DEPARTMENT OF ECOLOGY
State of Washington

# Preliminary Regulatory Analyses

Including the:

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

*Chapter 173-444 WAC*

*Clean Energy Transformation Rule*

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*Chapter 173-444 WAC*

*Clean Energy Transformation Rule*

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# Acronyms

CBA - Cost Benefit Analysis

CETA - Washington Clean Energy Transformation Act

Commerce - Washington State Department of Commerce

DCFC - Direct-Current (DC) Fast Charging

EIA - Energy Information Administration

EVCS - Electric Vehicle Charging Station

EPA - Environmental Protection Agency

ETP - Energy Transformation Projects

GHG - Greenhouse gas

LBA - Least Burdensome Alternative Analysis

MWh - Megawatt hour

PUD - Public Utility District

PV - Present value

RTF - Regional Technical Forum

USD - US dollars

UTC - Washington Utilities and Transportation Commission

WPUDA - Washington Public Utility Districts Association

# Executive Summary

This report presents the determinations made by the Washington State Department of Ecology (Ecology) as required under Chapters 34.05 RCW and 19.85 RCW, for the proposed Clean Energy Transformation Rule (Chapter 173-444 WAC; the "rule"). This includes the:

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

Chapter 173-444 WAC – the Clean Energy Transformation Rule implements parts of the Washington Clean Energy Transformation Act (CETA, Chapter 19.405 RCW), which was passed into law in 2019.

Ecology has a limited role in implementing CETA because the statute assigns most of the tasks to the Washington State Department of Commerce (Commerce) and the Washington Utilities and Transportation Commission (UTC). Ecology's rulemaking is limited to:

- Establishing calculation methods to estimate the GHG emissions content in electricity.
- Put in place requirements for energy transformation projects (ETPs).

The proposed rule consists of two parts:

Part I

- Establishes calculation methods to estimate the GHG emissions content in electricity that an electric utility supplies to its retail electric customers in Washington.

Part II

- Establishes requirements for ETPs that electric utilities may use as an option to meet the GHG-neutral standard. These include the processes for:
    - Identifying the eligible project categories under CETA.
    - Developing and evaluating ETPs to include detailed criteria, standards, and methods.
    - Validating, verifying, monitoring, and reporting the GHG reduction and/or clean energy benefits of ETPs.

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."

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.

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.

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.

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.

**Costs**

There are two perspectives on the proposed rule. The first one is through the administrative costs that utilities potentially incur when they choose to implement ETPs. Those costs consist of expenditures on project plan preparation, validation, and verification. We estimated the administrative costs based on the submitted to Ecology grant application for a project with comparable administrative workload.

- The estimated costs of project plan preparation are about $114,723 and $2,294,468 in for 23 businesses in 2030.
- The validation costs for 23 utility companies the range is between $0 if no utility chooses this option and $178,632 if all of them choose it.
- The verification costs total 20-year present value verification cost of the rule is between $51,768 and $1,760,112 depending on the project's complexity and if 23 utilities implementing ETPs.

The other perspective, are the costs and that are brought by the opportunity to implement ETP, which would not be possible if this rule was not developed. In this case, there are many factors that affect utility's decision to invest in ETP. First and the most critical one is the cost of alternative compliance options. As the price and availability of unbundled RECs is unknown for 2030, we conclude that a utility would invest in ETP if a cost of a project would be less than $84 or $60 per MWh depending on the type of gas power plant.

**Benefits**

In Chapter 4, we identified the following potential benefits of the proposed rule.

Part I of the proposed rule would provide the tools for consistent information on the GHG emissions content of electricity consumed in Washington State, supporting Commerce and UTC's CETA implementation and improved information made available to Washington's electric customers. The more accurate data leads to more precise estimates and therefore improves the decision process on all levels – from agencies to utilities' management, to customers.

Part II of the proposed rule provides the mechanism to identify, develop, and evaluate certain energy-related projects that meet the criteria established by the proposed rule. The implementation of this proposed rule would create opportunities for electric utilities to invest in ETPs to help them comply with the GHG-neutral electricity standard required under CETA. The proposed rule also assures state energy agencies, interested stakeholders, and the general public that ETPs meet the requirements and standards of quality that CETA requires.

If compared to penalties only option, utilities chose ETP (even if combined with unbundled RECs and penalties), this creates group of benefits of reducing GHG and associated emissions. These benefits include climate change mitigation, improvement of air quality and ruction of associated health conditions that would not happen in the absence of this rule.

The proposed rule also potentially provides benefits for utilities beyond most cost-effective compliance option. Those benefits include opportunity to investment in future infrastructure to avoid fuel price shocks and regulatory uncertainty, marketing, and capturing demand for innovative service/product early.

From a more narrow perspective, the proposed rule establishes only the process and requirements for developing the comprehensive protocol; it does create a framework for Ecology. Ecology plans to develop the comprehensive protocol, as part of the implementation of this rule. The protocol would incorporate the criteria, standards, methodologies, and procedures for guiding the development and evaluation of ETPs. This provides the clarity for ETP investors, resulting in less time spent on the preparation of the project plan and proposal - the benefit of reduced administrative costs.

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.

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.

Based on our employment research, none of the twenty three electric utilities covered by the requirements of the proposed rule are small businesses as defined in the RFA. Consequently, Ecology is not required to prepare a Small Business Economic Impact Statement under the RFA.

# Chapter 1: Background and Introduction

## 1.1 Introduction

This report presents the determinations made by the Washington State Department of Ecology (Ecology) as required under Chapters 34.05 RCW and 19.85 RCW, for the proposed Clean Energy Transformation Rule (Chapter 173-444 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

Chapter 173-444 WAC – the Clean Energy Transformation Rule implements parts of the Washington Clean Energy Transformation Act (CETA, Chapter 19.405 RCW), which the Legislature passed into law in 2019.

The intent of CETA (the statute) is to address a primary cause of climate change by leading the transition to a clean energy economy. To achieve this transition, the statute aims to:

- Transform the energy supply in Washington.

- Modernize the electricity system in the state.
- Ensure the benefits of this transition are broadly shared throughout the state. (RCW 70.405.010).

To enhance the greenhouse gas (GHG) emissions reduction from the electricity sector, the statute establishes the following policy goals:

- Eliminate the use of coal-fired generating units as the source of electricity by the end of 2025.
- Transition the electricity supply to Washington State retail electric customers to "GHG-neutral" by 2030. The statute requires 80 percent of the electricity supplied by utilities to Washington retail electric customers to be from either nonemitting or renewable energy resources, and allows utilities to satisfy the remaining 20 percent of their obligation under the "GHG-neutral" standard using alternative compliance options, including energy transformation projects (ETPs) among other options.
- Transition the electricity supply to Washington State retail electric customers to 100 percent clean energy (nonemitting electric generation and electricity from renewable resources) by 2045.

Ecology has a limited role in implementing CETA because the statute assigns most of the tasks to Washington State Department of Commerce (Commerce) and Washington Utilities and Transportation Commission (UTC). Ecology's rulemaking is limited to:

- Establishing the calculation methods to estimate the GHG emissions content in electricity.
- Putting in place requirements for ETPs.

## 1.2 Summary of the proposed rule

The proposed rule consists of two parts:

Part I

- Establishes calculation methods to estimate the GHG emissions content in electricity that an electric utility supplies to its retail electric customers in Washington.

Part II

- Establishes requirements for ETPs that electric utilities may use as an option to meet the GHG-neutral standard. These include the processes for:
    - Identifying the eligible project categories under CETA.
    - Developing and evaluating ETPs to include detailed criteria, standards, and methods.
    - Validating, verifying, monitoring, and reporting the benefits of ETPs.

## 1.3 Reasons for the proposed rule

The CETA directs Ecology to adopt rules, in consultation with Commerce and UTC, by January 1, 2021, that:

- Establish a GHG emission calculation method for electricity.

