



State of Oregon Department of Environmental Quality

Fiscal Impacts Analysis

July 1, 2021

Greenhouse Gas Emissions Program 2021 Rulemaking
Climate Protection Program

Table of Contents

Overview	2
Procedural Summary.....	2
Key Terms Used in This Document.....	3
Statement of Need	4
Fee Analysis.....	6
Statement of Fiscal and Economic Impact	7

Overview

DEQ is conducting the Greenhouse Gas Emissions Program 2021 Rulemaking, short name known as GHGCR2021, to:

- Establish a new Climate Protection Program to set limits on greenhouse gas emissions from significant sources in Oregon. This includes emissions reductions from the use of fossil fuels, including transportations fuels and other liquid and gaseous fuels, as well as certain large stationary sources.
- Define regulatory applicability, program requirements, and enforcement
- Prioritize equity by promoting benefits and alleviating burdens for environmental justice and impacted communities
- Achieve co-benefits from reduced emissions of other air contaminants

The proposed rules and rule revisions included in this rulemaking are based on discussions and input provided by DEQ's GHGCR2021 rulemaking advisory committee, including members from the regulated community, environmental justice and community-based organizations, tribes, as well as other interested parties, and the general public.

Affected parties

The following parties are directly affected by the proposed rules:

- Suppliers of liquid fuels and propane that meet the threshold for applicability
- Natural gas utilities
- Permitted air contamination sources that meet the threshold for applicability

Procedural Summary

Information about this rulemaking can be found on this rulemaking's web page:

<https://www.oregon.gov/deq/Regulations/rulemaking/Pages/rghgcr2021.aspx>.

Key Terms Used in This Document

Terms

- “Best available emissions reduction determination” or “BAER determination” means a DEQ determination of the required actions to limit covered emissions from a covered stationary source.
- “Cap” means the total number of compliance instruments generated by DEQ for each calendar year, applicable to the covered emissions from covered fuel suppliers.
- “Climate Protection Program” is the program proposed in this rulemaking.
- “Community climate investment credit” or “CCI credit” or “credit” means an instrument issued by DEQ to track a covered fuel supplier’s payment of community climate investment funds, and which may be used by covered fuel suppliers in lieu of a compliance instrument, as further provided and limited in this division.
- “Community climate investments,” “community climate investment funds” or “CCI funds” means money paid by a covered fuel supplier to a community climate investment entity to support implementation of DEQ-approved community climate investment projects.
- “Community climate investment entity” or “CCI entity” means a nonprofit organization that has been approved by DEQ to implement projects using community climate investment funds.
- “Compliance instrument” means an instrument issued by DEQ that authorizes the emission of one MT CO₂e of greenhouse gases by a covered fuel supplier.
- “Covered emissions” means the greenhouse gas emissions for which covered entities may be subject to the requirements of the CPP.
- “Covered entity” means an air contamination source subject to the requirements of this division, who could be either or both a covered fuel supplier or a covered stationary source.
- “Covered fuel supplier” means the natural gas utilities and non-natural gas fuel suppliers subject to certain requirements of the CPP.
- “Covered stationary source” means the permitted air contamination sources subject to certain requirements of the CPP.

Acronyms

- “BAER” means best available emissions reduction.
- “CCI” means community climate investment.
- “CPP” means the Oregon Climate Protection Program proposed in this rulemaking.
- “Metric tons of CO₂e” or “MT CO₂e” means metric tons of carbon dioxide equivalent.

Statement of Need

Establish the Climate Protection Program

What need would the proposed rule address?

Climate change caused by greenhouse gas emissions has detrimental effects on the overall public welfare of the State of Oregon. Reducing greenhouse gas emissions and mitigating climate change will improve the overall public welfare of Oregon. In particular, reducing greenhouse gas emissions will improve the welfare of communities disproportionately burdened by the effects of climate change and air contamination; these communities are disproportionately Black, Indigenous, and communities of color, as well as low-income and rural communities.

How would the proposed rule address the need?

The purposes of the Climate Protection Program are to reduce greenhouse gas emissions from sources in Oregon, achieve co-benefits from reduced emissions of other air contaminants, and enhance public welfare for Oregon communities, particularly communities disproportionately burdened by the effects of climate change and air contamination. To support these purposes, the proposed program:

- Requires that covered entities reduce greenhouse gas emissions,
- Supports reduction of emissions of other air contaminants that are not greenhouse gases,
- Prioritizes reduction of greenhouse gases and other air contaminants in communities disproportionately burdened by the effects of climate change and air contamination,
- Includes compliance flexibility option for covered entities to minimize business and consumer economic impacts associated with meeting the Climate Protection Program requirements, and
- Promotes benefits in communities disproportionately burdened by the effects of climate change and air contamination.

How will DEQ know the rule addressed the need?

With existing and available information reported to DEQ's Greenhouse Gas Reporting Program, DEQ will be able to track over time how covered entities are reducing covered emissions. DEQ will track covered fuel suppliers' compliance with declining emissions caps for each compliance period with compliance instruments and CCI credits. DEQ will track the greenhouse gas emissions reductions achieved through CCI project implementation using reports submitted by approved CCI entities. DEQ will track covered stationary sources' compliance with best available emissions reduction determinations through permitting and annual reporting. DEQ will conduct a program review on community climate investments every two years to evaluate the greenhouse gas emissions reductions and other air contaminant emissions reductions achieved. DEQ will conduct broader program review every five years. These reviews will be based in part on the annual reports submitted by CCI entities.

Enforcement Provisions

What need would the proposed rule address?

