis.

Social Cost of Carbon

To estimate the benefits of avoiding a metric ton of GHG emissions, Ecology uses the Social Cost of Carbon (SCC). The SCC is an estimate of the global costs resulting from climate change associated with one additional metric ton of GHG emissions.

Many estimates of the social cost of carbon exist, each carrying its own assumptions regarding elements such as (but not limited to):

- The trajectory of worldwide emissions.
- Expected development and growth rates.
- The rate at which we discount the future.
- How much we value impacts that do not occur locally.

We (as well as the federal Interagency Working Group (IWG) that developed the SCC cited in this analysis) acknowledge the limitations of any quantitative estimate of the SCC. IWG states in its original analysis:

⁸ Emissions data from WA Department of Ecology. GHG Reporting Program dataset. WA Department of Ecology Climate Policy Section. Updated February 1, 2021. <https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/data>

⁹ Ibid.

¹⁰ Ibid.

“As noted, any estimate of the SCC must be taken as provisional and subject to further refinement (and possibly significant change) in accordance with evolving scientific, economic, and ethical understandings. During the course of our modeling, it became apparent that there are several areas in particular need of additional exploration and research. These caveats, and additional observations in the following section, are necessary to consider when interpreting and applying the SCC estimates.”¹¹

The workgroup follows up in the technical update:

“The 2010 interagency SCC TSD [technical support document] discusses a number of important limitations for which additional research is needed. In particular, the document highlights the need to improve the quantification of both non-catastrophic and catastrophic damages, the treatment of adaptation and technological change, and the way in which inter-regional and inter-sectoral linkages are modeled. While the new version of the models discussed above offer some improvements in these areas, further work remains warranted. The 2010 TSD also discusses the need to more carefully assess the implications of risk aversion for SCC estimation as well as the inability to perfectly substitute between climate and non-climate goods at higher temperature increases, both of which have implications for the discount rate used.”¹²

We note that these issues, among others, exist for all SCC estimates, and indicate neither specific overestimation nor specific underestimation in overall estimates when all of the variables and assumptions are considered. For example, estimates require development in valuing catastrophic endpoints, which might indicate underestimation, but estimates also require development in how they include adaptation, which might indicate overestimation.

Uncertainty is common in economic value estimates, and is tied to not only the certainty of the inputs and assumptions, but to the number of inputs dealt with. Understandably, models of climate change and their interrelationship with economic models and assumptions – with the sheer number of variables involved – carry greater uncertainty. We chose to use the federal SCC estimate because it attempts to broadly deal with some of these uncertainties, because it was developed by a wide range of federal experts, and because we wanted to use the estimate that uses the inputs most closely resembling those typically made in Ecology analyses in discounting social values.

¹¹ Interagency Working Group on Social Cost of Carbon, 2010. Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866. February 2010. United States Government.

<http://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf>

¹² Interagency Working Group on Social Cost of Carbon, 2013. Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866. May 2013. United States Government.

Global Emissions Context

Comments received on past rulemaking analyses involving the SCC expressed concern that global emissions contribution was not an appropriate measure of the benefits of a rule. We believe, however, that while it is not possible to specify the local benefits to climate change resulting from control of local emissions, it is appropriate to acknowledge that local emissions contribute to the global pool of GHGs that cause global impacts, including local impacts directly and indirectly through:

- International markets.
- Multinational businesses and supply chains.
- Trade.

These impacts affect local ecology, people, industry, agriculture, and infrastructure. Establishing a direct 100-percent relationship between local emissions and local impacts is inherently impossible. This is precisely why Ecology and other government agencies have chosen to represent the costs of GHG emissions and the benefits of reducing them on a global scale.¹³ This approach is consistent with our analytic practices and the requirements of the APA for cost and benefit analysis (RCW 34.05.328).

For typical costs and benefits, Ecology uses Washington State-only values, but GHG emissions are unique, and require a broader approach to valuation, especially as it applies to the co-externality impacts of carbon emissions. Ecology believes the use of a global SCC is the appropriate carbon cost to use in analyses, because of the unique nature of carbon and climate change. This has been reaffirmed at the federal level multiple times:

- The IWG addresses global SCC twofold in its interim 2021 Technical Support Document:¹⁴

“First, the IWG found previously and is restating here that a global perspective is essential for SC-GHG estimates because climate impacts occurring outside U.S. borders can directly and indirectly affect the welfare of U.S. citizens and residents. Thus, U.S. interests are affected by the climate impacts that occur outside U.S. borders. Examples of affected interests include: direct effects on U.S. citizens and assets located abroad, international trade, tourism, and spillover pathways such as economic and political destabilization and global migration.