Establish requirements for ETPs, other than electricity generation, that reduce GHG emissions and fossil fuel consumption. By 2030 is at least 80 percent of the electricity supplied by utilities to Washington retail electric customers to come from either nonemitting or renewable energy resources. The remaining 20 percent of their obligation for GHG-neutral electricity may consist of the following alternative compliance options:

a) Alternative compliance payment of 60 to 150 USD/MWh, based on the source and technology used to generate the electricity they supply. Though administrative penalties are:
    - Sixty USD/MWh for electricity from combined-cycle natural gas power plant,
    - Eighty four USD/MWh for electricity from natural gas fired peaking power plant, and
    - One hundred and fifty USD/MWh for electricity from coal-fired power plant.

    The penalty for electricity from coal-fired electricity may not be apply, as CETA requires coal-fired power plants to be eliminated from utilities' resource allocation by 2025.

b) Using renewable energy like wind or solar power in addition to what may be used for the primary (80 percent) standard, by using unbundled renewable energy credits (REC).

c) Investing in ETPs, as described further in this document.

d) Using electricity from energy recovery facility, if the facility provides a net reduction in GHG emissions compared to any other available waste management best practices.

CETA requires the electricity supply to Washington State retail electric customers be one hundred percent clean energy (nonemitting electric generation and electricity from renewable resources) by 2045.

The proposed rule would provide the mechanism for identifying, developing, and evaluating ETPs that are eligible for compliance with the GHG-neutral electricity standard under CETA. The implementation of this rule:

- Creates opportunities for electric utilities to invest in ETPs to help them comply with the GHG-neutral electricity standard required under CETA.
- Provides market incentives. As electric utilities invest in ETPs to benefit from their GHG emission reduction potentials, the ETPs become more economically attractive, increasing their chance of being implemented.
- Assures energy agencies implementing CETA, interested stakeholders, and the public that ETPs meet the requirements and standards of quality that CETA puts into place.

Additionally, the proposed rule provides consistency across electric utilities on how to calculate the GHG emissions in electricity they supply in Washington as they prepare and submit compliance documents for the Washington State Department of Commerce (Commerce) and the Washington Utilities and Transportation Commission (UTC).

## 1.4 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 covered entities would face if the proposed rule was not adopted. It 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, in the absence of the proposed rule. This is what allows us to make a consistent comparison between the state of the world with and without the proposed rule.

### 2.2.1. GHG emission calculation

CETA requires each:

- Consumer-owned utility to report its GHG content calculation to the Washington State Department of Commerce (Commerce), and each
- Investor-owned utility to report its GHG content calculation to the Washington Utilities and Transportation Commission (UTC).

Ecology's role is to establish the methods electric utilities use to calculate the GHG emissions content in electricity they supply to its retail electric customers in Washington State, in consultation with Commerce. Ecology has no direct role in the reporting of these emissions. Commerce and UTC establish and implement the reporting requirements.

CETA provides a GHG emission factor of 0.437 MT of $CO_2e$/MWh for unspecified electricity in the case Ecology does not establish a different emission factor. CETA allows Ecology to periodically update the GHG emission factor for unspecified electricity, in consultation with Commerce. This proposed rule uses the default value from the statute, and intends to update it in future rulemaking as needed.

### 2.2.2. Energy transformation projects

The statute establishes a policy goal to make the electricity supplied to Washington State retail electric customers "GHG-neutral" by 2030. To meet this standard, at least 80 percent of the electricity utilities supply in Washington must be "clean", i.e., from renewable or nonemitting resources. CETA allows electric utilities to satisfy the remaining up to 20 percent of their obligation under this standard by using alternative compliance options:

a) Paying an alternative compliance payment of $60 to $150 per MWh, based on the source and technology used to generate the electricity they supply. (RCW 19.405.090(1))[1]

b) Using renewable energy like wind or solar power in addition to what may be used for the primary (80 percent) standard, through the use of unbundled renewable energy credits (RECs).

c) Investing in ETPs, as described further in this document.

d) Using electricity from an energy recovery facility, if the facility provides a net reduction in GHG emissions compared to any other available waste management best practices.

However, the option (d) is not available yet, as Ecology and Commerce have not made the conclusion that the electricity from an energy recovery facility can be used as an alternative compliance mechanism to meet the GHG-neutral electricity standard.

All of the requirements for Ecology to establish the process and requirements for developing standards, methods, and procedures for evaluating ETPs are defined in RCW 19.405.020(18), RCW 19.405.040 and RCW 19.405.100(7) and (9).

**Scope**

According to the "Washington state electric utility fuel mix disclosure reports for calendar year 2018"[2] there are currently 68 electric utilities in Washington. There are 46 consumer-owned electric utilities (COU) governed by their individual governing boards or commissions, and three investor-owned utilities (IOU) regulated by the Washington State Utilities and Transportation Commission (UTC). There are also 12 private businesses and 7 nonprofit organizations.

The report shows that 69.5 percent of the electricity consumed in Washington came from renewable or nonemitting resources, while coal contributed 10.22 percent, natural gas 7.33 percent, and unspecified sources contributed 12.93 percent of the electricity consumed in Washington. As required in CETA, electricity from the coal-fired generating units is expected to be eliminated in Washington by the end of 2025.

## 2.3 Proposed rule

The proposed rule consists of two parts:

Part I

- Establishes calculation methods to estimate the GHG emissions content in electricity that an electric utility supplies to its retail electric customers in Washington.

[1] As the coal-fired power plant are expected to be eliminated by the end of 2025, the CETA provided emission factor for unspecified electricity is similar to the emission factor for an average single-cycle natural gas power plant, the most likely administrative penalty would be the $84/MWh that was set gas-fired peaking power plants.
[2]Washington state electric utility fuel mix disclosure reports for calendar year 2018.
https://www.commerce.wa.gov/wp-content/uploads/2020/04/Energy-Fuel-Mix-Disclosure-2018.pdf

Part II

- Establishes requirements for ETPs that electric utilities may use as an option to meet the GHG-neutral standard. These include the processes for:
    - Identifying the eligible project categories under CETA.
    - Developing and evaluating ETPs to include detailed criteria, standards, and methods.
    - Validating, verifying, monitoring, and reporting the benefits of ETPs.

### 2.3.1 Method for calculating GHG emissions from electricity

**Baseline**

CETA requires electric utilities to report their GHG emissions to UTC and Commerce. The agencies are currently developing new rules under CETA that will require utilities to report their GHG emissions.

Ecology is required to establish the calculation methods for GHG emissions in electricity supplied to retail electric customers in Washington State. If Ecology were not to establish the GHG emission calculation methods, utilities would likely use guidance provided by Commerce or UTC, likely consistent with current Fuel Mix Disclosure reporting.

The statute requires that Ecology "must adopt an emissions rate for unspecified electricity consistent with the emissions rate established for other markets in the western interconnection." If Ecology does not adopt a rate, the statute establishes a default GHG emissions rate for unspecified electricity of 0.437 MT of $CO_2e$/MWh.

**Proposed**

The proposed rule would establish the calculation methods for GHG emissions in electricity supplied to retail electric customers in Washington State and serve as a "technical manual" for how to calculate the GHG emissions associated with that electricity supply.

GHG emission calculation options are based on available information from existing federal reporting programs. Specifically, the calculation methods use information published by:

- EIA in EIA-Form 923[3] that include the amount of electricity, and the type and amount of fuel used to generate the electricity.
- EPA under its Greenhouse Gas Reporting Program.[4]
- EPA in 40 CFR Part 98, as adopted in WAC 173-441, for GHG emissions calculation formula.[5]

[3] https://www.eia.gov/survey/form/eia_923/instructions.pdf
[4] https://www.epa.gov/ghgreporting/ghgrp-methodology-and-verification
[5] https://www.ecfr.gov/cgi-bin/text-idx?SID=bcbd62aeb8bcac53ef5796da05d171a6&mc=true&node=se40.23.98_133&rgn=div8

As directed under RCW 19.405.020(22) and RCW 19.405.070, Ecology consulted with Commerce and UTC in establishing the calculation methods included in the proposed rule.