DEQ rules cannot be appropriately enforced unless they are classified within OAR Chapter 340, Division 12. Consistent with other regulatory programs administered by DEQ, the proposed rules will classify certain violations and establish or clarify enforcement criteria for the Climate Protection Program regulations.

How would the proposed rule address the need?

The proposed rules will add enforcement provisions relating to violations of the Climate Protection Program regulations.

How will DEQ know the rule addressed the need?

OAR Chapter 340, Division 12 will be amended to describe Climate Protection Program violations and enforcement criteria. Covered entities subject to these requirements will have a clearer understanding of DEQ enforcement.

Fee Analysis

This rulemaking does not include the proposed adoption of any new or amended fees.

Covered stationary sources may need to pay permit modification fees as a result of the proposed rules in order to update their operations and permits to comply with requirements in a DEQ BAER determination. As proposed, this would occur no more than once every five years. For sources with an air contaminant discharge permit, fees will depend on the type of modification, as defined in OAR 340-216-0030 and permit fees are described in OAR 340-216-8020 Table 2. For sources with a Title V permit, fees will depend on the type of modification described in OAR chapter 340, division 218 and permit fees are described in OAR 340-220-0050.

Statement of Fiscal and Economic Impact

Scope and approach of fiscal impacts analysis

The Oregon Climate Protection Program has two key program constructs for reducing greenhouse gas emissions in Oregon:

- An annually declining cap on greenhouse gas emissions that requires emissions reductions from covered fuel suppliers, and
- A process to determine and require the best available greenhouse gas emissions reductions from covered stationary sources.

The program offers various options and flexibility for covered entities to comply such that a given covered entity may reduce its emissions in a way that aligns with its particular circumstance, perspective, and business needs.

The cap on emissions from covered fuel suppliers is a market-based regulatory approach to reduce greenhouse gas emissions from combustion of fuels supplied in Oregon. This piece of the program does not mandate the use of any particular type of fuel or technology. Instead, it defines a total limit on all covered emissions from the covered fuel suppliers. The limit decreases annually, which means that the covered fuel suppliers must collectively reduce emissions over time. DEQ would distribute free compliance instruments directly to each covered fuel supplier in amounts that establish allowable greenhouse gas emissions. As the total limit, or cap, decreases each year, DEQ would distribute fewer compliance instruments annually. A covered fuel supplier could comply by emitting no more greenhouse gases than the amount allowed by the free compliance instruments it receives from DEQ. The covered fuel supplier would submit the compliance instruments once every three years for its emissions during that period, which allows the covered fuel supplier to plan for and respond to annual variability more effectively. Covered fuel suppliers could emit more greenhouse gases if they obtain, or save, compliance instruments necessary to authorize those emissions. Covered fuel suppliers could also voluntarily choose to earn community climate investment credits by funding emissions reduction projects that benefit Oregon communities, prioritizing investments that will benefit communities that have been disproportionately burdened by the impacts of climate change and air contamination. Covered fuel suppliers could then emit more greenhouse gases by using the CCI credits to authorize such emissions, up to a capped amount annually.

The best available emissions reduction approach is a site-specific approach to reduce greenhouse gas emissions from certain industrial facilities. This piece of the program includes an assessment of the options available to each individual covered stationary source to reduce covered emissions. DEQ can consider each source's individual circumstances and impacts on nearby communities in determining requirements for emissions reductions. This might include practices, processes or technologies that are available and cost-effective, but that also maximize covered emissions reductions.

The scope of this fiscal impact statement is limited to the impact of the proposed rules in this rulemaking. DEQ assessed the fiscal and economic impact of the proposed rules and grouped

the results into two main categories: direct and indirect impacts. The fiscal and economic impacts are discussed below.

Statement of Cost of Compliance

Covered entities

DIRECT IMPACTS

Potential impacts to covered fuel suppliers

Administration, permitting, reporting, and recordkeeping

DEQ is proposing to require covered fuel suppliers to register in DEQ's electronic system, apply for a permit, report information to demonstrate compliance once every three years, and retain records of reported information for seven years.

One-time costs to covered fuel suppliers would be associated with staff time to register with the program and apply for a permit. On-going costs would be associated with reporting to demonstrate compliance and retaining records. The costs of complying with the proposed rules are likely to vary from one entity to another, depending on existing reporting and recordkeeping activities and depending on how each entity chooses to comply with the Climate Protection Program requirements. Covered fuel suppliers are already reporting to DEQ's Greenhouse Gas Reporting Program, subject to the Oregon Clean Fuels Program, or both. Therefore, they are already reporting to DEQ and reporting the greenhouse gas emissions data used for the Climate Protection Program. They may already have staff available to take on new reporting requirements. These entities also already retain records for seven years, but this recordkeeping requirement may result in additional costs for some covered fuel suppliers if they need to add capacity to their existing systems in order to retain additional records required for the Climate Protection Program. Other costs incurred would be in relation to allocating time and resources for demonstrating compliance to DEQ. The use of a three-year compliance period helps to reduce these on-going costs because the demonstration of compliance only occurs once every three years.

DEQ did not have any specific information to quantify costs associated with administrative requirements but expects covered fuel suppliers to experience minimal fiscal impact. EPA has estimated costs to entities for tracking and reporting greenhouse gas emissions in the Regulatory Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions, Final Rule (GHG Reporting). Adjusted for inflation, EPA estimated these costs as ranging from \$0 to \$3,971 (2020\$) per year. The higher end of the range is based on labor, recordkeeping, and reporting costs for petroleum suppliers. DEQ does not have additional information to determine the precise costs relating to the administration of the Climate Protection Program, and acknowledges that it could be different than as estimated in this report from EPA.