¹³ For clarity and consistency, both global costs and benefits are included, where all costs are incurred locally or by entities that operate locally but are located in other states or countries. This means if costs estimated in Chapter 3 are incurred by a facility owned by a firm headquartered outside of Washington, those costs are included in the Cost-Benefit Analysis.

¹⁴ Interagency Working Group on Social Cost of Greenhouse Gases, 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. United States Government. https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

In addition, assessing the benefits of U.S.GHG mitigation activities requires consideration of how those actions may affect mitigation activities by other countries, as those international mitigation actions will provide a benefit to U.S. citizens and residents by mitigating climate impacts that affect U.S. citizens and residents.

Second, the IWG found previously and is restating here that the use of the social rate of return on capital to discount the future benefits of reducing GHG emissions inappropriately underestimates the impacts of climate change for the purposes of estimating the SC-GHG (see Section 3.1 [of the TSD]). Consistent with the findings of the National Academies (2017) and the economic literature, the IWG continues to conclude that the consumption rate of interest is the theoretically appropriate discount rate in an intergenerational context (IWG 2010, 2013, 2016). The IWG recommends that discount rate uncertainty and relevant aspects of intergenerational ethical considerations be accounted for in selecting future discount rates.”

- The IWG previously addressed global SCC (as well as OMB guidance), and stated in its 2015 revised Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis:¹⁵

“Under current OMB guidance contained in Circular A-4, analysis of economically significant proposed and final regulations from the domestic perspective is required, while analysis from the international perspective is optional. However, the climate change problem is highly unusual in at least two respects. First, it involves a global externality: emissions of most greenhouse gases contribute to damages around the world even when they are emitted in the United States. Consequently, to address the global nature of the problem, the SCC must incorporate the full (global) damages caused by GHG emissions. Second, climate change presents a problem that the United States alone cannot solve. Even if the United States were to reduce its greenhouse gas emissions to zero, that step would be far from enough to avoid substantial climate change. Other countries would also need to take action to reduce emissions if significant changes in the global climate are to be avoided. Emphasizing the need for a global solution to a global problem, the United States has been actively involved in seeking international agreements to reduce emissions and in encouraging other nations, including emerging major economies, to take significant steps to reduce emissions.

¹⁵ Interagency Working Group on Social Cost of Carbon, 2015. Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866. May 2013. United States Government. May 2013, revised July 2015.

When these considerations are taken as a whole, the interagency group concluded that a global measure of the benefits from reducing U.S. emissions is preferable.”

- The 2015 Technical Support Document refers back to the 2010 Technical Support Document – Social Cost of Carbon for Regulatory Impact Analysis for further discussion, including the topic of whether it is permissible under law:¹⁶

“As a matter of law, consideration of both global and domestic values is generally permissible; the relevant statutory provisions are usually ambiguous and allow selection of either measure.⁶ [Footnote 6: It is true that federal statutes are presumed not to have extraterritorial effect, in part to ensure that the laws of the United States respect the interests of foreign sovereigns. But use of a global measure for the SCC does not give extraterritorial effect to federal law and hence does not intrude on such interests.”

- The 2010 TSD addresses scaling of global benefits of reducing global GHG emissions, and states, “It is recognized that [scaling to domestic (US) SCC is] approximate, provisional, and highly speculative. There is no a priori reason why domestic benefits should be a constant fraction of net global damages over time.” The same is true for any output-based scaling to state, region, county, or other geographic level.
- The IWG responded to comments in support of global SCC:¹⁷

“A number of commenters supported the IWG's decision to base the SCC estimates on global damages. Commenters explained that climate change is a global commons problem because carbon pollution does not remain within one country's borders, and that the use of global damages in the SCC is consistent with the economic theory of the commons. One commenter further stated that if damage estimates are limited to only those within each country's borders, any actions based on those estimates would lead to a collective failure to optimally mitigate GHG emissions. Another commenter referred to the importance of this effect by stating that the consideration of global damages in domestic rulemaking can be based on an expectation of reciprocity from other countries. Several commenters stressed the importance of the use of global SCC estimates as a tool in international negotiations.

¹⁶ Interagency Working Group on Social Cost of Carbon, 2010. Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866. February 2010. United States Government.

¹⁷ Interagency Working Group on Social Cost of Carbon, 2015. Response to Comments: Social Cost of Carbon for Regulatory Impact Analysis. July 2015. United States Government.

