Oregon Department of Environmental Quality

GHG Emissions Accounting for House Bill 2021

Reporting and projecting emissions from electricity using DEQ methodology

Greenhouse Gas Reporting Program

Overview

This document provides background information on Oregon's greenhouse gas emissions reporting methodology and guidance to Oregon electricity providers for calculating emissions in compliance with the clean energy targets in Oregon House Bill 2021, which passed in 2021. This includes a description of the emission factors assigned for use in Clean Energy Plans and for information required to be provided to Oregon's Public Utility Commission by an Electricity Service Supplier (ESS). ORS 468.420 details DEQ's role in verifying emissions and determining compliance with clean energy targets. Read background information on DEQ's role in implementing and evaluating emissions.

Greenhouse gas emissions data considerations

DEQ greenhouse gas reporting requirements

In addition to the information provided to PUC in compliance with HB 2021, Portland General Electric, PacifiCorp, and each ESS must annually report greenhouse gas emissions associated with the power provided to Oregon in compliance with OAR 340 division 215, DEQ's greenhouse gas reporting rules. These rules require that electricity suppliers distributing electricity to end users in Oregon annually submit an emissions data report to DEQ. Reports must include greenhouse gas emissions associated with electricity generated to serve end uses in Oregon. Those emissions must be computed using DEQ-approved quantification methodologies. This includes emissions from both electricity generated at facilities owned or operated by the utility and electricity purchased from other entities. Additional details on these reporting requirements are available on DEQ's website along with reported emissions data.

Multi-jurisdictional utility reporting

Electricity companies, such as PacifiCorp, that serve load to retail customers in a service territory that is partially located in Oregon and at least one other state are considered multi-jurisdictional utilities. Oregon rules allow for a multi-jurisdictional utility to rely upon a cost allocation methodology approved by the Oregon PUC for allocating emissions associated with the generation of electricity they distribute to their Oregon customers. Under these rules, and with the currently approved cost allocation methodology, the utility reports a percentage of their entire multi-state system emissions based on the share of the power they serve in Oregon. Read about the cost allocation methodology.

Removal of non-retail sales

Energy and emissions from a utility's sale of wholesale power are not included in their annual Oregon emissions total. Rather, a utility must remove the power and emissions associated with those non-retail sales from the calculations and reporting of emissions associated with the electricity they supplied to their Oregon retail customers.

Utilities account for non-retail sales in 3 different manners based on the nature of each individual sale:

1. Sales of specific power: Non-retail sales of a specific resource or set of resources are accounted for by removing that power and any associated emissions from a utility's emissions reported to DEQ.
2. Sales of unspecified power: Unspecified power purchased by a utility and then re-sold to non-retail customers is removed (both the power and emissions) from the amount of unspecified power included in a utility's emissions reported to DEQ.
3. Sales of the utilities' overall resource mix: Non-retail sale of a utility's power without specification of any particular portion of the utility's portfolio are removed by proportionately subtracting it across the utility's overall resource mix for that year.

Transmission loss calculation

Transmitting electricity over long distances creates power losses. To account for that electricity, suppliers must report the MWh of electricity as measured at the generating facility's busbar, or to account for losses when electricity is not measured at the busbar of the generating facility. DEQ rules require an electricity supplier to include a 2 percent transmission loss correction factor when calculating emissions from generation not measured at the busbar.

Required adjustments for HB 2021

HB 2021 excludes emissions associated with electricity obtained from net-metering of customer resources and power from qualifying facilities certified under the terms of the Public Utility Regulatory Policies Act. Qualifying facility status is obtained by applying through the Federal Energy Regulatory Commission. More information on qualifying facilities can be found on FERC's website.

Scope of emissions evaluated by DEQ for HB 2021

DEQ's primary role in HB 2021 is to evaluate emissions data, determine if the reported information is computed pursuant to DEQ's rules, and issue a determination on whether the submitted information demonstrates that the utility or ESS can achieve the clean energy targets.

In a Clean Energy Plan, PGE and PacifiCorp must forecast total greenhouse gas emissions associated with generation serving their Oregon customers, for each target year, associated with the Integrated Resource Plan portfolio scenarios required by PUC. This information must be broken out by individual fossil fuel resource, and market purchases.

An ESS must submit an estimate of annual greenhouse gas emissions associated with electricity sold to retail electricity consumers in Oregon for the current year and following three years. Additionally, an ESS must include a projected reduction of annual greenhouse gas emissions associated with the electricity sold to retail electricity consumers.

Greenhouse gas emissions data included in these forecasts must use DEQ's emission reporting methodology. This includes using emission factors assigned by DEQ, including a 2 percent transmissions loss factor for power not measured at the busbar, and using a multi-jurisdictional cost allocation approach for assigning resources to Oregon. One exception to DEQ's standard emission reporting rules is the requirement to adjust for qualifying facilities and net metering as described above. Emissions from qualified facilities and net metering programs are not regulated under HB 2021 and as such emissions from these sources are excluded from DEQ's determination for an electricity provider.

Emissions factor determination

This section provides an overview of greenhouse gas electricity sector emission factors and DEQ's methodology for assigning emission factors to specified sources.