Reducing greenhouse gas emissions

In the proposed program, DEQ will distribute compliance instruments directly to covered fuel suppliers, without any direct cost or price paid by the fuel suppliers for the instruments, and those compliance instruments are used to demonstrate compliance with the program's greenhouse gas emissions limits. Covered fuel suppliers therefore will only incur costs related to program compliance (not accounting for costs associated with meeting other requirements such as permitting, recordkeeping and reporting discussed in the above section) if they must reduce emissions in order to not be in excess of the amount allowed based on the number of DEQ-distributed compliance instruments they receive in a given year. The number of compliance instruments DEQ distributes each year will decline with the declining program caps on emissions. Decline over time will allow covered fuel suppliers time to plan for and implement program compliance strategies.

There could be negative economic effects on a regulated business if the proposed regulation were to result in curtailed production or closure in response to the requirements. It is possible that operations could shift to an area outside of Oregon that is not subject to this regulation, which is sometimes referred to as leakage of business or greenhouse gas emissions. DEQ does not have additional information to estimate the potential or economic impacts of leakage but recognizes the negative economic impacts of business and job loss that could occur. DEQ includes many provisions in the draft program to allow covered entities flexibility. DEQ expects this flexibility in how to achieve compliance will decrease the chances of curtailment or closures in direct response to regulations.

Covered fuel suppliers may achieve compliance by reducing their greenhouse gas emissions over time to levels that ensure any compliance instruments they receive from DEQ will cover their compliance obligations. For example, a covered fuel supplier could supply less fossil fuels in favor of more alternatives, such as biofuels and other clean fuels. This reduces emissions and therefore their compliance obligations in the CPP. A covered fuel supplier could also opt to supply less fuel overall to reduce emissions. In this case, the cost is the opportunity cost of those fuel sales. There may be other costs associated with choosing to comply by directly reducing emissions, such as for equipment, retrofits, supplies, labor, increased administration, or other operational impacts. There may also be impacts on business profitability in the near-term. DEQ expects costs or savings would vary over time as technologies emerge, and vary by fuel type, and for each covered fuel supplier.

As part of program development, DEQ contracted with ICF to analyze greenhouse gas emissions reductions under an emissions cap program in Oregon. As part of the study ICF assumed some cost ranges to reduce emissions from fuels based on external studies and internal ICF analysis. These ranges, which are discussed below, represent net present value and account for cumulative emissions reductions achieved across the modeled policy scenarios and study period of 2022 through 2050, rather than a cost for a particular snapshot in time.

The costs below should not be interpreted as costs per ton of emissions; rather, these are costs per ton of emissions reduced. This distinction is important in the context of the proposed program because compliance instruments are proposed to be distributed without

cost to recipients. Therefore, the cost to covered fuel suppliers are only for the amount of emissions they need to reduce. The cost estimates included below do not represent a potential direct cost to a covered fuel supplier. In actuality, different costs may be born by different parties, depending on different compliance strategies and various policies. This may include fiscal impacts to the covered fuel supplier, pass through costs to its customers, but also may include costs to others, such as an electric utility and its customers, and could also incorporate savings from incentives and government programs.

ICF estimated costs to reduce emissions from natural gas may range from \$64 to \$188 (2020\$) per metric ton of emissions reduced. These estimated costs are dependent on the strategy chosen from a range of different strategies. The costs estimated here include the cost of equipment (such as for energy efficiency or electrification) and fuel costs, assuming introduction of renewable natural gas into the supply.

For fossil fuels other than natural gas, the estimated costs to reduce emissions may range from \$50 to \$55 (2020\$) per metric ton of emissions reduced. The costs estimated here include the costs of vehicles, such as electric vehicles or alternative fuel vehicles, as well as costs for alternative fuels, assuming they replace emissions from regulated fuels, such as gasoline or diesel. The cost ranges are based on best available information, but may be higher or lower, depending on business decisions, technologies advancements, and changes to complementary policies over time.

The above estimates may be helpful context given the different compliance options available to covered fuel suppliers. For example, a covered fuel supplier may also choose to purchase CCI credits or purchase compliance instruments in a trade, and may be more likely to do so if these are less expensive than the cost to reduce emissions. These options are discussed further below.

By using a program-wide cap with compliance flexibility options, the proposed program allows each covered fuel supplier many options to comply with the program beyond directly reducing greenhouse gas emissions. DEQ is proposing to allow for various program compliance options to mitigate costs:

- Three-year compliance periods can moderate costs within each compliance period. This provides covered fuel suppliers with time to implement emissions reduction strategies and helps to better account for weather-related changes to emissions or other annual variability.
- The ability to bank unused compliance instruments into the future helps covered fuel suppliers achieve compliance in the most cost-effective manner throughout time. If emissions reductions are less costly in early years of the program, a covered fuel supplier could reduce emissions early and save unused compliance instruments for use in later years when additional emissions reductions may be more costly. Covered fuel suppliers could incur indirect costs from using this approach, such as potential foregone profits in the near-term due to adjustments to their business activities to reduce emissions early. However, DEQ only expects covered fuel suppliers to choose this compliance option if it makes business sense for the long-term and those early emissions reductions are expected to be lower cost than later emissions reductions.