The proposed rule includes the default emissions rate for unspecified electricity provided in the statute.

The proposed rule does not require any individual or party to report GHG calculation results to Ecology. Reporting would be required through rules adopted by the UTC and/or Commerce, and be applicable to the extent the agency implements the rule.

#### Expected impact

This proposed rule establishes how to calculate GHG emissions content of electricity utilities supply to retail electric customers in Washington State, using the publicly available information from EIA Form-923 and EPA's Greenhouse Gas Reporting Program. Thus, this proposed rule does not impose any additional cost burden on electric utilities, as the calculation methods are using mainstream data sources published by federal agencies, and calculation methods established by EPA.

A benefit of the proposed rule is that it would provide the tools for consistent reporting of GHG emissions content in electricity consumed in Washington State. This supports Commerce's and the UTC's CETA requirements and improves information available to Washington's electric customers.

### 2.3.2 Energy transformation project requirements

#### Baseline

CETA provides electric utilities with three (and possibly four)[6] compliance options to meet the GHG-neutrality standard for the electricity they supply to Washington retail customers between 2030 and 2045. These options include:

- Buying unbundled renewable energy credits (RECs).
- Paying administrative penalties based on the type of fuel and technology used to generate the electricity they supplied that does not meet the clean electricity standard.
- Investing in ETPs.

Without this rule, utilities would have only the first two options to meet the GHG-neutrality electricity standards that we considered the baseline for the proposed rule on ETPs.

CETA sets the following requirements for Ecology:

- ETP-eligible projects categories must meet the requirements under RCW 19.405.020(18) and RCW 19.405.040.

[6] Using electricity from the Spokane Waste-to-Energy facility might be an option in the future contingent on an analysis by Ecology and Commerce in regards to the lifecycle greenhouse gas emissions from the facility. However, given the uncertainty of the outcome of that analysis this alternative compliance option is not considered here.

- The comprehensive protocol development is required to meet the criteria, standards, and requirements in RCW 19.405.020 (18), RCW 19.405.040, and RCW 19.405.100 (7).
- Processes and procedures for validation, verification, monitoring and reporting for ETPs must be established as directed under RCW 19.405.100(7).

The statute requires that ETPs must:

- Provide energy-related goods or services, other than the generation of electricity.
- Reduce fossil fuels and greenhouse gases.
- Provide benefits to electric utility customers.
- Be associated with the consumption of energy in Washington.
- Not create a new use of fossil fuels that results in a net increase of fossil fuel usage.
- Not be double counted toward the standard.

The statute lays out additional criteria for ETPs in RCW 19.405.040 (2), including that emission reductions must be:

- Real, specific, identifiable, and quantifiable.
- Permanent.
- Enforceable by the state of Washington.
- Verifiable.
- Not required by another statute, rule, or other legal requirement.
- Not reasonably assumed to occur absent investment, or if an investment has already been made, not reasonably assumed to occur absent additional funding in the near future.

**Proposed**

The proposed rule establishes the:

- Process for Ecology to determine the project categories that are ETP-eligible for compliance with the CETA obligation for the GHG-neutral standard.
- Process and requirements for Ecology to develop the comprehensive protocol that will incorporate the criteria, standards, methodologies, and procedures for guiding the development and evaluation of ETPs.
- Processes and procedures for validation, verification, monitoring, and reporting for ETPs for electric utilities.

**Expected impact**

The option of investing in ETPs applies to all electric utilities during the "GHG-neutral" standard period of CETA between 2030 and 2044. Part II of the proposed rule creates a potentially cost-effective compliance option compared to buying unbundled RECs or paying an administrative penalty. It is difficult to analyze the cost-effectiveness of ETPs at this point, as it would depend

on the types of projects and stringency of the detail requirements that Ecology will establish in the comprehensive protocol. The price of unbundled RECs is also expected to vary over time.

One of the criteria for eligible project categories is a requirement to provide additional GHG reductions and clean energy benefits to a level beyond what is required in existing regulations, or beyond business as usual scenario, i.e., what is not usually feasible. This creates a group of benefits associated with the reduction of GHG and other pollutants that would not happen without this proposed rule.

Besides from the least costly compliance option other group of potential benefits obtained by utilities is: investment in future infrastructure to avoid future fuel price shocks and regulatory uncertainty, marketing promotion as innovative and/or "green" business, capturing customers demand early with innovative services and products.

The proposed rule establishes the process and requirements for developing the comprehensive protocol. Ecology plans to develop the comprehensive protocol, as part of implementing the proposed rule. The protocol would include the criteria, standards, methods, and procedures for guiding the development and evaluation of ETPs. On one hand, this provides the clarity for electric utilities that invest in ETPs, resulting in less time spent on the preparation of the project plan and proposal - the benefit of reduced administrative costs. On the other, the stringency of the protocol (and therefore, the project plan) requirements directly affects the eligibility of projects or the costs of project documentation.

The other costs potentially caused by the requirements of the proposed rule are costs of project validation and verification. Utilities have two options for project plan validation:

- Review of the documentation by Ecology.
- Third-party validation.

Ecology's validation process would be free for utilities who choose that option. If a utility chooses to use third-party validation instead of Ecology validation, the utility may incur additional cost.

# 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 consists of two parts:

Part I

- Establishes calculation methods to estimate the GHG emissions content in electricity that an electric utility supplies to its retail electric customers in Washington.

Part II

- Establishes requirements for ETPs that electric utilities may use as an option to meet the GHG-neutral standard. These include the processes for:
    - Identifying the eligible project categories under CETA.
    - Developing and evaluating ETPs to include detailed criteria, standards, and methods.
    - Validating, verifying, monitoring, and reporting the benefits of ETPs.

### 3.2.1 Method for calculating GHG emissions from electricity

We do not expect this part of the proposed rule to result in costs compared to the baseline. See Chapter 2 for discussion.

### 3.2.2 Energy transformation project requirements

#### *3.2.2.1 Decision for ETP implementation*

##### Uncertainty

Although the proposed rule establishes many criteria as defined in statute, there are uncertainties that affect possible behavior of the utilities, and the precision of our analysis. Significant sources of uncertainty include:

- Time horizons for implementing ETPs.
- Climate change impacts on power production.
- Unbundled REC prices.

CETA establishes 2030 – 2045 as the time horizon for implementing ETPs. Estimating the cost effectiveness of technologies, many of which may only be emerging at this point, is difficult to do with sufficient certainty over time. Moreover, the compliance choices utilities make will be

affected by available technologies, and external impacts on power production and compliance options, and the long-term availability of unbundled RECs in the market.

Climate change will have direct impacts on power production. A significant portion of Washington's current renewable energy supply relies on the hydroelectric system. Under low water and extreme weather conditions, the state will need additional capacity to maintain at least the current level of available energy.

There are several factors affecting electric utilities decision to implement ETP. First of all, to consider ETP option at least 80 percent of the electricity utilities supply in Washington must be "clean", which also means that they have up to 20 percent of fossil fuels in their fuel mix. Considering this, we can find the number of potentially interested parties. There are 68 utilities, six of which currently have fossil fuels in their fuel mix.

## Compliance criteria

A utility would be subject to the requirements of Part II of the proposed rule only if it chose to use ETPs as a compliance mechanism (rather than unbundled RECs or an administrative penalty). Utilities that include fossil fuels as "planned"[7] specified source in their fuel mix would need to consider one of the alternative compliance mechanisms, if they cannot meet the GHG-neutral standard during 2030 - 2044.

According to "Washington state electric utility fuel mix disclosure reports for calendar year 2018"[8] there are seven electric utilities currently using coal and/or natural gas. These utilities are likely to need the alternative compliance mechanisms, and may choose to use ETPs to comply.

