



Electricity Carbon Intensity Values for 2025

Contact: OregonCleanFuels@deq.oregon.gov

This document publishes the statewide and utility-specific grid mix carbon intensity values for electricity reported as a transportation fuel in the Oregon Clean Fuels Program for the 2025 reporting year.

General methodology

The CFP calculates the carbon intensity of transportation fuels on a lifecycle basis, which means that both direct and indirect emissions are accounted for. For electricity, that means looking at both the direct emissions from the smokestacks of power plants and the indirect, upstream emissions from the extraction and transportation of the source of the electricity to the power plant.

Direct emissions

The electricity sector is required to report annually to DEQ's Greenhouse Gas Reporting Program¹. Each year, the utilities and electric generators report how much electricity they produce or procure from within and outside of Oregon and the resources used to generate their electricity, such as wind, coal, or others. The emission rates are reported in tons per megawatt-hours and then converted to grams of CO₂e per megajoule of energy by using the following factors²:

1 Metric Ton (MT) = 1,000,000 grams (g)

1 Megawatt-hour (MWh) = 1,000 Kilowatt-hour (kWh)

1 kWh = 3.6 megajoules (MJ)

Electricity consumption in other jurisdictions, like Washington state, is not included.

Indirect emissions

OR-GREET 3.0 is used to calculate the upstream or indirect emissions associated with the mix of resources generating electricity. Resources include, for example, natural gas, wind, solar, and coal. In the case of natural gas, the indirect emissions include emissions from energy used at the wellhead and throughout the transmission system, including fugitive methane emissions. For example in the case of coal, indirect emissions include emissions from energy used in the mining and transportation to the power plant of the fuel.

Source of the data

The emissions accounting is based on 2023 data reported to GHGRP by the electricity sector and 2021 data reported by the Bonneville Power Administration.

¹ The Oregon Department of Energy also uses DEQ GHG reporting program data. For more information about ODOE's use of this data, reference the ODOE 'Data & Reports' website <https://www.oregon.gov/energy/energy-oregon/Pages/Electricity-Mix-in-Oregon.aspx> and ERM Visual FAQ <https://www.oregon.gov/energy/energy-oregon/Documents/2022-06-13-ERM-Visual-FAQ.pdf>.

² For more information on the GHGRPs emissions factor assignment methodology for specified sources, reference <https://www.oregon.gov/deq/aaq/Documents/ghg-SpecifiedSourceEFmethods.pdf>

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800-452-4011 | TTY: 711 | deqinfo@deq.oregon.gov

Utility-specific direct emissions

Utilities are allowed to opt in to receive a utility-specific carbon intensity value as opposed to the statewide grid mix carbon intensity value. Many of these opt-in utilities are customers of the Bonneville Power Administration and are shown in Table 1 below.

Table 1. Utility-specific direct emissions

Organization Name	MWh	MTCO ₂ e	MTCO ₂ e/MWh	gCO ₂ e/MJ
Ashland Electric Department	175,647	2,948	0.017	4.662
Blachly-Lane Electric Cooperative	194,461	5,952	0.031	8.502
Cascade Locks	40,864	695	0.017	4.722
Central Electric Cooperative	849,791	24,046	0.028	7.860
Central Lincoln PUD	1,277,211	32,698	0.026	7.111
Clatskanie PUD	929,717	48,714	0.052	14.555
Clearwater Power Company	2,386	45	0.019	5.242
Columbia River PUD	530,294	9,015	0.017	4.722
Consumers Power	456,203	19,208	0.042	11.696
Coos-Curry Electric Cooperative, Inc	359,020	6,103	0.017	4.722
Douglas Electric Cooperative	170,861	3,141	0.018	5.107
Emerald PUD	525,806	44,427	0.084	23.470
Eugene Water & Electric Board	2,393,179	87,211	0.036	10.123
Forest Grove Light & Power	281,703	7,044	0.025	6.946
Hermiston Energy Services	114,253	1,942	0.017	4.722
Hood River Electric Cooperative	142,934	2,430	0.017	4.722
Lane Electric Cooperative	260,862	4,426	0.017	4.713
McMinnville Water & Light	746,444	12,251	0.016	4.559
Midstate Electric Cooperative	485,598	8,255	0.017	4.722
Milton-Freewater City Light & Power	108,913	1,413	0.013	3.605
Northern Wasco PUD	1,366,074	310,617	0.227	63.161
Oregon Trail Electric Cooperative	712,662	12,115	0.017	4.722
Salem Electric	347,597	5,909	0.017	4.722
Springfield Utility Board	798,227	13,570	0.017	4.722
Surprise Valley Electrification Corp	144,454	2,456	0.017	4.722

Tillamook PUD	503,168	8,519	0.017	4.703
Umatilla Electric Cooperative	7,239,233	770,573	0.106	29.568

Statewide mix direct emissions

Table 2 shows the aggregated calculated emissions factor and carbon intensity values for all providers of electricity that reported to GHGRP and the adjusted statewide mix after removing the energy and emissions from the utilities that have requested a utility-specific carbon intensity value.

