

# Climate Protection Program EITE Rulemaking

## Key Program Elements for RAC 1

### Overview

This rulemaking aims to develop greenhouse gas emissions intensity values, that is, emissions per widget produced, or **benchmarks**, for each emissions-intensive, trade-exposed (EITE) and direct natural gas (DNG) source. It also aims to develop a **reduction schedule** of how many free compliance instruments are distributed over time to those sources per widget produced.

DEQ anticipates the greenhouse gas emission intensity benchmark would be the number of metric tons of carbon dioxide equivalent released per unit of manufacturing product or process. DEQ also anticipates the reduction schedules could specify a percentage decline over time from the greenhouse gas emissions intensity benchmark. These percentage declines could be annual or for a compliance period.

The annual distribution of compliance instruments to these sources could likely look like this:

benchmark (emissions/unit output)	working through during this rulemaking
x reduction schedule	working through during this rulemaking
x units output	reported to DEQ annually
= number of compliance instruments distributed	

Hypothetical example:

benchmark	2.040816 tons emissions per unit of product
x reduction schedule	98%
x units output	200 units produced
= compliance instruments distributed	400 (= 2.040816 x 0.98 x 200)

DEQ distributes free compliance instruments to all covered entities by June 30 each year for the previous year. DEQ anticipates distributing compliance instruments from the program’s annual emissions caps to EITE and DNG sources first before subsequent distributions to natural gas utilities and other fuel suppliers regulated by the Climate Protection Program. Using the intensity value approach, the number of compliance instruments distributed to EITE and DNG sources grow or shrink as their production totals increase or decrease.

DEQ anticipates that the remaining compliance instruments would then be distributed to natural gas utilities and liquid fuels and propane suppliers using the percentages and methodologies outlined in OAR 340-273-9000(2) and OAR 340-273-0420. EITE and DNG sources must first demonstrate compliance in December 2030 for the 2028-2029 compliance period.

### Rulemaking objectives

The Climate Protection Program is designed to significantly reduce greenhouse gas emissions, while supporting Oregon’s economy and promoting equitable outcomes for environmental justice communities. The central objective of this rulemaking is determining how EITE and DNG sources will be regulated in the program’s second compliance period (2028-2029) and beyond. DEQ wants to incentivize emission reductions at these facilities while recognizing the special circumstances they face as trade-exposed, and the role they play in supporting Oregon’s economy. Avoiding the relocation of manufacturing and associated emissions from Oregon to places without emissions-reduction programs is a key consideration of this rulemaking. Understanding any potential impacts, including health impacts, on environmental justice communities, including communities experiencing lower incomes, rural communities, BIPOC, and tribal communities is also a key consideration.

# Program elements for first advisory committee meeting

Background policy [memo 1](#) and [memo 2](#) noted some core policy questions faced when jurisdictions regulate greenhouse gas emissions from emissions-intensive trade-exposed industries. The first advisory committee meeting will focus on the topics of greenhouse gas emission intensity benchmarks and reduction schedules.

## 1. Greenhouse gas emission intensity benchmarks

In this context DEQ uses the term **benchmark** as a starting reference number for greenhouse gas emissions level or intensity – for example, greenhouse gas emissions per widget produced. Benchmarks are part of the equation for compliance instrument distribution.

### Benchmark specificity

There are trade-offs between broader and narrower approaches to benchmarks.

Broader product-based benchmarks that apply to multiple sources reward producers that have relatively more efficient production and provide strong incentives for those with less efficient production to increase efficiency.

Narrower, source-specific benchmarks avoid equating significantly different products or production techniques that on the surface may appear similar (for example, in the semiconductor industry). These account for pre-existing differences in production, many of which are not due to the source itself, like weather, a business's age, building configuration, input costs, labor costs and local utilities.

Source-specific but product-differentiated benchmarks allow sources to increase their production of more emissions-intensive products relative to less-intensive products without penalty.

Mass-based benchmarks, based solely on past emission levels and not adjusted for production, can protect confidential business information but lose the function of expanding allocation to accommodate a growth in production.

There is no perfect approach and having many benchmarks can require more intensive data collection. California and the European Union, two programs with large numbers of EITEs and multiple producers of similar products, tend to use industry-wide, product-specific benchmarks. Smaller programs like those in Washington and Quebec mostly use source-specific benchmarks.

More than half of Oregon's EITEs produce products no other EITE in Oregon is producing. For example, while Oregon has seven EITEs in the semiconductor space, those products are differentiated enough that product-specific benchmarks across sources may not make sense. That said, Oregon has some products that might be able to use a product-specific benchmark applied across multiple sources, such as paper, plywood, particle board, and frozen potato products.