The other utilities currently purchase energy from the Bonneville Power Administration (BPA) and have share of natural gas of 0.01 percent claimed by BPA in 2018. For 2019, BPA's fuel mix shows zero percent of natural gas in their fuel mix.[9] Therefore, if the fuel mix reports of electric utilities were available for 2019 we would state that there are no fossil fuels used in the produced electricity.

Another category of utilities that may be interested in implementing the alternative compliance option(s) is utilities that have unspecified electricity[10] in their reported fuel mix, as such electricity may include output from emitting sources. Some of the utilities inherit share of unspecified energy with electricity bought from BPA. One of the strategic goals for BPA is to provide carbon-free energy to its customers.[11] Besides that reporting agencies in Washington assign their generic fuel mix to the BPA purchase amount based on their determination of the

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[7]

[8] Washington state electric utility fuel mix disclosure reports for calendar year 2018. https://www.commerce.wa.gov/wp-content/uploads/2020/04/Energy-Fuel-Mix-Disclosure-2018.pdf

[9] BPA Fuel Mix Percent Summary Calendar Years 2016-2019. https://www.bpa.gov/p/Generation/Fuel-Mix/FuelMix/BPA-Official-Fuel-Mix-2019.pdf

[10] "Unspecified electricity" means an electricity source for which the fuel attribute is unknown or has been separated from the energy delivered to retail electric customers.

[11] https://www.bpa.gov/news/pubs/FactSheets/fs-201901-The-carbon-free-footprint-of-BPA-hydropower-supply.PDF

Northwest power pool region resources,[12] so in 2030 this share should be close to zero, because of the regulatory requirement of eliminate coal-fueled electricity sources and "GHG-neutrality" standard. Therefore, we are excluding utilities with unspecified electricity received through the purchases from BPA from this analysis.

For this analysis, we identify 23 utilities that may want to use ETPs as potential compliance options – those that have fossil fuels or unspecified electricity in their planned fuel mix. If a utility were interested in voluntarily implementing ETPs, even if they would not be required to do so under CETA, they would not necessarily satisfy the criteria of additionality. Recall that additionality means the ETP is both:

- Not required by another statute, rule, or other legal requirement.
- Not reasonably assumed to occur absent investment, or if an investment has already been made, not reasonably assumed to occur absent additional funding in the near future.

### Project costs criteria

From the economics perspective, ETP option is only viable for the utilities if this option less costly than buying unbundled RECs and/or paying penalties.

Compliance using unbundled RECs generated by renewable energy (e.g., wind, solar) in addition to what may be used for the primary (80 percent) standard will be impacted by long-term changes in the REC market. Current unbundled REC prices are approximately $3 - $5 per REC, based on EIA utility reports for 2019.[13] Prices may differ by 2030 and through 2044, due to:

- More stringent renewable energy requirements regionally or nation-wide.
- Weather conditions.
- Retirement of coal-based generation.
- The rate at which projects generating new RECs are developed.

The only certain cost of a compliance option is the payment of $60 to $150 per MWh. The payment is based on the method used to generate the electricity they supply:

- $150 per MWh for coal-fired generation.
- $84 for gas-fired peaking power plants.[14]
- $60 for gas-fired combined-cycle power plants.

Since CETA requires the elimination of coal from Washington's electricity fuel mix by 2025,[15] the $150 penalty would unlikely occur, so the most likely maximum penalty would be $84 per

[12] https://www.bpa.gov/p/Generation/Fuel-Mix/FuelMix/BPA-Official-Fuel-Mix-2019.pdf
[13] https://www.commerce.wa.gov/growing-the-economy/energy/energy-independence-act/eia-reporting/
[14] Utilities use such power plants to supply power for relatively short periods of time for maintaining reliability of electricity supply in a specific location. Peak load power plants are dispatched in combination with base load power plants, which supply a dependable and consistent amount of electricity, to meet the minimum demand.
[15] CETA requires Washington's electric utilities to phase out greenhouse-gas emitting generation. The legislation mandates that all coal-fired resources must be eliminated from the portfolio of generation resources used to serve Washington consumers by December 31, 2025.

MWh. As the price and availability of unbundled RECs is unknown for 2030, we conclude that a utility would invest in ETP if a cost of a project would be less than $84 or $60 per MWh depending on the type of gas power plant.

### Other factors influencing the decision

In reality, it is most likely that a utility would chose a combination of two or three options to comply with "GHG-neutral" standard. Several factors apart from comparative costs of ETPs option influence utility's decision to implement ETP. In this case, ETP may cost more than RECs or even penalties, because those projects would bring benefits that would not otherwise occur. Please see Chapter 4 for expected benefits.

#### *3.2.2.2 Establishing eligible project categories*

The proposed rule establishes the process for identifying eligible project categories that electric utilities can invest in, as a compliance option for meeting the statutory requirement for the GHG-neutral standard. The criteria for identifying the project types are established in the statute.

The statute requires that ETPs must:

- Provide energy-related goods or services, other than the generation of electricity.
- Reduce fossil fuels and greenhouse gases.
- Provide benefits to electric utility customers.
- Be associated with the consumption of energy in Washington.
- Not create a new use of fossil fuels that results in a net increase of fossil fuel usage.
- Not be double counted toward the standard.

The statute lays out additional criteria for ETPs in RCW 19.405.040 (2), including that emission reductions must be:

- Real, specific, identifiable, and quantifiable.
- Permanent.
- Enforceable by the state of Washington.
- Verifiable.
- Not required by another statute, rule, or other legal requirement.
- Not reasonably assumed to occur absent investment, or if an investment has already been made, not reasonably assumed to occur absent additional funding in the near future.

Eligible projects are required to provide additional GHG reduction and energy benefits beyond what is required in existing regulations, or beyond a business as usual scenario (i.e. what is not usually feasible). The significance of identifying eligible project categories is that it determines the scope of the comprehensive protocol development. The comprehensive protocol will establish the methods, standards, and procedures utilities can use to develop and evaluate projects in these eligible project categories.

The proposed rule establishes a public process to gather information for determining eligible project categories. This determination of eligible project categories may not have direct impact on the cost of the eligible project types. However, we do expect the list of eligible categories to influence the number of projects available for electric utilities to invest in.

The only project categories explicitly mentioned in the proposed rule are electric vehicle charging infrastructure and at least one project category pertaining to either the use or supply of renewable hydrogen.

#### *3.2.2.3 Developing comprehensive protocols*

The proposed rule also establishes the means for developing comprehensive protocols for methods, standards, and procedures to guide the development and evaluation of eligible projects. The protocols will provide the mechanisms for quantifying GHG emissions reductions and clean energy benefits of eligible projects. We will develop the protocols as part of implementing the proposed rule. Absent specific protocols during rulemaking, we could not comprehensively identify and quantify impacts of projects utilities might develop to comply with the statutory GHG standards.

The stringency of these criteria in the protocol would influence the types of eligible projects that electric utilities can invest in. If the protocols set highly stringent requirements, it could limit GHG emissions reductions and clean energy benefits available from projects chosen to comply with the GHG-neutral electricity standard. As a result, utilities would likely choose other compliance options such as the administrative penalty.

Because Ecology will develop the criteria during rule implementation, it is not possible at this time to identify how stringent the criteria will ultimately be.

### 3.2.3 Hypothetical Example: Administrative costs

Given the degree of uncertainty about the ultimate implementation of the rule, we cannot quantify or necessarily qualitatively describe a specific project a utility would use as a compliance option under the proposed rule. However, for illustrative purposes we are including an example of the administrative costs of an existing project that could potentially qualify as an ETP, if it meets the additionality criteria and other requirements of CETA for ETPs.