- A covered fuel supplier may choose to use CCI credits for up to 20 percent of its compliance obligation. Use of a CCI credit represents one metric ton of allowable greenhouse gas emissions. Covered fuel suppliers receive CCI credits from DEQ when they demonstrate that they have contributed funds to a DEQ-approved CCI entity to support implementation of projects that reduce greenhouse gas emissions. The contribution level to receive one CCI credit begins at \$78 (2020\$) and increases by a little more than a dollar per year (2020\$) on average, over time. This is informed by the social cost of carbon developed by the Interagency Working Group on Social Cost of Greenhouse Gases. The contribution to receive one CCI credit in a given year also will be adjusted for inflation. A covered fuel supplier may choose to use this compliance option at its discretion. DEQ believes a covered fuel supplier may do so if it determines this is a more cost-effective option than reducing emissions within its business or acquiring compliance instruments through a trade. The CCI credit price is only applicable to the portion of a compliance obligation that a covered fuel supplier chooses to achieve with CCI credits. While proposed program rules allow up to 20 percent of a compliance obligation to be achieved with CCI credits, the use of CCI credits is not required.
- The ability to trade compliance instruments allows covered fuel suppliers to collectively achieve the program cap on emissions, which can result in cost savings across the program compared to an approach where each covered fuel supplier must individually achieve the same level of emissions reductions. Trading can allow covered fuel suppliers that are able to reduce emissions cost-effectively or quickly to trade unused instruments with other covered fuel suppliers that require more time to reduce emissions. Covered fuel suppliers will be able to determine the price at which they are willing to trade compliance instruments, and DEQ plays no role in that decision-making. Specific prices are therefore likely to vary per trade, but collectively trading allows for more an efficient allocation of resources and promotes cost-effective emissions reductions. The cost of acquiring a compliance instrument may be less than the CCI credit price, but the price of trades will not be known until the program begins and trades occur.

In any given year, but especially as the program progresses and the caps become lower over time, covered fuel suppliers may use any combination of the above compliance options. There are countless ways (and costs) in which to comply. It is possible that in a given year a covered fuel supplier may purchase and comply with CCI credits up to the allowable 20 percent limit and also deploy emissions reduction measures, and/or acquire additional compliance instruments through trading. On the other hand, it is possible that directly reducing emissions and compliance obligation is in the best interest of the business. Overall, DEQ expects that allowing for the varying options for achieving compliance discussed above will mitigate the costs of compliance for a given covered fuel supplier, and therefore mitigate the overall costs of the program.

These multiple combinations make it difficult to estimate the potential fiscal impacts. The above discussion describes some of them as compared to CCI credits because DEQ expects that any contributions to earn CCI credits may be the highest compliance cost for covered fuel suppliers, particularly in early years of the program. This may partly be due to the

proposed base cap being equal to the average covered emissions from 2017 through 2019, meaning, on average, a covered fuel supplier continuing operations at the same level as in those years could comply fully for several years by acquiring CCI credits even if it was not reducing emissions as quickly as the cap declines. An example situation is described below.

A covered fuel supplier's baseline emissions may be 1,000,000 MT CO₂e, and if it receives a distribution of 950,000 compliance instruments in the first year of the program, then it will need to find a way to comply with the remaining 50,000 MT CO₂e of emissions. The covered fuel supplier could choose to contribute funds to support projects that reduce greenhouse gas emissions, and at \$78 (2020\$) per CCI credit at program start in 2022, the total contribution would be \$3.9 million to earn 50,000 CCI credits. Alternatively, the covered fuel supplier may seek a compliance instrument trade at a lower price or may decide to reduce emissions, likely if the cost is lower compared to the other options.

As the cap continues to decline over time, the covered fuel supplier would receive fewer compliance instruments. Once it receives fewer compliance instruments than 80 percent of its baseline emissions (1,000,000 MT CO₂e), the use of CCI credits would no longer be sufficient to allow it to avoid taking actions to reduce emissions or acquire additional compliance instruments through a trade. The contribution to earn CCI credits is no longer the highest compliance cost the covered fuel supplier might face. However, the complete design of the proposed program aims to provide incentives and options for covered fuel suppliers to adapt their operations over time in order to significantly reduce greenhouse emissions, potentially in a way that they would not need any additional compliance instruments, beyond those issued by DEQ at no cost, in order to meet their compliance obligations.

Enforcement

There are costs related to being involved in an enforcement action that includes correcting the violation and the payment of civil penalties, if assessed. The proposed enforcement rule changes would not have an economic impact on covered entities unless they violate the program rules.

Potential impacts to covered stationary sources

Administration, permitting, reporting, and recordkeeping

DEQ is proposing to require covered stationary sources to register in DEQ's electronic system, submit progress reports annually, review reports every five years, prepare a BAER assessment and implementation plan no more than once every five years, and submit a completion report when any BAER determination has been fully implemented. Sources must also apply for a CPP permit addendum following each BAER determination to incorporate the CPP requirements into permits, and must retain records of reported information for ten years. DEQ is proposing the records retention requirement of ten years to ensure overlap from one five year review report to the next.

One-time costs would be associated with staff time to register with the program. On-going costs would be associated with applying for a CPP permit addendum any time DEQ makes a

BAER determination (following a BAER assessment that occurs at most once every five years), reporting information and retaining records. For a source that must modify a permit to incorporate the BAER determination requirements, a fee may be incurred each time it must apply for a CPP permit addendum. See discussion in Fee analysis section above.