Finally, some commenters offered other reasons for considering damages in regions outside of the United States, including liability, national security concerns, trade-related "spillover effects", and the principle in international environmental law of reducing cross-border harm."

Response

"The IWG agrees that a focus on global SCC estimates in RIAs is appropriate. As discussed in the 2010 TSD, the IWG determined that a global measure of SCC is appropriate in this context because emissions of most greenhouse gases contribute to damages around the world and the world's economies are now highly interconnected. To reflect the global nature of the problem, the SCC incorporates the full damages caused by CO2 emissions and we expect other governments to consider the global consequences of their greenhouse gas emissions when setting their own domestic policies.

The IWG also agrees that if all countries acted independently to set policies based only on the domestic costs and benefits of carbon emissions, it would lead to an economically inefficient level of emissions reductions which could be harmful to all countries, including the United States, because each country would be underestimating the full value of its own reductions. This is a classic public goods problem because each country's reductions benefit everyone else and no country can be excluded from enjoying the benefits of other countries' reductions, even if it provides no reductions itself. In this situation, the only way to achieve an economically efficient level of emissions reductions is for countries to cooperate in providing mutually beneficial reductions beyond the level that would be justified only by their own domestic benefits. By adopting a global estimate of the SCC, the U.S. government can signal its leadership in this effort. In reference to the public good nature of mitigation and its role in foreign relations, thirteen prominent academics noted that these "are compelling reasons to focus on a global SCC" in a recent article on the SCC (Pizer et al., 2014). In addition, as noted by commenters, there is no bright line between domestic and global damages. Adverse impacts on other countries can have spillover effects on the United States, particularly in the areas of national security, international trade, public health and humanitarian concerns."

- In its response to public comments, the IWG also responded to concerns regarding domestic damages:¹⁸

¹⁸ Interagency Working Group on Social Cost of Carbon, 2015. Response to Comments: Social Cost of Carbon for Regulatory Impact Analysis. July 2015. United States Government.

“A number of commenters suggested that the use of global damages creates a mismatch between estimates of costs and benefits in agency RIAs. Use of a global rather than domestic SCC may overstate the net benefits to the United States of reducing emissions, because global benefits are compared to domestic costs. A policy that appears cost-justified from a global perspective may not be from a purely domestic U.S. perspective. Therefore, these commenters suggest that a global SCC is only appropriate when the analysis considers global costs and benefits in the context of a global carbon mitigation program.

Other commenters indicated that the IWG should update and report domestic climate damages separately from global estimates for several reasons, including the public's right to know the domestic benefits of domestic regulatory actions. A few comments stated that the IWG should more clearly articulate that the SCC includes global damages, which they felt was particularly unclear in the 2013 TSD.

Finally, commenters also addressed the provisional range of domestic damages that was presented in the 2010 TSD. Several comments stated that the range discussed in the 2010 TSD for the domestic SCC was too high. Two commenters suggested a range for the domestic share of total global damages of 6 to 8.7 percent based on a paper by Nordhaus (2011). One commenter stated that the methods used to estimate the domestic damages as 7 to 23 percent of global damages is too speculative for quantification of the SCC.

Response

As stated in the prior section, GHG emissions in the United States will have impacts abroad, some of which may, in turn, affect the United States. For this reason, a purely domestic measure is likely to understate actual impacts to the United States. Also, as stated above, the IWG believes that accounting for global benefits can encourage reciprocal action by other nations, leading ultimately to international cooperation that increases both global and U.S. net benefits relative to what could be achieved if each nation considered only its own domestic costs and benefits when determining its climate policies.

Further, as explained in the 2010 TSD, from a technical perspective, the development of a domestic SCC was greatly complicated by the relatively few region-or country-specific estimates of the SCC in the literature, and impacts beyond our borders have spillover effects on the United States, particularly in the areas of national security, international trade, and public health. As a result, it was only possible to include an “approximate, provisional, and highly speculative” range of 7 to 23 percent for the share of domestic benefits in the 2010 TSD.

This range was based on two strands of evidence: direct domestic estimates resulting from the FUND model, and an alternative approach under which the fraction of GDP lost due to climate change is assumed to be similar across countries. We note that the estimated U.S. share of global damages based on the Nordhaus (2011) study cited by several commenters largely falls within the provisional range offered in the 2010 TSD.