We chose one of the applications from PUD for a grant program managed by Ecology as an example for this analysis. The project is devoted to developing charging infrastructure for electric vehicles.[16] Although the provided example potentially fits into the list of ETP categories, it is necessary to mention that the project would not be validated as eligible because it relies on grant money, and therefore, does not meet the requirement of additionality. We use this example to illustrate the potential administrative costs in case an electric utility wants to implement ETP

[16] Please read more about the grant program: https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Volkswagen-enforcement-action-grants

(presumably with their own money or through other means that would ensure the project is "additional").

#### *3.2.3.1 Cost of project plan preparation*

The proposed rule requires utilities to prepare and submit to Ecology a project plan describing:

- How the project should work.
- How the project conforms to the criteria and requirements in the comprehensive protocol.

The proposed protocol includes the following parts, which will determine the cost of preparing the project plan:

- Applicability
- Assessment boundaries
- Temporal scope
- Quantification methods
- Baseline procedures
- Fossil fuel effects
- Additionality tests
- Enforcement regimes
- Monitoring procedures
- Reporting strategies
- Verification procedures

Although it is hard to predict the cost of preparing such documentation because we do not have critical information that would make it possible to assess the complexity of the project - a list of project categories and comprehensive protocol, we based our estimates on comparable applications previously received by Ecology.

For such a project that has average complexity, we assumed it would take 50 to 100 hours of work by environmental engineer and a project manager. The cost of a project plan preparation in 2030 would be between about $4,525 and $9,049 adjusted to the current annual inflation rate of 0.98%. A more complex project could take up to 1000 hours in project plan preparation – 250 hours from a project manager and three environmental engineers and cost up to $90,490. The total costs in PV for seven business are between $34,916 and $698,316, for 23 businesses – between $114,723 and $2,294,468, in both groups the range reflects complexity of plans and projects.

Table 1. Cost of project plan development

| Number of utilities that may invest in ETP | Cost per unit | Total cost impact in PV | Project complexity | Plan complexity |
|---|---|---|---|---|
| **7** | $4,525 | $34,916 | Low | Low |
| **7** | $9,049 | $69,832 | Low | High |
| **7** | $45,245 | $349,158 | High | Low |
| **7** | $90,490 | $698,316 | High | High |
| **23** | $4,525 | $114,723 | Low | Low |
| **23** | $9,049 | $229,447 | Low | High |
| **23** | $45,245 | $1,147,234 | High | Low |
| **23** | $90,490 | $2,294,468 | High | High |

## Cost of validation

The proposed rule establishes the validation and verification requirements to confirm whether the projected benefits are accurate, which may affect the cost of the project. The proposed rule provides utilities (investor-owned and consumer owned) two options for validating an ETP plan:

- Review of the documentation by Ecology.
- Third-party validation.

If a utility chooses Ecology to validate the ETP plan there would be no additional cost . If a utility chooses a third party, they will incur a cost.

Third-party validation costs could make a project less attractive, especially if the project validation costs are significant. Utilities would likely choose the less costly option. Considering only monetary costs, the least-cost option would be Ecology validation with zero cost, but time is also a cost for consideration. It is quite likely third-party validation will be in demand when Ecology's work to meet statutory deadlines and develop cheap and effective technologies, that may meet the criteria for eligible ETPs is at its peak. This could strain Ecology's resources and lead to critical delays.

Ecology staff previously involved in project validation processes provided an estimate between 16 workhours for straightforward applications and more than 100 workhours for a complex project that would include public notice, public comments, and response to comments.

The mean hourly wages in Washington state in Management, Scientific, and Technical Consulting Services is $45.16, with 30 percent overheads and 20 percent profit margin (averages between 15 percent and 25 percent) for a consulting company. The total cost of validation in 2020 through a third party is estimated to be between $1,127 for a simple project and $7,045 for a complex one. For seven utility companies the range is between $0 if no utility chooses this option and $54,366 if all of them choose it, for 23 – between $0 and $178,632.

Table 2. Cost of validation

| Number of companies, which choose validation third-party validation | Project complexity | Cost per validation in PV | Total cost per validation in PV |
|---|---|---|---|
| 0 | Low, High | 0 | $- |
| 7 | Low | $1,243 | $8,699 |
| 7 | High | $7,767 | $54,366 |
| 23 | Low | $1,243 | $28,581 |
| 23 | High | $7,767 | $178,632 |

**Cost of verification**

If a utility decides to invest in ETPs to comply with the GHG-neutral standard under CETA they would have to go through the process of verification, monitoring, and reporting.

The proposed rule requires third-party verification to confirm the benefits after the utility implements the project. The exact requirements of the performance verification may vary among project types, and will be detailed in the comprehensive protocol. The proposed rule specifies some requirements but it is not sufficient to determine the exact cost of the verification for this analysis.

For this analysis, we use the method run for economic analysis by Ecology for Chapter 173-441 WAC Reporting of Emissions of Greenhouse Gases.[17] That analysis involves documentation of:

- Reporting party information.
- Verifier information.
- Compliance with the rule requirements limiting extended use of verifier, and prohibiting verifier conflict of interest.
- Verification plan including data and methodologies.
- Corrections to the compliance report.
- Supporting information of findings.
- Certification of accuracy, completeness, and truth.
- On-site visit.

Ecology converted typical costs to 2020 dollars using an inflation index. The survey analysis also confirmed approximate costs of verification we previously assumed. We estimated a verification to cost approximately $582 for a simple project and $19,788 for a complex one. Ecology estimated the present value of verification costs using a 0.98 percent discount rate for the 2030 - 2044 estimate. We estimated a total 14-year verification cost is between

[17] Chapter 173-441 WAC. Reporting of Emissions of Greenhouse Gases. Ecology. 2016. https://fortress.wa.gov/ecy/publications/documents/1602015.pdf

$15,755 and $1,760,112 depending on the project's complexity, frequency of verification and number of utilities implementing ETPs.

Table 3. Cost of verification

| Quantity of companies implementing ETP | Cost per verification | Total cost impact in PV in 2030 – 2044 | Cost per verification per company in PV in 2030 - 2040 | Project complexity | Verification complexity | Frequency |
|---|---|---|---|---|---|---|
| 7 | $582 | $15,755 | $2,251 | Low | Low | Every 5 years |
| 7 | $19,788 | $138,516 | $19,788 | Low | High | One time |
| 7 | $582 | $93,045 | $13,292 | High | Low | Every year |
| 7 | $19,788 | $535,686 | $76,527 | High | High | Every 5 years |
| 23 | $582 | $51,768 | $2,251 | Low | Low | Every 5 years |
| 23 | $19,788 | $455,124 | $19,788 | Low | High | One time |
| 23 | $582 | $305,719 | $13,292 | High | Low | Every year |
| 23 | $19,788 | $1,760,112 | $76,527 | High | High | Every 5 years |

## 3.3 Cost summary and comments

There are two perspectives on the proposed rule. The first one is through the administrative costs that are potentially incur for utilities that choose to implement ETPs. Those costs consist of expenditures on project plan preparation, validation, and verification.

- The estimated costs of project plan preparation for seven business are between $34,916 and $698,316, for 23 businesses – between $114,723 and $2,294,468, in both groups the range reflects complexity of plans and projects.
- The validation costs for seven utility companies range is between $0 if no utility chooses this option and $54,366 if all of them choose it, for 23 – between $0 and $178,632 accordingly.
- We estimated a total 14-year verification cost is between $15,755 and $1,760,112 depending on the project's complexity, frequency of verification, and number of utilities implementing ETPs.

The other perspective, are the costs and that are brought by the opportunity to implement ETP, which would not be possible if this rule was not developed. In this case, there are many factors that affect utility's decision to invest in ETP. First and the most critical one is the cost of alternative compliance options – the project will be feasible if the cost per MWh is lower than at least the price of penalties - $84 or $60 per MWh depending on the type of gas power plant.

The project could cost more in some cases, for example if there were a shortage in availability of unbundled RECs on the market, or a company decides to invest in future infrastructure to avoid fuel price shocks and regulatory uncertainty, or for marketing purposes.