The costs of complying with the proposed rules vary from one entity to another, depending on existing reporting and recordkeeping activities. Covered stationary sources are already reporting to DEQ's Greenhouse Gas Reporting Program and have DEQ air permitting requirements and therefore may already have staff available to take on new reporting and permitting requirements. The recordkeeping requirement may result in additional costs for some covered stationary sources that do not currently retain records for longer than seven years (as required by DEQ's Greenhouse Gas reporting program) or if they need to add capacity to their existing systems in order to retain additional records required for the Climate Protection Program. Other costs incurred would be in relation to allocating time and resources for reporting new information to DEQ. Covered stationary sources may experience a fiscal impact due to these administrative requirements. DEQ did not have any specific information to quantify costs associated with administrative requirements but expects covered stationary sources to experience minimal fiscal impact. EPA has estimated costs to entities for tracking and reporting greenhouse gas emissions in the Regulatory Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions, Final Rule (GHG Reporting). Adjusted for inflation, EPA estimated these costs as ranging from \$0 to \$6,854 (2020\$) per year. The higher end of the range is based on labor, recordkeeping, and reporting costs for relevant industry. DEQ does not have additional information to determine the precise costs relating to the administration of the Climate Protection Program, and acknowledges that it could be different than as estimated in this report from EPA.

BAER assessments and reducing greenhouse gas emissions

Under the proposed regulations, existing permitted air contamination sources that have annual covered emissions above the threshold and new sources that are anticipated to have covered emissions above the threshold are subject to the best available emissions reduction (BAER) approach. This requirement is a site-specific approach in which DEQ will determine the best available emissions reduction strategies and require each covered stationary source to implement those strategies. In setting requirements for each permit holder individually, DEQ can consider strategies to reduce covered emissions that are available, feasible, and cost-effective for that individual source. DEQ expects that taking site-specific considerations into account will mitigate the costs for a given covered stationary source, and therefore mitigate the overall costs of the program. The costs of complying with the proposed rules will likely vary from one entity to another, depending on the business and the strategies DEQ requires of each covered stationary source to reduce covered emissions and comply with the Climate Protection Program requirements.

Covered stationary sources will be required to conduct a BAER assessment no more than once every five years. Costs to conduct and complete a BAER assessment will be dependent on whether or not a source has existing technical and professional staff resources that can conduct this type of emissions and technology assessment, or whether they may need to contract with a third-party consulting firm to assist. DEQ made an effort to mitigate costs by

allowing sources a full year to conduct the assessments, which gives them time to first determine the most cost-effective approach for conducting the assessment, such as comparing costs of different consulting firms. Costs will also depend on the industry type and will be specific to the complexity of each source’s individual business. DEQ estimated the cost to conduct a complex BAER assessment may require approximately 150 hours of professional time, at a rate of \$200 per hour. DEQ provides a range of costs a business may incur to complete a BAER assessment, either in-house, through a consultant, or both, in Table 1.

Table 1	
Cost of completing a BAER assessment	
Facility Professional Resources	Consultant Fee
\$5,000 - \$30,000	\$5,000 - \$30,000

In the proposed program, covered stationary sources are also required to submit an implementation plan and five year review reports. The requirement to submit either of these reports would occur no more than once every five years. Some information in either of these reports may be similar to information compiled for and submitted in a BAER assessment, though the time and effort to compile and submit either of these reports would be significantly less. The cost of compiling and submitting an implementation plan or review report may be toward the low range of costs for a BAER assessment discussed above, although DEQ does not have additional information to determine the precise costs and acknowledges that they could be different than described above.

Each source will have to implement the required strategies from a DEQ BAER determination in order to reduce covered emissions. Costs to implement strategies that reduce greenhouse gas emissions will vary by strategy, business, and industry. Strategies to reduce emissions vary and can include fuels, processes, equipment, technology, systems, actions, and other methods and techniques, such as business practices or other alterations to operations to result in greenhouse gas emissions reductions. Some example industry types that may be impacted by the proposed rules include, but are not limited to:

- Cement manufacturing
- Chemical manufacturing
- Fruit and vegetable preserving and specialty food manufacturing
- Iron and steel mills
- Polystyrene foam product manufacturing
- Semiconductor and related device manufacturing

To inform this fiscal analysis, DEQ researched studies on strategies to reduce greenhouse gas emissions across different industries, consulted with its contractor ICF, and sought input from stationary sources and stakeholders. As part of program development, DEQ contracted with ICF to analyze greenhouse gas emissions reductions under an emissions cap program in Oregon. As part of the study ICF assumed some cost ranges to reduce emissions from industrial stationary sources based on external studies. The estimated costs for a given source to reduce greenhouse gas emissions, based on various strategies and industries, range from

\$47 to \$190 (2020\$) per metric ton of emissions reduced. The low estimate is based on EPA's Global Non-CO2 report and may represent some costs to reduce emissions for polystyrene foam product manufacturing. The high estimate is based on the McKinsey and Company study and may represent some costs to reduce emissions for cement manufacturing. These costs can be assumed to account for equipment, supplies, labor and increased administration required for businesses to comply. These costs also represent net present value and therefore account for cumulative emissions reductions achieved across a given time period from that study, rather than a cost for a particular snapshot in time. It is important to note that these costs do not necessarily represent a potential direct cost to a covered stationary source, but rather represent the total cost per metric ton to achieve emissions reductions. In actuality, different costs may be born by different parties, depending on the strategy, and the covered stationary source may pass through some costs to consumers of its products. The cost range is based on best available information, but may be higher or lower, depending on facility-specific conditions, business decisions, and technological advancements over time.

Covered stationary sources will only bear costs for the required reductions in covered emissions, and would not have a cost associated with all of their emissions. Additionally, there is no additional cost to reduce covered emissions after successfully implementing all requirements of a DEQ BAER determination. Therefore, the cost of compliance for a covered stationary source will depend on the actions and strategies required by the BAER determination. There may be instances where a DEQ BAER determination does not require a source to take any actions because they may be determined to already be achieving the best available emissions reductions at that time. In these cases, there would be no cost to reduce emissions.