### Questions

- a) What principles should DEQ use in setting benchmarks? Should the program consider differences between process or combustion emissions when establishing benchmarks? If so, why?
- b) Should the program use benchmarks that are product-based across multiple sources, source-specific covering all emissions at a source, source-specific and product-differentiated, or a combination of those approaches? Why? Are there product-specific benchmarks that should apply to multiple sources?
- c) If the program uses source-specific data, should DEQ account for previous investments by some to reduce emissions, or sources that have lower than average emissions for their industry? If so, how?

### Data years

In establishing benchmarks, DEQ needs to determine which emission data years to use, how many years to use, and if the emissions year, or years, used should be the same for all sources. DEQ generally prefers using more recent and multiple years of data, aiming to balance recent market conditions with overall representativeness.

## **Data collection**

The Climate Protection Program relies on emissions data from DEQ's Greenhouse Gas Reporting Program, which is subject to third-party verification. These data are used to determine compliance obligations for covered entities and to determine covered emissions thresholds for program applicability. The Climate Protection Program generally prefers to use third-party verified reporting program data for accuracy and robustness. The program does use unverified emissions data with a process for later adjustments once verified data is available, when it distributes compliance instruments to fuel suppliers.

For the Climate Protection Program's permits, DEQ requested production and emissions data from 2020 to 2024. All companies covered by the program are subject to third-party verification, with verification for all EITE and DNG sources required starting with the 2024 reporting year, though several had already been subject to third-party verification.

DEQ also acknowledges how the disruption from COVID (largest in 2020-21) affected these data, causing some manufacturing to decrease significantly, other manufacturing to increase significantly, and some sources to go through dramatic peak-trough cycles. DEQ could also consider how to incorporate more recent emissions and production data from 2025 or 2026 in establishing benchmarks.

## **Potential approaches**

One approach would use either the median or mean intensities of a set of years, for example 2022-2024. Another option would remove the highest year and lowest year of a five-year data set as outliers and average the remaining years. DEQ staff currently believe these approaches may reflect the ebbs and flows of business and emissions and result in a more representative benchmark than single-year approaches.

Washington's Climate Commitment Act used an average from a default set of data years. In Washington, sources can request the use of alternative years if they can demonstrate the facility's emissions were affected by abnormal periods of operation. DEQ staff recognizes the advantages and simplicity of using a default set of data years.

If using different data years for different sources, DEQ could determine what is the most representative year or years for each source. One approach would be to use the most efficient year of a data set; that could create the strongest incentive to reduce emissions but potentially yield higher compliance costs for EITEs since they would receive less compliance instruments. A different approach would use the least efficient year in a data set. This would mean the lowest EITE impacts, but EITEs as group would receive more compliance instruments as compared to fuel suppliers.

Setting benchmarks based on a single year rarely reflects the normal ebbs and flows of business and manufacturing. Furthermore, many sources have processes and related emissions that remain relatively constant regardless of the amount of product produced. Sources may have a kiln that has to remain at 2,000 degrees, or a boiler that must run constantly, regardless of production levels.

Another possibility is expanding the data set to include data from sources outside of Oregon. If sources outside of Oregon have more efficient greenhouse gas emissions intensity values, that may indicate more room for efficiency gains at Oregon sources. Conversely, if Oregon's EITEs are generally more efficient than non-Oregon EITEs, it may support slower emissions reductions in Oregon.

Some sources have suggested the program exempt covered emissions that result from air pollution reduction equipment when setting benchmarks. Most equipment serves multiple business aims, such as improving workplace safety, powering heating systems, or reusing production materials, along with reducing air pollution. DEQ has not found examples of other programs exempting or adjusting for emissions from certain equipment, as policies are designed to incentivize and reduce air pollution, including air toxics and greenhouse gas emissions.

## **Questions**

- a) How should DEQ approach selecting data years for establishing benchmarks?
- b) Should DEQ use the same data years for all sources when establishing benchmarks or different year(s) for different sources? What would be the advantages or disadvantages of the different approaches?

- c) If DEQ were to use the same data years for all sources, should DEQ allow for sources to petition for different data years? What should DEQ consider in allowing for this?

## 2. Reduction schedules

Once benchmarks are established the reduction schedules will specify the percentage decrease in compliance instruments DEQ distributes per widget produced either each year or compliance period. DEQ needs to determine the pace and scope for incentivizing improvements in each source's greenhouse gas emissions intensity.

### Emission sources and strategies

While each company will determine its own strategies for reducing emissions, some options include efficiency improvements, potential electrification, and use of biofuels or alternative fuels, such as renewable natural gas or hydrogen either onsite or through book and claim reporting. Another option might include carbon capture and storage or chemical changes to manufacturing processes.