Overall, the purpose of ETP compliance option is to create such mechanism that would be both cost-savings, provide benefits of GHG reduction, and technological modernization. The degree to which this could be a cost-savings depends on future development of technological improvements or emerging technologies, REC market adjustments, and exogenous factors such as climate change and fuel market shocks or structural change.

# 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 consists of two parts:

Part I

- Establishes calculation methods to estimate the GHG emissions content in electricity that an electric utility supplies to its retail electric customers in Washington.

Part II

- Establishes requirements for ETPs that electric utilities may use as an option to meet the GHG-neutral standard. These include the processes for:
    - Identifying the eligible project categories under CETA.
    - Developing and evaluating ETPs to include detailed criteria, standards, and methods.
    - Validating, verifying, monitoring, and reporting the benefits of ETPs.

### 4.2.1 Method for calculating GHG emissions from electricity

Part I of the proposed rule describes a calculation method with multiple options based on existing reporting programs:

- EIA-Form 923 that include the amount of electricity and the type and amount of fuel used to generate the electricity.
- EPA Greenhouse Gas Reporting Program.
- GHG emissions calculation formula established in the EPA rule, 40 CFR Part 98 as adopted by WAC 173-441.

Multiple calculation options can simplify the reporting process for utilities and minimize their workload associated with reporting to Commerce or UTC. In particular, it provides electric utilities with the:

- Ability to use alternate data sources approved by Commerce or UTC.
- Ability to aggregate reporting units by type or originating utility.

Ecology has adopted the default emissions factor for unspecified electricity established by the CETA. This unspecified electricity factor can be updated in the future as needed.

The benefit of this element of the proposed rule is that it would provide the tools for consistent information on the GHG emissions content of electricity consumed in Washington State, supporting Commerce and UTC's CETA implementation and improved information made available to Washington's electric customers. The more accurate data leads to more precise estimates and therefore improves the decision process on all levels – from agencies to utilities' management, to customers.

### 4.2.2 Establishes requirements for Energy Transformation Projects as an option for compliance with CETA obligation for the GHG-neutral standard.

#### Benefit of providing option for compliance with CETA obligation for the GHG-neutral standard.

The proposed rule provides the mechanism to identify, develop, and evaluate certain energy-related projects that meet the criteria established by the proposed rule. The implementation of this proposed rule would create opportunities for electric utilities to invest in ETPs to help them comply with the GHG-neutral electricity standard required under CETA. Although these investments by electric utilities would provide market incentives to the projects (based on the GHG emissions reduction potentials) that improve the economic attractiveness of the ETPs, and thus increase their chance of being implemented. Moreover, the implementation of this proposed rule assures state energy agencies, interested stakeholders, and the general public that ETPs meet the requirements and standards of quality that CETA requires.

#### Benefit of reducing GHGs.

One of the ETP criteria established by the statute is – the project should reduce fossil fuels and greenhouse gases. Although these kind of projects would happen as long as it is financially valuable for them to do so, the proposed rule creates a credible option for utilities to reduce their GHG emissions through ETPs, especially in comparison with penalties option. The option also comes with the requirement of lowest cost increase on electric consumers, and without increasing other environmental impacts, especially on vulnerable communities.

As utilities reduce their GHG emissions, society will benefit by avoiding various impacts of climate change. The value of the negative impacts to society caused by GHG emissions is estimated using social cost of carbon (SCC). There are many estimate of SCC based on different assumptions and that grow over time at a different rate. The choice of SCC estimates is based on what is included in the scope of costs, how the future is discounted, and how the costs are distributed.

Because of the degree of uncertainty for the covered parties (see discussion in Chapter 3) it is impossible to give an estimate to the potentially avoided SCC for the total amount of reduced GHG. The cost per metric ton $CO_2$ is based on EPA's "2.5% Average" estimates[18] and adjusted to PV.

[18] https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html

Table 4. SCC estimates for 2030 - 2044

| Year | Adjusted PV of Social Cost of Carbon Dioxide (in dollars per metric ton) |
|---|---|
| 2030 | $91 |
| 2031 | $94 |
| 2032 | $96 |
| 2033 | $98 |
| 2034 | $100 |
| 2035 | $102 |
| 2036 | $105 |
| 2037 | $109 |
| 2038 | $111 |
| 2039 | $113 |
| 2040 | $116 |
| 2041 | $118 |
| 2042 | $121 |
| 2043 | $124 |
| 2044 | $126 |

### **Benefits of avoided costs of associated emissions**.

Depending on what kind of projects will be included into the list of ETP-eligible categories, there may be associated reductions in other emissions, such as criteria pollutants and toxic air pollutants.

Other associated emissions that might also be reduced include nitrogen oxides, sulfur oxides, fine particulates, and various toxic air pollutants. Avoiding and reducing these emissions may improve air quality and reduce associated health conditions, such as asthma and other lung disorders, and contributors to certain cancers.

Estimation of actual avoided costs of associated emissions would require knowledge of (or confident estimates) of the methods and locations of GHG emissions reduction activities. Some illustrative estimates of health benefits from Clean Air Act programs that reduce levels of fine particles and ozone can be found at EPA[19] and more specific indicators from scenarios of implementing electrical vehicle charging stations - at the Federal Highway Administration.[20]

Generally, EPA's peer reviewed study[21] found that the value of Clean Air Act health benefits far exceeds the costs of reducing pollution. The study's central benefits estimate of $2 trillion in

[19] https://www.epa.gov/clean-air-act-overview/progress-cleaning-air-and-improving-peoples-health
[20] https://www.fhwa.dot.gov/ENVIRonment/air_quality/cmaq/reference/cost_effectiveness_tables/report/costeff02.cfm#toc430165699
[21] https://www.epa.gov/sites/production/files/2015-07/documents/summaryreport.pdf

2020 exceeds costs by a factor of more than 30-to-1, and the high benefits estimate exceeds costs by 90 times. Even the low benefits estimate exceeds costs by about 3-to-1.

**Benefits for utilities beyond cost of compliance option**.

There are certain reasons, which would influence utilities decision to implement ETP even if the cost per MWh is higher than the cost of penalties. Those reasons will vary depending on the project's category and we are providing a few of them to illustrate possible benefits for utilities beyond cost efficiency in comparison to other two options.

One of the energy market specifics is the volatility of fuel prices. The prices in this market fluctuate because of many factors: weather, production and imports, delivery constrains, etc. Another specific of the market is its regulatory uncertainty, which influence both – supply and demand of electricity, and prices. Both of those factors directly demand utilities' risk management activities. In case a utility plans ETP project that can also contribute mitigation of fuel price shock or regulatory uncertainty, it is likely to invest even if the cost is higher than paying penalties.

For public-facing projects, it may be important part of the marketing plan – by acquiring new technologies and building innovative value. For example, if a new innovative service is introduced to an existing customer, it will do both: sell the new service and demonstrate its innovative value. This would not only increase customer's loyalty, but also captures demand early for a new service. As an example for EV charging stations, we can also anticipate that the profits from the sold electricity through EV-charging stations compensate costs and continuously contribute to the electricity demand.

## 4.3 Benefits summary and comments

The proposed rule provides the mechanism to identify, develop, and evaluate certain energy-related projects that meet the criteria established by the proposed rule. The implementation of this proposed rule would create opportunities for electric utilities to invest in ETPs to help them comply with the GHG-neutral electricity standard required under CETA.

From a more narrow perspective, the proposed rule establishes only the process and requirements for developing the comprehensive protocol; it does create a framework for Ecology. Ecology plans to develop the comprehensive protocol, as part of the implementation of this rule. The protocol would incorporate the criteria, standards, methodologies, and procedures for guiding the development and evaluation of ETPs. This provides the clarity for ETP investors, resulting in less time spent on the preparation of the project plan and proposal - the benefit of reduced administrative costs.