There could be negative economic effects on a regulated business if the proposed regulation were to result in curtailed production or closure in response to the requirements. It is possible that operations could shift to an area outside of Oregon that is not subject to this regulation, which is sometimes referred to as leakage of business or greenhouse gas emissions. Additionally, the BAER approach does not limit or curtail production, but requires the implementation of strategies, practices and technologies to maximize emissions reductions. DEQ does not have additional information to estimate the potential or economic impacts of leakage but recognizes the negative economic impacts of business and job loss that could occur, despite proposed provisions to allow covered entities flexibility in an effort to decrease the chances of curtailment or closures in direct response to regulations.

Enforcement

There are costs related to being involved in an enforcement action that includes correcting the violation and the payment of civil penalties, if assessed. The proposed enforcement rule changes would not have an economic impact on covered entities unless they violate the program rules.

Large businesses – businesses with more than 50 employees

Based on 2018 and 2019 Greenhouse Gas Reporting Program data, DEQ estimates that approximately 52 large businesses may be directly affected by these rules. The impacts described in the Cost of Compliance section above apply to:

- Large businesses that are non-natural gas fuel suppliers that are subject to the emissions cap requirements may incur costs described in the covered fuel suppliers subsection above. DEQ estimates there are approximately 40 such businesses.
- Large businesses that are natural gas utilities that are subject to the emissions cap requirements may incur costs described in the covered fuel suppliers subsection above. DEQ has identified three such businesses.
- Large businesses that are permitted air contamination sources subject to the best available emissions reduction approach may incur costs described in the covered stationary sources subsection above. DEQ estimates there are approximately 13 such businesses.

Small businesses – businesses with 50 or fewer employees

ORS 183.336 Cost of Compliance Effect on Small Businesses

Based on current Oregon Department of Employment data and 2018 and 2019 Greenhouse Gas Reporting Program data, DEQ estimates that approximately four small businesses may be directly affected by these rules. The impacts described in the covered entities section above apply to:

- Covered fuel suppliers subject to the proposed declining cap on emissions requirements:
 - DEQ estimates that with declining thresholds of applicability over the first ten years of the program, there are approximately four small businesses that may become covered fuel suppliers supplying liquid fuels or propane.
 - There are no small businesses that are natural gas utilities.
- Covered stationary sources subject to the proposed process to determine and require the best available emissions reductions:
 - DEQ estimates there are no small businesses that are covered stationary sources.

Estimated number of small businesses and types of businesses and industries with small businesses subject to the proposed rule

Based on current Oregon Department of Employment data and 2018 and 2019 Greenhouse Gas Reporting Program data, DEQ estimates that approximately four small businesses may be directly affected by these rules. As shown below in Table 2, these are all non-natural gas fuel suppliers.

Table 2		
Small business counts by sector and at different thresholds		
Covered Sector	Threshold	Count of Small Businesses
Covered fuel suppliers supplying liquid fuels or propane (non-natural gas fuel suppliers)	Greater than or equal to 200,000 MT CO ₂ e (covered beginning 2022)	0
	Greater than or equal to 100,000 MT CO ₂ e and less than 200,000 MT CO ₂ e (covered beginning 2025)	2
	Greater than or equal to 50,000 MT CO ₂ e and less than 100,000 MT CO ₂ e (covered beginning 2028)	1
	Greater than or equal to 25,000 MT CO ₂ e and less than 50,000 MT CO ₂ e (covered beginning 2031)	1
Covered fuel suppliers that are natural gas utilities	N/A (covered beginning 2022)	0
Covered stationary sources (air permit holders)	Greater than or equal to 25,000 MT CO ₂ e (covered beginning 2022)	0

Projected reporting, recordkeeping and other administrative activities including costs of professional services, required for small businesses to comply with the proposed rule

Costs to small business associated with reporting, recordkeeping and other administrative are discussed in the administration, permitting, reporting, and recordkeeping subsections of the covered entities section above.

Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule

Costs to small business associated with equipment, supplies, labor and increased administration are discussed in the reducing greenhouse gas emissions subsections of the covered entities section above.

Mitigation measures for small businesses

To mitigate small business impacts, DEQ is proposing emissions thresholds that will exclude the vast majority of small businesses from being subject to program requirements. For the approximately five small businesses that DEQ currently anticipates to be covered, the proposed declining threshold for inclusion over the first nine years of the program will delay some small business inclusion and provide more time to plan for emissions reductions and other compliance-related activities.

Additionally, DEQ has developed the proposed program in a way that allows for covered fuels suppliers to have optionality in how they comply with the cap and allows covered stationary sources to provide information to DEQ on their available opportunities and necessary timeline to reduce greenhouse gas emissions. See the discussions in the reducing greenhouse gas emissions subsections of the covered entities section above for more detail.

For covered fuel suppliers, a proposed program-wide cap with compliance flexibility options allows each entity many options to comply with the program while mitigating costs. An entity could adjust its business to reduce emissions to remain below the declining threshold for inclusion, or, if regulated, could reduce emissions in alignment with DEQ's free distribution of compliance instruments. Alternatively, if it is more cost effective for a covered fuel supplier, the businesses can use the various compliance options that are further described in the Covered entities section above, including:

- Three-year compliance periods
- The ability to bank or save unused compliance instruments for use in the future
- The ability to trade compliance instruments
- The option to earn CCI credits

Even though DEQ estimates there are no small businesses that are covered stationary sources, the site-specific regulatory approach allows for individual business and industry considerations to be taken into account by DEQ as it sets requirements to reduce emissions. The sources also have the opportunity to provide DEQ with information they may want considered when they conduct and submit a BAER assessment. Requiring the best available emissions reductions strategies can account for the costs of various strategies and therefore can mitigate costs to businesses while maximizing emissions reductions.