Most sources' covered emissions come from combustion – burning natural gas or certain other fuels (e.g. coal, tires) on site for power. Other sources' emissions come partly or mostly from process emissions, such as f-gases used in the semiconductor industry. Roughly 61% of EITE greenhouse gas covered emissions come from combustion.

Some efficiency gains occur naturally when aging equipment reaches the end of its useful life and is replaced. Modern boilers, heaters, and dryers incorporate advanced sensors, computerized programmable logic controllers (PLC), variable-speed drive motors, high-efficiency burners, oxygen trim systems, and automated combustion controls that continuously optimize flow rates, fuel-air ratios, temperatures, and operating loads. Depending on the application and condition of the existing equipment, these technologies can reduce fuel consumption and greenhouse gas emissions by approximately 10–20% or more compared to older systems.

Boilers account for about 55% of industrial combustion emissions. Additional efficiencies can often be achieved through retrofits to existing boilers, including upgraded PLC control systems, variable-frequency drives on fans and pumps, burner replacements, improved heat recovery, insulation upgrades, and enhanced combustion tuning. However, many industrial boilers and process heaters are designed to operate for 20–30 years or longer before replacement becomes cost-effective. Some efficiency equipment would require retrofitting or reconfiguring existing buildings.

Options for reducing greenhouse gas emissions include replacing existing fossil fuels with renewable natural gas either onsite or through book and claim reporting where renewable natural gas is registered and claimed regardless of physical location. The same approach can be used for hydrogen. Other options include installation of fuel cells, combined heat and power upgrades, advanced geothermal heating systems, and carbon capture and storage. Electrification is a potential reduction option for some sources, particularly those with relatively low-heat technology, though there are concerns over grid reliability and the capital and operating costs with making the switch. Over time new technologies and approaches can develop, which can decrease costs.

On the process emissions side, some Oregon EITEs have made progress replacing inputs with chemicals that have a lower global warming potential, or lower clinker concrete.

Sources have other options to include in their Climate Protection Program strategies, such as acquiring community climate investment credits, and trading and banking of compliance instruments.

### Pace of reductions

The Climate Protection Program is designed to reduce emissions covered under the program by 50% percent by 2035 and 90% from 2050 from 2017-2019 baseline. Even without established greenhouse gas emission intensity targets, EITEs have a much slower rate of emission reductions than other sectors. This reflects the smaller share of emissions associated with EITE sources than other sectors, their unique status as trade-exposed, and their role in Oregon's economy.

DEQ could choose to create annual percentage reductions or percentage reductions for each two-year compliance period. EITE and DNG sources have no compliance obligations from 2025-2027 other than

reporting, unlike the program's other covered entities. DEQ anticipates the initial greenhouse gas emissions intensity benchmarks will be used for the 2028 distribution of compliance instruments to EITE and DNG sources, but DEQ must determine if the reduction schedule would first apply in 2029 or the next compliance period (2030-2031).

The program could also use non-uniform rates of reduction – for example, 4% for the 2030-31 reduction period, 3% for the 2032-33 period, and 2% for 2034-2035. Non-uniform rates of reduction could be used to either incentivize early reductions or alternatively to provide more flexibility at the start. The program could also use non-uniform reduction schedules across sources – for example, asking those who are less trade-exposed, or have more opportunities to reduce emissions, to reduce more quickly than others.

While the Climate Protection Program is unique, it is helpful to understand how Washington and California have structured reduction percentages for emissions-intensive and trade exposed facilities under their mandatory greenhouse gas emission reduction programs. Washington's Climate Commitment Act uses a reduction schedule that reduces the amount of free allowances each EITE facility receives by 3% during 2027-2030 and by 6% during 2031-2034. In California, the number of free allowances provided to each facility drops by roughly 4% each year. California is currently reviewing EITE allowances.

Some Oregon EITEs have suggested a 1% reduction per year, or 2% per two-year compliance period. Others have suggested adjusting the compliance period and aiming for 4% or 5% over a four-year period.

### **Adjustments to reduction schedules**

Regardless of the type of reduction schedule chosen for EITE sources, DEQ might consider adjustment due to unforeseen events or circumstances. While there are always changes in business practices, market dynamics and emissions reductions technologies and strategies, there may also be external events or other circumstances that would make meeting the reductions schedules challenging for sources.

The program is designed to provide flexibility to these sources, including a slower pace of reduction than for non-EITE sources, and DEQ could consider a process to adjust reduction schedules.

A different approach is to set required reductions but state in the rule language that DEQ would revisit the reduction schedules at specific time in the future. Some sources indicated interest in this approach. DEQ already reviews its rules every five years to ensure they are effective and can amend rules relatively efficiently, and the program makes regular reports to the Environmental Quality Commission on the program's functioning. Washington State has not specified further percentage reductions past 2034, but its Department of Ecology, "Ecology," is required to recommend a reduction schedule for 2035-2050 that aligns with state emissions limits. California's program occasionally revises some of its benchmarks in response to changing production information and circumstances.