With the broader perspective, option of investing in ETPs creates a potentially cost-effective compliance option compared to buying unbundled RECs or paying an administrative penalty. It is difficult to analyze the cost-effectiveness of ETPs at this point, as it would depend on the types of projects and how strict the requirements are in the comprehensive protocol that Ecology will establish.

One of the criteria for eligible project categories is a requirement to provide additional GHG reductions and clean energy benefits to a level beyond what is required in existing regulations, or beyond business as usual scenario, i.e. what is not usually feasible if it is not for the investment by electric utilities. The implementation of ETPs creates a group of benefits associated with the reduction of GHG and other pollutants that would not happen without this rule. It is proven by scientific studies that the value of health benefits far exceeds the costs of reducing pollution.

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# Chapter 5: Cost-Benefit Comparison and Conclusions

## 5.1 Summary of costs and benefits of the proposed rule

**Costs**

In Chapter 3, we identified the following potential costs resulting from the proposed amendments.

There are two perspectives on the proposed rule. The first one is through the administrative costs that are potentially incur for utilities that choose to implement ETPs. Those costs consist of expenditures on project plan preparation, validation and verification.

- The estimated costs of project plan preparation are about $114,723 and $2,294,468 in for 23 businesses in 2030.
- The validation costs for 23 utility companies the range is between $0 if no utility chooses this option and $178,632 if all of them choose it.
- The verification costs total 20-year present value verification cost of the rule is between $51,768 and $1,760,112 depending on the project's complexity and if 23 utilities implementing ETPs.

The other perspective, are the costs and that are brought by the opportunity to implement ETP, which would not be possible if this rule was not developed. In this case, there are many factors that affect utility's decision to invest in ETP. First and the most critical one is the cost of alternative compliance options. As the price and availability of unbundled RECs is unknown for 2030, we conclude that a utility would invest in ETP if a cost of a project would be less than $84 or $60 per MWh depending on the type of gas power plant.

**Benefits**

In Chapter 4, we identified the following potential benefits of the proposed rule.

Part I of the proposed rule would provide the tools for consistent information on the GHG emissions content of electricity consumed in Washington State, supporting Commerce and UTC's CETA implementation and improved information made available to Washington's electric customers. The more accurate data leads to more precise estimates and therefore improves the decision process on all levels – from agencies to utilities' management, to customers.

Part II of the proposed rule provides the mechanism to identify, develop, and evaluate certain energy-related projects that meet the criteria established by the proposed rule. The implementation of this proposed rule would create opportunities for electric utilities to invest in ETPs to help them comply with the GHG-neutral electricity standard required under CETA. The proposed rule also assures state energy agencies, interested stakeholders, and the general public that ETPs meet the requirements and standards of quality that CETA requires.

If compared to penalties only option, utilities chose ETP (even if combined with unbundled RECs and penalties), this creates group of benefits of reducing GHG and associated emissions. These benefits include climate change mitigation, improvement of air quality and ruction of associated health conditions that would not happen in the absence of this rule.

The proposed rule also potentially provides benefits for utilities beyond most cost-effective compliance option. Those benefits include opportunity to investment in future infrastructure to avoid future fuel price shocks and regulatory uncertainty, marketing, and capturing demand for innovative service/product early.

From a more narrow perspective, the proposed rule establishes only the process and requirements for developing the comprehensive protocol; it does create a framework for Ecology. Ecology plans to develop the comprehensive protocol, as part of the implementation of this rule. The protocol would incorporate the criteria, standards, methodologies, and procedures for guiding the development and evaluation of ETPs. This provides the clarity for ETP investors, resulting in less time spent on the preparation of the project plan and proposal - the benefit of reduced administrative costs.

## 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.

# 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 be able 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 proposed rule is chapter 19.405 RCW, Washington Clean Energy Transformation Act (CETA). Its goals and objectives are:

- Transforming the energy supply in Washington.
- Modernizing the electricity system in the state.
- Ensuring that the benefits of this transition are broadly shared throughout the state.
- Complete rulemaking by January 1, 2021.

The statute requires that ETPs must:

- Provide energy-related goods or services, other than the generation of electricity.
- Reduce fossil fuels and greenhouse gases.
- Provide benefits to electric utility customers.
- Be associated with the consumption of energy in Washington.
- Not create a new use of fossil fuels that results in a net increase of fossil fuel usage.
- Not be double counted toward the standard.

The statute lays out additional criteria for ETPs in RCW 19.405.040 (2), including that emission reductions must be:

- Real, specific, identifiable, and quantifiable.
- Permanent.
- Enforceable by the state of Washington.
- Verifiable.
- Not required by another statute, rule, or other legal requirement.
- Not reasonably assumed to occur absent investment, or if an investment has already been made, not reasonably assumed to occur absent additional funding in the near future.

For Ecology, the statute requires us to adopt rules, in consultation with the commission and the department of commerce, to establish requirements for energy transformation project investments including, but not limited to, verification procedures, reporting standards, and other logistical issues as necessary.

## 6.3 Alternatives considered and why they were excluded

We considered the following alternatives, and did not include them in the proposed rule for the reasons discussed in each subsection below.

- Timeline for periodic update of the emissions factor for unspecified electricity.
- Complete list of requirements, processes, and project categories .
- Defined list of eligible project categories.
- Forming a group to identify suitable project types, and evaluate and verify projects.
- Exclude third party obligatory verification and optional validation.

### 6.3.1 Timeline for periodic update of the emission factor for unspecified electricity

Some electric utilities requested the rule include a timeline for periodic update of the emission factor for unspecified electricity to keep it accurate, as the source of electricity is changing with

increasing renewable energy and retiring coal power plants.[22] RCW 19.405.070 (2) allows Ecology to periodically update the emission factor for unspecified electricity. The emission factor was recently established by the legislature. Ecology is planning to update the emission factor in the next rulemaking. The rulemaking priorities are set at agency level and affected by multiple factors, Ecology chose not to include a timeline in the rule to update the emission factor for unspecified electricity.

### 6.3.2 Complete list of requirements, processes, and project categories

Many electric utilities expressed interest in having all the requirements, processes, and project categories identified in the rule.

- The statute sets a deadline of January 1, 2021 to adopt this rule and does not specify which ETP requirements and processes should be included. Ecology decided to focus this rulemaking on establishing the framework requirements and processes that guide the identification of eligible project categories and the development of the comprehensive protocol. Ecology will do the work to identify ETP eligible project categories and develop the comprehensive protocol outside of this rulemaking, using a specified public process in the rule.
- The work to develop the comprehensive protocol is highly technical, because it involves applying the most recent science and engineering estimates to derive GHG emission and energy benefits. Because science and technology is always evolving, if the comprehensive protocol was adopted as part of the proposed rule, it would be out of date by the time utilities could implement real ETPs in 2030 - 2045. Moreover, the agency would have to be in perpetual rulemaking to keep the protocol up to date, which would negatively affect both the agency's resources and the electric utilities who would then have to be involved in this ongoing rulemaking.

### 6.3.3 Defined list of eligible project categories

Many electric utilities expressed interest in having more eligible project categories (other than related to EVs and renewable hydrogen) included in the rule so that they can incorporate ETPs in their long-term planning at an earlier stage.

The proposed rule's specifications are limited to the process for identification of ETP-eligible project categories. Keeping this list outside of the rule has a number of advantages. The specific wording of each project category has important implications as to the types of projects that can be included in each category. The wording of each category can also have implications for the wording of other categories, especially as new technologies become feasible. By not including this list in the rule, Ecology has the flexibility to change project category titles as needed as more and more project categories are added to the list.

[22] For example, reporting agencies in Washington assign their generic fuel mix to the BPA purchase amount based on their determination of the Northwest power pool region resources.

To accommodate substantial stakeholder interest in one type of project the rule requires Ecology to include some sort of project category related to electric vehicle charging. Our work with stakeholders shows that this is a noncontroversial and widely supported project type, and is unlikely to cause any future conflicts with other potential types of project category titles in the future.