In conclusion, the IWG believes that the only way to achieve an efficient allocation of resources for emissions reduction on a global basis is for all countries to base their policies on global estimates of damages and will therefore continue to recommend the use of global SCC estimates in regulatory impact analyses. The IWG will also continue to review developments in the literature, including more robust methodologies for estimating SCC values based on purely domestic damages, and explore ways to better inform the public of the full range of carbon impacts, both global and domestic.”

- On August 8th, 2016, the US Court of Appeals for the Seventh Circuit issued a ruling supporting not only the use of SCC, but the use of global SCC values:¹⁹

“AHRI and Zero Zone next contend that DOE arbitrarily considered the *global* benefits to the environment but only considered the *national* costs. They emphasize that the EPCA only concerns “national energy and water conservation.” 42 U.S.C. § 6295(o)(2)(B)(i)(VI). In the New Standards Rule, DOE did not let this submission go unanswered. It explained that climate change “involves a global externality,” meaning that carbon released in the United States affects the climate of the entire world. 79 Fed. Reg. at 17,779. According to DOE, national energy conservation has global effects, and, therefore, those global effects are an appropriate consideration when looking at a national policy. *Id.* Further, AHRI and Zero Zone point to no global costs that should have been considered alongside these benefits. Therefore, DOE acted reasonably when it compared global benefits to national costs.”

¹⁹ Zero Zone, Inc., et al. v. United States Department of Energy, et al., Nos. 14-2147, 14-2159, & 14-2334. Argued September 30, 2015 — Decided August 8, 2016.

- On July 15, 2020, the US District Court in the Northern District of California ruled to reinstate a 2016 US Bureau of Land Management Waste Prevention Rule that had been rolled back in 2018 based on an “interim domestic social cost of methane” that resulted in significantly lower estimates of benefits than had been found during the 2016 rulemaking. The Court found the 2018 rescission to be arbitrary and capricious, stating:²⁰

“The analysis ignores impacts on 8 million United States citizens living abroad, including thousands of United States military personnel; billions of dollars of physical assets owned by United States companies abroad; United States companies impacted by their trading partners and suppliers abroad; and global migration and geopolitical security.”

The discussion above concerning the application of the global SCC to valuation of domestic US GHG emissions reduction benefits applies equally to the application of the global SCC to the benefits of GHG emissions reductions in Washington. Washington’s economy is tied to the world economy through trade, international supply chains, and local employment by international firms.

- Washington exported an estimated \$69.9 billion in goods and \$28.8 billion in services in 2018.²¹
- International trade, including exports and imports, supported 940,800 Washington jobs in 2018.²²
- 140,600 people in Washington are directly employed by US affiliates of foreign multinational companies.²³

As with the US economy as a whole, Washington is impacted directly and indirectly by economic disruptions outside the state.^{24, 25} Therefore, we used the SCC in evaluating the benefits of the leakage avoided by this rule’s accommodation of EITE facilities.

²⁰ State of California and Sierra Club, et al. v. David Bernhardt, et al., Case No. 4:18-cv-05712-YGR, Consolidated case, Re: Dkt. Nos. 108, 109, 123, 125, 126, 127. US District Court, Northern District of California. Decided July 15, 2020.

²¹ Delaney, P, 2020. How Washington’s Economy Benefits from Trade and Investment. Business Roundtable. https://s3.amazonaws.com/brt.org/BRT_General_Trade_WA_2020.pdf

²² Ibid.

²³ US Bureau of Economic Analysis, 2020. Activities of U.S. Affiliates of Foreign Multinational Enterprises, 2018. <https://www.bea.gov/sites/default/files/2020-11/imne1120.pdf>

²⁴ For example, during 2014-2015 disruptions to west coast port services, Washington lost nearly \$770 million in economic activity, and over \$550 million in exports were not shipped, despite \$153 million shifting to air transportation. https://www.joc.com/port-news/longshoreman-labor/international-longshore-and-warehouse-union/us-west-coast-congestion-cost-washington-770-million-study-says_20160222.html

²⁵ During the significant worldwide disruption caused by the COVID-19 pandemic, Washingtonians encountered inconsistencies in product availability, and higher or uncertain prices due to worldwide disruptions to supply chains. <https://www.whitehouse.gov/cea/written-materials/2021/04/12/pandemic-prices-assessing-inflation-in-the-months-and-years-ahead/>

Social Cost of Carbon values

In 2021, the federal government issued new interim values for the SCC.²⁶ These included median values estimated using three discount rates, as well as a set of values reflecting highly damaging scenarios. They are listed in Table 3.