An emission factor is a value that represents the amount of greenhouse gases directly emitted, per unit of electricity generated, from a particular generating unit or facility. Because each generating source releases a different amount of greenhouse gases, measured in metric tons of carbon dioxide equivalent (MTCO2e) per megawatt-hours (MWh), DEQ annually calculates and assigns an emission factor to each specified source for reporting purposes. For unspecified resources, DEQ methodology requires the use of a default emission factor (0.428 MTCO2e/MWh).

Although emission factors do not change significantly from year to year, barring major upgrades to facilities, DEQ annually calculates facility specific emission factors using the best available data[1]. The emission factors provided by DEQ for use in Clean Energy Plans are the most recent calculated values based on reported and verified data. DEQ recommends using current emission factors as they represent the most current operating conditions for their respective facilities over the course of a full year.

These emissions factors are required to be used by utilities when reporting their actual emissions each year. This does not preclude a utility from modeling a change to a facility that would change its emission factor (for example, a capital improvement that would increase the facility's heat rate) or expectation of a change in the unspecified emission factor; this would simply need to be identified and explained in the materials submitted to DEQ.

Emission factors assigned by DEQ for use in compliance with HB 2021 are available on DEQ's website. In some instances, as described below, these emission factors vary from those used for annual greenhouse gas reporting compliance. For this reason, regulated entities may not use this workbook for reporting and compliance with Division 215 and must submit reports through DEQ's electronic reporting system.

Specified source emission factors

Under Oregon's greenhouse gas reporting rules, a specified source refers to a source of electricity that is either owned by the utility, purchased through a pre-existing contract or from a DEQ-approved Asset Controlling Supplier.

DEQ assigns facility-specific emission factors to each specified source annually. Each emission factor calculation includes totaling the facility-level emissions for the calendar year, including the carbon dioxide, methane, and nitrous oxide emissions from electricity generation in MTCO2e and dividing that total by the net electricity generation in MWh from the facility. For non-emitting resources such as solar, wind, hydro, and closed-loop geothermal, the emission factor is zero, as no direct emissions are produced from those generation types.

- Details on DEQ's methods for assigning specified source emission factors
- Specified source emission factors for use in Clean Energy Plans

[1] Annual GHG emissions data is retrieved from the US Environmental Protection Agency and annual energy production data is retrieved from the U.S. Energy Information Agency.

Asset Controlling Supplier (ACS) emission factors

An ACS is an entity that owns or operates inter-connected electricity generating facilities or has exclusive rights to claim electricity from these facilities even though they do not own them, and that has been designated by DEQ as an ACS. An ACS must annually report the megawatt-hours and greenhouse gas emissions from electricity generated, purchased, and sold across their power system, both within and outside of Oregon. Purchases from an ACS use the emission factor for the entirety of the ACS's energy portfolio. Currently, the only approved ACS approved by DEQ is Bonneville Power Administration.

Bonneville Power Administration

For purposes of projecting emissions from BPA's ACS power, DEQ assigned a five-year average of the most recent verified emissions data provided by BPA. Since BPA power is largely hydropower the intent in using a five-year average is to capture year to year variability while also reflecting the current asset controlling supplier's mix.

Unspecified source emission factor

OAR 340-215 requires the use of the default emission factor of 0.428 (MTCO2e/MWh) for energy originating from an unspecified source.

Power from centralized market purchases

Currently, DEQ's rules assign the default unspecified emission factor rate of 0.428 (MTCO2e/MWh) to power purchases from the energy imbalance or other centralized markets for calculating emissions.

Default resource specific emission factors

In cases where a facility-specific emission factor is either not available or not applicable, DEQ has provided default emission factors by fuel type to be used by utilities. When possible, these emission factors are based on EPA's 2022 Greenhouse Gas Emission Factors hub, which is available on EPA's website. When not available, emission factors from EPA's 2020 Emissions & Generation Resources Integrated Database (eGRID) Technical Guide were used.

All emission factors were converted to metric tons of carbon dioxide (MTCO2e) equivalent per million British thermal units (MMBtu) using Intergovernmental Panel on Climate Change Fourth Assessment Report Global Warming Potential values. For fuel types that fall under the major fuel types of coal, petroleum, and natural gas, the emission factors were converted from MMBtu to MWh using the EIA's 2021 average heat rate for each major fuel type.

Utilities may use these emission factors to approximate emissions from facilities that have not yet been constructed, such as geothermal power plants, or facilities that are being converted from one fuel type to another, such as coal plants being converted to natural gas plants.

If used, utilities must provide a narrative explaining why the default emission factor is being used and clearly indicate in their calculations where it was utilized.

Considerations for alternative emission factors

DEQ may consider alternatives to the approved emission factors assigned for use in a CEP emissions calculation. Utilities seeking to use emission factors other than those provided must petition DEQ with an explanation of the rationale for an alternative (for example, a future capital investment that would improve a facility's heat rate).

Program contact

Greenhouse Gas Reporting Program website: https://www.oregon.gov/deq/ghgp/pages/ghg.aspx
Program contact: https://www.oregon.gov/deq/ghgp/Pages/ghg-contacts.aspx
Program email: GHGReport@deq.oregon.gov.

Alternate 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.oregon.gov.