DEQ expects that allowing for these program features and varying options for achieving compliance will likely mitigate costs, and allow covered entities, especially those that are small businesses, to determine the most cost-effective compliance pathway for their business. This will therefore also likely mitigate the overall costs of the program.

For any small businesses that becomes subject to the program, costs may be reduced compared to large businesses, depending on the nature of the business and actions taken to reduce emissions to meet the program requirements.

How DEQ involved small businesses in developing this proposed rule

DEQ convened an advisory committee that included representatives from membership organizations that represent small businesses including but not limited to the Oregon Fuels Association and Oregon Business & Industry. DEQ also provided notice of this rulemaking to entities currently reporting to the Greenhouse Gas Reporting Program and Clean Fuels Program, which include a number of small businesses.

Community climate investment entities

DIRECT IMPACTS

Non-profit organizations approved by DEQ to be community climate investment entities will receive funds from covered fuel suppliers and use those funds to create or expand projects that reduce greenhouse gas emissions. Participation as a CCI entity is voluntary.

CCI entities may benefit from the proposed rules by an increase in opportunities to participate in work to reduce greenhouse gas emissions and to develop projects for Oregon communities. Project implementation costs incurred would be supported by the CCI funds received from covered fuel suppliers, along with administrative and reporting costs related to project implementation. There would also be some initial administrative costs to obtain DEQ approval and to propose new projects, which would not be supported by CCI funds.

Public

DIRECT IMPACTS

The proposed rules do not impose any direct fiscal or economic effects on the public.

INDIRECT IMPACTS

Potential impacts to consumers

Members of the public purchase fuels and goods for their personal use. The proposed rules could affect the public if businesses alter the price of goods and services in response to the cost to comply with the Climate Protection Program. Consumers could experience both positive and negative indirect fiscal impacts as covered entities pass their savings and costs to the public through the retail price of fuels and goods. Consumers may include members of the public, other governments, businesses, such as non-directly regulated businesses that are large or small, and others. Impacts will vary for the residential and commercial sectors.

Examples of potential impacts may include:

- If clean alternative fuels that reduce emissions are more cost-effective than the fossil fuels they would replace, then the retail fuel price could decrease. If covered entities are able to pass on cost savings to consumers, then commercial businesses and households may see a change in their energy cost. Indirectly impacted commercial businesses may also pass on savings to their customers.
- If a covered fuel supplier acquires compliance instruments beyond those distributed freely by DEQ or contributes funds to receive CCI credits, then the price for consumers could increase.
- If clean technologies that reduce emissions are less cost-effective than the fuels or existing operations they would replace, then the price of goods for consumers could increase.

See the following sections for more discussion of the potential positive and negative impacts.

Potential impacts to Oregon's economy

Potential price increases could affect the general economy as businesses adjust to changes in the costs of fuels or goods, as discussed above. Businesses that realize savings through

investment in lower-cost clean fuels or technologies are likely to grow. Conversely, businesses with higher costs could have increased difficulty managing their profitability. As part of program development, DEQ contracted with ICF to analyze the macroeconomic impact of an emissions cap program in Oregon. Across multiple program design scenarios, ICF concluded a program of this type could significantly reduce GHG emissions while maintaining the overall health of the economy. While changes were small, the study indicated net positive trends for gross state product, income, and jobs. Over time, reduced energy costs were found to outweigh costs of investments, which increased personal income and allowed for more spending throughout the economy. Investments in clean transportation were found to result in consumer energy cost savings. This analysis is a conservative estimate of the macroeconomic impacts as it did not incorporate all potential benefits, such as monetized health benefits or the investment of any contributed CCI funds discussed below.

Potential positive economic impacts

Members of the public may also see economic benefits related to the creation of new green jobs for implementation of approved projects that receive community climate investment funds. The implementation of these projects may require hiring and training new staff or contractors. DEQ is not able to quantify the fiscal impact of these potential new green jobs.

Members of the public may also see economic benefits through community climate investments. The types of projects and communities that may be impacted by this are not yet determined as this will be informed by the equity advisory committee and is part of program implementation. For example, a project that improves energy efficiency in low-income households may create economic benefit for those households. This portion of the program also has the opportunity to bring monetized benefits to communities disproportionately burdened by the effects of climate change, air contamination, and costs. These communities are disproportionately Black, Indigenous, and communities of color, as well as low-income and rural communities. DEQ is not able to quantify the fiscal impact on project impacts or cost savings.

Potential negative economic impacts

The proposed rules could have negative economic effects on the public if businesses providing jobs and contributing to local economies were to curtail production or close in response to regulatory requirements. These operations could shift to an area outside of Oregon that is not subject to this regulation, which is sometimes referred to as leakage. DEQ recognizes that employment plays a key role in public health, and that negative economic impacts through job loss could occur despite proposed provisions to allow business flexibility in an effort to decrease the chances of business closures or employee layoffs in direct response to regulations.