Table 3: Social Cost of Carbon

Year	Median SCC at 5% Discount Rate	Median SCC at 3% Discount Rate	Median SCC at 2.5% Discount Rate	95th Percentile SCC at 3% Discount Rate
2021	\$14.96	\$52.15	\$77.73	\$155.12
2022	\$15.45	\$53.22	\$79.03	\$158.63
2023	\$15.94	\$54.29	\$80.34	\$162.14
2024	\$16.43	\$55.36	\$81.65	\$165.65
2025	\$16.92	\$56.42	\$82.95	\$169.16
2026	\$17.41	\$57.49	\$84.26	\$172.67
2027	\$17.90	\$58.56	\$85.56	\$176.18
2028	\$18.39	\$59.63	\$86.87	\$179.69
2029	\$18.87	\$60.70	\$88.18	\$183.20
2030	\$19.36	\$61.76	\$89.48	\$186.71
2031	\$19.95	\$62.91	\$90.84	\$190.54
2032	\$20.53	\$64.05	\$92.21	\$194.36
2033	\$21.11	\$65.20	\$93.57	\$198.18
2034	\$21.70	\$66.34	\$94.93	\$202.01
2035	\$22.28	\$67.48	\$96.30	\$205.83
2036	\$22.86	\$68.63	\$97.66	\$209.65
2037	\$23.45	\$69.77	\$99.02	\$213.48
2038	\$24.03	\$70.92	\$100.39	\$217.30
2039	\$24.62	\$72.06	\$101.75	\$221.12
2040	\$25.20	\$73.20	\$103.11	\$224.95
2041	\$25.85	\$74.35	\$104.45	\$228.45

Values of Avoided Leakage

Using the SCC, we calculated the total social cost of emissions for a hypothetical facility successfully petitioning for EITE designation at either the Cap and Invest threshold emissions of 25,000 MTCO₂e, or the median emissions of existing EITE facilities of 73,866 MT CO₂e, in years 2027 (the earliest year for which a facility could be designated as EITE through the petition process) through 2041 (a 20-year timeframe from the present). Under the proposed rule, leakage would be avoided in any given year (depending on market conditions) and likely continue to be so in subsequent years. We also calculated the 20-year present value social cost of total emissions at the facility, with avoided leakage beginning in 2027.

²⁶ Interagency Working Group on Social Cost of Greenhouse Gases, 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. United States Government. https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

Table 4 lists the total SCC associated with the two levels of hypothetical facility emissions we considered, using SCC at a 2.5 percent discount rate. The 2.5 percent discount rate is the closest of the federally calculated rates to Ecology’s social rate of time preference – currently approximately one percent – based on the long-run average risk-free rate of return on US Treasury I bonds.²⁷

Table 4: Social cost of total facility GHG emissions (2.5% discount rate, single facility)

Year	Threshold EITE facility (25,000 MTCO _{2e})	Median EITE facility (73,866 MTCO _{2e})
2027	\$2,139,075	\$6,320,197
2028	\$2,171,725	\$6,416,666
2029	\$2,204,375	\$6,513,135
2030	\$2,237,025	\$6,609,604
2031	\$2,271,100	\$6,710,283
2032	\$2,305,175	\$6,810,962
2033	\$2,339,250	\$6,911,642
2034	\$2,373,350	\$7,012,395
2035	\$2,407,425	\$7,113,074
2036	\$2,441,500	\$7,213,754
2037	\$2,475,575	\$7,314,433
2038	\$2,509,675	\$7,415,186
2039	\$2,543,750	\$7,515,866
2040	\$2,577,825	\$7,616,545
2041	\$2,611,225	\$7,715,230
Present Value (2021 dollars)	\$31,233,431	\$92,283,544

Avoided Leakage to Offset Costs

To offset the \$673 present value costs per petitioning facility under the proposed rule (see Chapter 3), a newly approved EITE facility would need to avoid a fraction of a metric ton of emissions leakage in any given year (approximately 0.0001 to 0.0003 MTCO_{2e}, or up to about half a pound), or an ongoing 0.01 to 0.04 pounds CO_{2e} each year of 2027 through 2041.

Sensitivity Analysis

We repeated the above exercise using SCC values for:

- The lowest available median SCC, at the highest discount rate, 5 percent.
- The highest available SCC, at the 3 percent discount rate and in the 95th percentile (the highest five percent of estimated SCC values).