Another approach is to have a process where sources can provide evidence of their challenges to meet future reduction schedule requirement to DEQ and potentially receive some adjustments to reduction schedules. DEQ might consider a process where sources could petition to adjust future reduction schedules.

Washington's Climate Commitment Act [policy](#) allows EITEs to petition Ecology to receive an upwards adjustment to the reduction schedule. EITEs must demonstrate additional reductions in greenhouse gas intensity are not "technically or economically feasible" over the next four-year compliance period. Ecology then reviews the application to determine whether to adjust the reduction schedule. Sources must show significantly change emissions use attributable to manufacture process of goods, a significant change to external competitive environment result in leakage risk, or abnormal operating periods.

Yet another approach could require sources to submit an assessment of best available emissions reductions when requesting any potential adjustments to the reduction schedule. The report approach can provide a more comprehensive review of the possibilities for emissions reduction. Washington State requires sources to document costs of available emissions reduction options every four years, through Senate Bill 6246.

Another approach could allow sources to demonstrate their emissions intensity is better than most comparable sources and set reduction schedules in relation to comparable sources. This would be resource-intensive for DEQ to implement, and there are significant difficulties in finding an accurate set of

comparable sources. It would, however, incentivize efficiencies and, if sources could use comparable sources outside of Oregon, encourage growth in Oregon industries leading in efficiencies.

## Questions

- a) Should compliance instrument reduction schedule be uniform, or be industry, source, or product-specific?
- b) What should the expected reduction percentage every two years be?
- c) Should the program have a method for facilities to get adjustments to the reduction schedule? If so, what would it look like? What would DEQ need to consider when allowing for adjustments?
- d) Should DEQ consider other compliance flexibility options in place of or to complement adjusting reduction schedules, such as higher usage percentage for community climate investments credits? If so, what?

## 3. New products and evaluating benchmarks

Oregon's EITE are dynamic companies, bringing new and improved products to the market on a regular basis, and updating their production processes as industrial innovation occurs around the world. They are also subject to the worldwide marketplace, and changes in market demand.

Depending on the method used to establish a source's benchmark, DEQ may need to consider changes to benchmarks. For example, if source-specific benchmarks are used and a source starts manufacturing a new product. One advantage of a source-specific benchmark is a lower administration burden for both sources and DEQ. If a new product is manufactured and the new product has a lower greenhouse gas emission intensity than source would be benefit, but if the new product has a higher emissions intensity, it would be a disadvantage. Additionally, if a source is manufacturing multiple products and there is a significant shift in the ratio of production, this may warrant a review.

If multiple product or process-specific benchmarks are used at a source, manufacturing a new product may require developing an additional product-specific benchmark for this source.

Another approach, if using product-specific benchmarks, is to set a threshold of production or emissions below which a product is exempt from the program, and above which the product must enter the program.

Additionally, often the first year or two of production of a new product involves perfecting the manufacturing process and significant adjustments. Therefore, data may not be representative of a product's general greenhouse gas emissions intensity.

Washington [allows for adjustments](#) to benchmarks if the data used in determining the benchmarks are corrected or if reporting methods change.

California has changed some of its benchmarks over time, as well as other program details. The California Air Resources Board is currently [considering changes](#) to shift some product definitions and add new ones.

### Current processes for bringing in new sources

As DEQ considers how to adjust for new products or significant production changes, it is instructive to understand how programs bring whole new sources into their programs.

Currently Oregon Administrative Rule [340-273-0410\(6\)](#) outlines treatment of new EITE and DNG sources. That rule section exempts the source from compliance obligations for covered emissions until the first year of the next compliance period after they become a covered entity. It uses the most recent year(s) of available data to calculate an emissions baseline, without accounting for production levels.

Washington State's preferred approach is to calculate greenhouse gas intensity based on three years of emission and production data. If three years of emissions or production data are not available, Ecology uses a mass-based baseline, until three years of data are available.

The basic approach is the same: gather a large enough amount of data to ensure numbers are representative and transition the production into the programs' overall structure.

## Questions

- a) Depending on the type of benchmark, industry-wide, source-specific or product specific, how should DEQ consider new product manufacturing or significant shifts in production?
- b) Beyond new products or significant shifts in production, are there other changes DEQ should consider when evaluating potential adjustments to benchmarks? If so, what?

## Additional information

For updates on the EITE rulemaking, please [subscribe for email updates](#) and visit the [EITE rulemaking web page](#).

Please visit the [program web page](#) for more information on the Climate Protection Program.

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