Table 2. All providers of electricity and the adjusted statewide mix

	Units	All electricity providers	Adjusted statewide mix
Emissions Factor	MTCO _{2e} /MWh	0.280	0.395
Carbon Intensity	gCO _{2e} /MJ	77.90	109.74

Indirect emissions

Table 3 shows the statewide resource mix for 2022 since the indirect emissions are based on the statewide 2022 data. Indirect emissions are calculated using OR-GREET 3.0 and the resultant indirect emissions is **18.33 gCO_{2e}/MJ**.

Table 3. Statewide resource mix

Fuel resource type	Percentage of the resource in the statewide mix
Biogas	0.06%
Biomass (wood & wood residuals)	0.67%
Coal	11.26%
Geothermal	0.11%
Hydro	35.44%
Natural Gas	20.24%
Nuclear	3.18%
Other Biogenic	0.18%
Other Non-Biogenic	0.18%
Petroleum (distillate fuel oil)	0.00%
Solar	3.52%
Other waste (coal & heat)	0.00%
Wind	7.54%

Unspecified*	17.63%
Total	

*“Unspecified source of electricity” or “unspecified source” means a source of electricity that is not a specified source at the time of entry into the transaction to procure the electricity. Electricity imported, sold, allocated, or distributed to end users in this state through an energy imbalance market or other centralized market administered by a market operator is considered an unspecified source. These sources are accounted for using the emission factor in OAR 340-215-0120(2)(a): The emission factor for calculating emissions from unspecified power is 0.428 MT CO₂e/MWh.

Updated carbon intensity values for 2025

Table 4 shows the statewide grid mix and utility-specific carbon intensity values and the corresponding fuel pathway codes to be used when reporting to DEQ.

Table 4. Statewide grid mix and utility-specific carbon intensity values

Name	Reported Direct Emissions (gCO ₂ e/MJ)	Modeled Indirect Emissions (gCO ₂ e/MJ)	Total Emissions (gCO ₂ e/MJ)	Fuel Pathway Code
Statewide Grid Mix	109.742	24.772	134.513	ORELC2025
Ashland Electric Department	4.662	1.668	6.330	ORELCAE25
Blachly-Lane Electric Cooperative	8.502	2.962	11.464	ORELCBL25
Cascade Locks	4.722	1.690	6.412	ORELCFRC25
Central Electric Cooperative	7.860	2.746	10.606	ORELCCEC25
Central Lincoln PUD	7.111	2.494	9.606	ORELCCLP25
Clatskanie PUD	14.555	5.819	20.374	ORELCCLA25
Clearwater Power Company	5.242	1.865	7.108	ORELCCPC25
Columbia River PUD	4.722	1.690	6.412	ORELCFRC25
Consumers Power	11.696	1.690	13.386	ORELCCP25
Coos-Curry Electric Cooperative, Inc	4.722	1.690	6.412	ORELCFRC25
Douglas Electric Cooperative	5.107	1.820	6.927	ORELCDEC25
Emerald PUD	23.470	8.525	31.996	ORELCEPD25
Eugene Water & Electric Board	10.123	3.677	13.799	ORELCEWE25
Forest Grove Light & Power	6.946	2.427	9.373	ORELCFG25
Hermiston Energy Services	4.722	1.690	6.412	ORELCFRC25
Hood River Electric Cooperative	4.722	1.690	6.412	ORELCFRC25
Lane Electric Cooperative	4.713	1.687	6.401	ORELCLEC25

McMinnville Water & Light	4.559	1.631	6.191	ORELCCMM25
Midstate Electric Cooperative	4.722	1.690	6.412	ORELCFRC25
Milton-Freewater City Light & Power	3.605	1.288	4.893	ORELCMF25
Northern Wasco PUD	63.161	21.553	84.714	ORELCNW25
Oregon Trail Electric Cooperative	4.722	1.690	6.412	ORELCFRC25
Salem Electric	4.722	1.690	6.412	ORELCFRC25
Springfield Utility Board	4.722	1.690	6.412	ORELCFRC25
Surprise Valley Electrification Corp	4.722	1.690	6.412	ORELCSVE25
Tillamook PUD	4.703	1.733	6.437	ORELCTPD25
Umatilla Electric Cooperative	29.568	10.609	40.177	ORELCUEC25

Contact

Please contact OregonCleanFuels@deg.oregon.gov if you have any questions.

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