²⁷ US Treasury Department, 2021. Series I Savings Bonds Rates & Terms: Calculating Interest Rates. 1998 – November 2021. https://www.treasurydirect.gov/indiv/research/indepth/ibonds/res_ibonds_iratesandterms.htm

Using the above alternative assumptions, the amount of avoided leakage that would offset estimated costs of petitioning for EITE designation would be approximately:

- At the lowest SCC:
 - 0.0003 to 0.001 MTCO₂e or one to three pounds CO₂e in a given year.
 - An ongoing 0.06 to 0.19 pounds CO₂e each year of 2027 through 2041.
- At the highest SCC:
 - 0.00004 to 0.0001 MTCO₂e or 0.09 to 0.2 pounds CO₂e in a given year.
 - An ongoing 0.01 to 0.02 pounds CO₂e each year of 2027 through 2041.

The highest necessary avoided leakage of three pounds CO₂e in one year represents 0.000004 percent of emissions at a facility emitting 25,000 MTCO₂e. Avoided leakage is likely to be higher, as EITE facilities are inherently at risk of large percentages of their production being displaced to other jurisdictions. Even avoided leakage of one percent of emissions at a facility at the 25,000 MTCO₂e threshold would be 2,500 MTCO₂e (or over 5.5 million pounds CO₂e).

Chapter 5: Cost-Benefit Comparison and Conclusions

5.1 Summary of costs and benefits of the proposed rule

We estimate that the proposed rule amendments are likely to cost \$673 per facility petitioning to be designated EITE. This is the cost of additional effort to gather known facility and emissions data, and submit the petition. See Chapter 3 for discussion.

To offset this cost, we estimate that a single facility would need to avoid leakage of up to three pounds CO₂e of GHG emissions in one year, or avoid ongoing annual leakage of up to 0.19 pounds CO₂e each year through 2041. See Chapter 4 for discussion.

The highest necessary avoided leakage of three pounds CO₂e in one year represents 0.000004 percent of emissions at a facility emitting 25,000 MTCO₂e. Avoided leakage is likely to be higher, as EITE facilities are inherently at risk of large percentages of their production being displaced by production in other jurisdictions. Even avoided leakage of one percent of emissions at a facility at the 25,000 MTCO₂e threshold would be 2,500 MTCO₂e (or over 5.5 million pounds CO₂e).

5.2 Conclusion

We conclude, based on a reasonable understanding of the quantified and qualitative costs and benefits likely to arise from the proposed rule, as compared to the baseline, that the benefits of the proposed rule are greater than the costs. The costs associated with the rule are approximately \$673 per facility filing a petition. To offset that cost, a facility would need to avoid leakage of only a few pounds of GHG emissions. In fact, any avoided leakage would likely be thousands of metric tons per year, rather than just a few pounds. Also, the program is voluntary, and no facility is likely to spend the resources to file an EITE petition unless it is likely that Ecology would approve the petition.

Chapter 6: Least-Burdensome Alternative Analysis

6.1 Introduction

RCW 34.05.328(1)(c) requires Ecology to “...[d]etermine, after considering alternative versions of the rule and the analysis required under (b), (c), and (d) of this subsection, that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives stated under (a) of this subsection.” The referenced subsections are:

“(a) Clearly state in detail the general goals and specific objectives of the statute that the rule implements;

(b) Determine that the rule is needed to achieve the general goals and specific objectives stated under (a) of this subsection, and analyze alternatives to rule making and the consequences of not adopting the rule;

(c) Provide notification in the notice of proposed rulemaking under RCW 34.05.320 that a preliminary cost-benefit analysis is available. The preliminary cost-benefit analysis must fulfill the requirements of the cost-benefit analysis under (d) of this subsection. If the agency files a supplemental notice under RCW 34.05.340, the supplemental notice must include notification that a revised preliminary cost-benefit analysis is available. A final cost-benefit analysis must be available when the rule is adopted under RCW 34.05.360;

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

In other words, to adopt the rule, we are required to determine that the contents of the rule are the least burdensome set of requirements that achieve the goals and objectives of the authorizing statute(s).

We assessed alternative proposed rule content, and determined whether they met the goals and objectives of the authorizing statute(s). Of those that would meet the goals and objectives, we determined whether those chosen for inclusion in the proposed rule were the least burdensome to those required to comply with them.

6.2 Goals and objectives of the authorizing statute

The authorizing statute for this rule is Chapter 70A.65 RCW, Greenhouse Gas Emissions – Cap and Invest Program. Its goals and objectives include:

- Create climate policy that recognizes the special nature of emissions-intensive, trade-exposed industries by minimizing leakage.