Potential positive health impacts

Broadly, climate change caused by greenhouse gas emissions has detrimental effects on the overall public welfare of the State of Oregon and there are costs associated with climate inaction. Additionally, there are communities disproportionately burdened by the effects of climate change, air contamination, and costs. These communities are disproportionately

Black, Indigenous, and communities of color, as well as low-income communities and rural communities. The proposed rules are intended to reduce greenhouse gas emissions to address climate change and support reductions of co-pollutants, such as toxic air contaminants and criteria pollutants. DEQ did not have specific information to quantify all costs or benefits associated with climate change and public welfare. Climate Protection Program greenhouse gas emissions reductions that decrease climate change risks and co-pollutant health risks could create positive economic benefits and improvements in public health and welfare statewide.

As part of program development, DEQ contracted with ICF to analyze the public health impact of an emissions cap program in Oregon. Across multiple program design scenarios, ICF concluded a program of this type could significantly reduce statewide adverse health impacts due to changes in criteria pollutant emissions from on-road mobile sources, electricity generation, and other sources. The cumulative monetized value of public health benefits over the program's time horizon of 2022 to 2050 could be up to \$2.29 billion (2020\$). This analysis is a conservative estimate of the potential health benefits as it did not incorporate all potential benefits. For example, the model used for the health analysis only assessed greenhouse gas emissions reductions from fuel combustion, but did not capture emissions reductions from industrial processes. Additionally, it analyzed reductions in the co-pollutants of particulate matter and its precursors, but did not capture the benefits of reductions of other co-pollutants, such as air toxics. The model monetized several health outcomes, such as avoided heart attacks and hospital visits, but did not capture all health outcomes that may be affected by air contamination and did not capture indirect health outcomes, such as adverse health impacts from extreme weather cause by climate change.

Oregon Department of Environmental Quality

DEQ staff will implement the program and provide assistance to covered entities about how to comply with program rules. DEQ is currently conducting an agency-wide process to house most data in an Environmental Data Management System, or EDMS, which is being developed in coordination with a third-party contractor. The new reporting requirements and emissions tracking for the Climate Protection Program is also being incorporated into EDMS and the funding needed to implement and maintain this are already supported in existing contracts.

Other governments

DIRECT IMPACTS

The proposed rules do not impose any direct fiscal or economic effects on federal, state, or local agencies or tribal governments, unless they bring liquid or gaseous fuels into Oregon for use in the state or own or operate a large permitted facility. If so, see the discussions on covered entities above.

INDIRECT IMPACTS

Federal, state, and local agencies and tribal governments are consumers of fuels and goods. See the discussion on the potential impacts to the public above.

Local or tribal government representatives, such as city or county health staff, planning staff, and other officials, may also be impacted by the need to participate in meetings related to the implementation of the Climate Protection Program. This may include time to research and understand potential air quality concerns, Climate Protection Program regulations, and time spent attending meetings. DEQ is not able to quantify these fiscal impacts, but recognizes that time spent may impact local or tribal government budgets for travel or other expenses.

Housing cost

As ORS 183.534 requires, DEQ evaluated whether the proposed rules would have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-squarefoot detached, single-family dwelling on that parcel. DEQ determined the proposed rules will have no impact on the supply of housing or land for residential development and will not impact the cost of labor or administration related to such development, but could have an effect on the development costs because it could indirectly affect the price of materials used for such construction. For example, the indirect impact on the price of materials could occur if covered entities subject to the proposed Climate Protection Program increase fuel prices, and if the companies that manufacture construction materials then pass through those increased costs in the price of their materials. If fuel prices increased, that would also increase the costs of operating construction equipment related to development of a single-family dwelling. As another example, the cost of cement used in the development could increase as a result of the proposed program. See the discussion on the potential impacts to the public above. Because these impacts are indirect, and depend on the individual decisions of multiple businesses before resulting in land development cost increases, DEQ is unable to estimate the amount of the increased costs.

Advisory committee

DEQ appointed the Greenhouse Gas Emissions Program 2021 Rulemaking Advisory Committee to provide input on the proposed rules and for input on the fiscal and economic impact statement. As ORS 183.333 requires, DEQ will ask for the committee’s recommendations on:

- Whether the proposed rules would have a fiscal impact,
- The extent of the impact, and
- Whether the proposed rules would have a significant adverse impact on small businesses and complies with ORS 183.540.

The committee will review the draft fiscal and economic impact statement and will share its comments findings with DEQ staff, who will document those comments and findings.

Documents relied on for fiscal and economic impact

Document title	Document location
Oregon Greenhouse Gas Reporting Program data	https://www.oregon.gov/deq/air/programs/Pages/GHG-Emissions.aspx

DEQ and ICF modeling study on program options to reduce greenhouse gas emissions	https://www.oregon.gov/deq/ghgp/Pages/modelingstudy.aspx
U.S. Interagency Working Group on Social Cost of Greenhouse Gases Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990, February 2021	https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf
U.S. EPA Global Non-CO2 Greenhouse Gas Emission Projections & Mitigation Potential: 2015-2050, October 2019	https://www.epa.gov/sites/production/files/2019-09/documents/epa_non-co2_greenhouse_gases_rpt-epa430r19010.pdf
McKinsey & Company Decarbonization of industrial sectors: the next frontier, June 2018	https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/how%20industry%20can%20move%20toward%20a%20low%20carbon%20future/decarbonization-of-industrial-sectors-the-next-frontier.pdf
Regulatory Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions Final Rule (GHG Reporting), EPA, September 2009	https://www.epa.gov/sites/production/files/2015-07/documents/regulatoryimpactanalysisghg.pdf
U.S. Inflation Calculator	https://www.usinflationcalculator.com/
Oregon Department of Employment data	Employment Department 875 Union Street NE Salem OR 97311

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.