### 6.3.4 Forming a group to identify suitable project types, and evaluate and verify projects

With the intention of reducing the burden this proposed rule may cause, representatives of some utilities requested that Ecology consider a modified regulatory approach that involves forming a group to identify suitable project types, and evaluate and verify projects. They suggested a group similar to the Regional Technical Forum (RTF), which assesses and verifies energy efficiency measures for the Northwest Power and Conservation Council (NWPCC).

The federal Pacific Northwest Electric Power Planning and Conservation Act of 1980 established the RTF. Moreover, that law and the organizational structure of the NWPCC, provide the funding and resources necessary to run such an organization. CETA provides no mandate to Ecology to form such a group. CETA makes clear that Ecology does not play a primary role in implementing the law. That role is reserved for the Department of Commerce and the UTC. Even if such an entity should be formed it would be logical for that entity to be placed under one of the primary implementing agencies for CETA.

### 6.3.5 Exclude third party obligatory verification and optional validation

The representatives of some utilities asked Ecology to remove the requirement for third-party verification and validation from the proposed rule, for at least some project types.

By providing utilities with the option of third-party validation Ecology anticipates possible delays because of the peaking number of projects (for example, this may potentially happen at the end of 2029) due to approaching statutory dates, development of cheap and effective technologies that allows to comply by ETPs, and possible restrains of Ecology's resources that could lead to critical delays.

As for the verification by the third party, this ensures that the projects meet the initial criteria such as being real, specific, identifiable, and quantifiable. This may require technical measurements and specific tests, depending on the type of projects, so it is more feasible to be accomplished by a specialized entity rather than acquire equipment and/or train staff at Ecology.

## 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

We analyzed the costs of the proposed rule amendments in Chapter 3 of this document, and listed the covered parties in Chapter 2. Most of the utilities operating in WA are publicly-owned. There are three investor-owned utilities, and all of them have more than 50 employees, and seven have less than 50 employees. Not all utilities would incur compliance costs under the proposed rule, however.

A utility would be subject to the requirements of the proposed rule only if it chose to use ETPs as a compliance mechanism (rather than unbundled RECs or an administrative penalty specified under the baseline). The utilities that include fossil fuels in their fuel mix would need to consider one of the alternative compliance mechanisms, if they cannot meet the GHG-neutral standard during 2030- 2045.

According to "Washington state electric utility fuel mix disclosure reports for calendar year 2018"[23] there are seven electric utilities currently using coal and/or natural gas. Only these utilities are likely to need the alternative compliance mechanisms, and may choose to use ETPs to comply. Three are private businesses employing over 50 employees, and one is publicly owned:

- Avista (WA) – ~1000 employees
- Clark County PUD #1 – public
- Cowlitz County PUD #1 – public
- Franklin County PUD #1 – public
- Pacific Power (WA) – 10000+ employees
- Puget Sound Energy – ~2700 employees
- Benton County PUD #1 – public

Another category of utilities that may be interested in implementing the alternative compliance option(s) is utilities that have unspecified electricity[24] in their reported fuel mix, as such electricity may include output from emitting sources. Some of the utilities inherit share of unspecified energy with electricity bought from BPA. One of the strategic goals for BPA is to provide carbon-free energy to its customers.[25] Besides that reporting agencies in Washington assign their generic fuel mix to the BPA purchase amount based on their determination of the Northwest power pool region resources,[26] so in 2030 this share should be close to zero, because of the regulatory requirement of eliminate coal-fueled electricity sources and "GHG-neutrality"

[23] Washington state electric utility fuel mix disclosure reports for calendar year 2018. https://www.commerce.wa.gov/wp-content/uploads/2020/04/Energy-Fuel-Mix-Disclosure-2018.pdf

[24] "Unspecified electricity" means an electricity source for which the fuel attribute is unknown or has been separated from the energy delivered to retail electric customers.

[25] https://www.bpa.gov/news/pubs/FactSheets/fs-201901-The-carbon-free-footprint-of-BPA-hydropower-supply.PDF

[26] https://www.bpa.gov/p/Generation/Fuel-Mix/FuelMix/BPA-Official-Fuel-Mix-2019.pdf

standard. Therefore, we are excluding utilities with unspecified electricity received through the purchases from BPA from this analysis.

For this analysis, we identify 23 utilities that may want to use ETPs as potential compliance options – those that have fossil fuels (see list above) or unspecified electricity in their planned fuel mix. None of those twenty tree are private businesses with number of employees less than fifty.

If a utility were interested in voluntarily implementing ETPs, even if they would not be required to do so under CETA, they would not necessarily satisfy the criteria of additionality. Recall that additionality means the ETP is both:

- Not required by another statute, rule, or other legal requirement.
- Not reasonably assumed to occur absent investment, or if an investment has already been made, not reasonably assumed to occur absent additional funding in the near future.

During the rule development process, Ecology received input from 14 such interested utilities. We also note that none of these interested parties employs fewer than 50 employees.

As the proposed rule does not impose compliance costs on any small businesses, this rulemaking is exempt from the requirements of the Regulatory Fairness Act (chapter 19.85 RCW) according to 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.”

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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.

The intent of the Washington Clean Energy Transformation Act (CETA or Chapter 19.405 RCW) is to address the causes of climate change by leading the transition to a clean energy economy. To realize this transition, the legislation aims at:

- Transforming the energy supply in Washington,
- Modernizing the electricity system in the state, and
- Ensuring that the benefits of this transition are broadly shared throughout the state. (RCW 70.405.010)

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

Because Ecology was directed by the CETA to adopt rules by January 1, 2021, alternatives to rulemaking were not considered.

**Part I Greenhouse gas emission calculation**: If Ecology does not determine emission factors that electric utilities must use to calculate GHG emissions content in electricity, there could be variances in emission factors used by utilities, and potentially by the Utilities and Transportation Commission (UTC) and the Department of Commerce (Commerce).

**Part II Energy Transformation Projects**: If Ecology does not do this rulemaking, electric utilities may potentially lose a cheaper alternative compliance mechanism to meet their obligation to supply GHG-neutral electricity to their retail customers. Similarly, clean energy transformation project proponents may lose potential incentives for the GHG benefits of their projects. Consequences of not adopting rules include potential litigation.

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 and record for rulemaking.

**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 would not require covered parties to violate existing federal and state laws and rules. The first part of this rule establishes GHG emission calculation method based on federal agencies databases, and in consultation with the regulating agencies for the covered parties. The second part of the rule establishes processes and requirements for the development and evaluation of energy-related projects to allow electric utilities can invest on them to use the GHG reductions and clean energy benefits for compliance with the 2030 GHG-neutral electricity goal set in CETA. The second part establishes an optional compliance mechanism.

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

The requirements in this rule apply to both investor-owned utilities that UTC regulates, and consumer-owned utilities that are governed by their individual governing boards or commissions. As required in the statute, the rule is developed in close consultation with both regulating agencies. There is no different requirement established in this rule that applies for COUs or IOUs only.

**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.**

Yes

If **yes**, the difference is justified because of the following:

☐ (i) A state statute explicitly allows Ecology to differ from federal standards. [If checked, provide the citation included quote of the language.]

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

CETA allows electric utilities to invest on energy-related projects other than electricity generation so that they can use the GHG emission reduction and clean energy benefits to comply with their obligation to supply GHG-neutral electricity in

2030. This rule provides alternative compliance mechanism that electric utilities can voluntarily invest on.

**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.**

CETA requires Ecology adopt this rule in consultation with Commerce and UTC. Thus, consistent with CETA, we have consulted with these two regulating agencies in the development of this rule. In some cases, like in the GHG calculation method, we depended on the expertise at Commerce, as both the consumer-owned utilities (COUs) and investor-owned utilities (IOUs) are reporting to Commerce on the fuels sources of their electricity they supply to retail customers in Washington. We will continue to consult with them until we adopt this rule.