- Encourage these industries to continue to innovate, find new ways to be more energy efficient, use lower carbon products, and be positioned to be global leaders in a low carbon economy.
- Promote a growing and sustainable economy and to avoid leakage of emissions from manufacturing to other jurisdictions.
- Contribute to a healthy environment for all of Washington's communities.

The authorizing statute also sets requirements and provides throughout for the possibility and desirability of linkage agreements with other jurisdictions with GHG allowance markets. RCW 70A.65.100(10) states:

“The department shall design allowance auctions so as to allow, to the maximum extent practicable, linking with external greenhouse gas emissions trading programs in other jurisdictions and to facilitate the transfer of allowances when the state's program has entered into a linkage agreement with other external greenhouse gas emissions trading programs. The department may conduct auctions jointly with linked jurisdictions.”

6.3 Alternatives considered and why they were excluded

We considered the following alternative rule content, and did not include it in the proposed rule for the reasons discussed in each subsection below.

- Petitions for proposed facilities: Include a pathway for a proposed facility to petition to be designated as EITE.
- Additional EITE industries: Include two additional NAICS codes to list as EITE. These two codes correspond to the only two manufacturing businesses that are current GHG reporters in Washington that do not already have their NAICS code on the list.
- Alternative EITE criteria: Different criteria for emissions intensity or trade exposure.

6.3.1 Petitions for proposed facilities

Ecology considered including a pathway for a proposed facility to petition to be designated as EITE, rather than requiring facilities to be operating before petitioning. This alternative would not have met goals and objectives of the statute related to avoiding leakage while supporting a growing and sustainable economy, as initial EITE designation would not have been based on actual emissions and production at the facility. This would not have ensured the facility was actually emissions-intensive and trade-exposed (potentially allocating unnecessary no cost allowances under the Cap and Invest Program), and would have necessitated that Ecology reevaluate EITE designation using the petition process anyway. This additional petitioning would have imposed additional burden on covered parties.

6.3.2 Additional Emissions Intensive and Trade Exposed industries

Ecology considered including two additional NAICS codes on the list of industries designated as EITE without petitioning. These codes correspond to the only two manufacturing businesses in Washington that are current GHG reporters but are not designated as EITE under the baseline of the statute. This alternative would not have met statutory goals and objectives related to avoiding leakage while supporting a growing and sustainable economy. Ecology decided to strictly follow legislative direction regarding industries designated as EITE without petitioning, as it is unknown whether the two additional facilities are emissions-intensive and trade-exposed without the additional information provided via the petition process. This alternative would have created the same concerns and potential re-evaluation burden discussed above in section 6.3.1.

6.3.3 Alternative Emissions Intensive and Trade Exposed criteria

When Ecology developed the criteria we must use to approve an EITE petition, alternative criteria were considered. These criteria included higher or lower threshold values for emissions intensity and/or trade exposure. These alternative criteria would not have met goals and objectives related to designing a program that allows for linkage with other jurisdictions to the maximum extent practicable, as the alternative criteria are less consistent with other jurisdictions, particularly California, while the criteria Ecology is proposing are consistent with California. Alternative EITE criteria could also indirectly imposed additional burden on companies with EITE facilities in multiple jurisdictions, if they faced different or variable criteria depending on the jurisdiction.

6.4 Conclusion

After considering alternatives to the proposed rule's contents, within the context of the goals and objectives of the authorizing statute, we determined that the proposed rule represents the least-burdensome alternative of possible rule contents meeting the goals and objectives.

Chapter 7: Regulatory Fairness Act Compliance

The proposed rule is exempt from the Regulatory Fairness Act under RCW 19.85.025(4), which states, “This chapter does not apply to the adoption of a rule if an agency is able to demonstrate that the proposed rule does not affect small businesses.” A small business is defined under RCW 19.85.020(3) as, “any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, and that has fifty or fewer employees.”

The proposed rule:

- Is a voluntary pathway to petition to reduce compliance costs under Chapter 70A.65 RCW: Businesses will only undertake the costs of the EITE petition process if they expect a net benefit in the form of EITE designation, which entitles them to no-cost allowances for some or all of their emissions, under the Cap and Invest Program.
- Is limited in likely impacted parties: The proposed rule applies to manufacturing facilities in Washington that are covered under the Cap and Invest Program (Chapter 70A.65 RCW). Such facilities are a subset of facilities required to report their GHG emissions under the GHG reporting rule (Chapter 173-441 WAC). We cannot predict what types of additional industries not listed as EITE under Chapter 70A.65 RCW and the proposed rule will begin operations in the state in the future, but based on the list of facilities reporting GHG emissions under Chapter 173-441 WAC:²⁸
 - All manufacturing facilities in Washington covered by the Cap and Invest Program are automatically designated as EITE under the list of industries in Chapter 70A.65 RCW and under the proposed rule.
 - There are two manufacturing facilities in industries that are not designated as EITE under Chapter 70A.65 RCW or the proposed rule. Based on their current reported emissions, however, they are not covered by the Cap and Invest Program. If their emissions increase over 25,000 MTCO₂e, then they would be covered and might choose to petition to be designated as EITE. These two manufacturing facilities are not small businesses, as their employment at the highest ownership and operations level are:
 - Imerys Minerals - 16,400 employees.²⁹
 - SGL Carbon - 4,800 employees.³⁰

We therefore do not expect the proposed rule to affect any small businesses currently operating in Washington. Based on our experience administering the GHG reporting rule, and the businesses covered by the Cap and Invest Program, if new manufacturing facilities locate in Washington, and petition for EITE designation under this rule, we expect they will be large businesses.

²⁸ WA Department of Ecology, 2021. GHG Reporting Program dataset. WA Department of Ecology Climate Policy Section. Updated February 1, 2021. <https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/data>

²⁹ <https://www.imerys.com/talent>

³⁰ <https://www.sglcarbon.com/en/company/about-us/company-profile/>

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Appendix A: Administrative Procedure Act (RCW 34.05.328) Determinations

- A. RCW 34.05.328(1)(a) – Clearly state in detail the general goals and specific objectives of the statute that this rule implements.**

See Chapter 6.

- B. RCW 34.05.328(1)(b) –**

- 1. Determine that the rule is needed to achieve the general goals and specific objectives of the statute.**

See chapters 1 and 2.

- 2. Analyze alternatives to rulemaking and the consequences of not adopting this rule.**

Laws of 2021, Chapter 316 (the Climate Commitment Act statute) directs Ecology to adopt by rule objective criteria for emissions' intensity and trade exposure for the purpose of identifying emissions-intensive, trade-exposed manufacturing businesses for the Climate Commitment Act cap and trade program. Ecology would be in violation of the Climate Commitment Act statute if we do not pursue rulemaking on this topic. Without this rulemaking, a manufacturing business that is not already designated as emissions-intensive and trade-exposed would not have a pathway for requesting emissions-intensive and trade exposed designation for the cap and trade program.

Please see the Least Burdensome Alternative Analysis, Chapter 6 of this document, for discussion of alternative rule content considered.

- C. RCW 34.05.328(1)(c) - A preliminary cost-benefit analysis was made available.**

When filing a rule proposal (CR-102) under RCW 34.05.320, Ecology provides notice that a preliminary cost-benefit analysis is available. At adoption (CR-103 filing) under RCW 34.05.360, Ecology provides notice of the availability of the final cost-benefit analysis.

- D. RCW 34.05.328(1)(d) – Determine that probable benefits of this rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.**

See Chapters 1 – 5.

- E. RCW 34.05.328 (1)(e) - Determine, after considering alternative versions of the analysis required under RCW 34.05.328 (b), (c) and (d) that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives stated in Chapter 6.**

Please see Chapter 6.

F. RCW 34.05.328(1)(f) - Determine that the rule does not require those to whom it applies to take an action that violates requirements of another federal or state law.

This rule does not require anyone to take an action.

G. RCW 34.05.328 (1)(g) - Determine that the rule does not impose more stringent performance requirements on private entities than on public entities unless required to do so by federal or state law.

No. This rule does not impose any performance requires.

H. RCW 34.05.328 (1)(h) Determine if the rule differs from any federal regulation or statute applicable to the same activity or subject matter.

No. There is no federal regulation or federal statute applicable to the same activity or subject matter. If **yes**, the difference is justified because of the following:

(i) A state statute explicitly allows Ecology to differ from federal standards.

(ii) Substantial evidence that the difference is necessary to achieve the general goals and specific objectives stated in Chapter 6.

I. RCW 34.05.328 (1)(i) – Coordinate the rule, to the maximum extent practicable, with other federal, state, and local laws applicable to the same subject matter.

We are coordinating to the maximum extent practicable with rulemaking on the GHG Reporting Program (WAC 173-441) and the Climate Commitment Act (WAC 173-446). There are overlaps in the stakeholders and ecology staff working on these rules, which facilitates coordination.