

# 2022 Greenhouse Gas Inventory



**Description:** Puget Sound Energy (PSE) serves more than 1.2 million electric customers and more than 900,000 natural gas customers in 10 counties. Our service territory includes the vibrant Puget Sound area and covers more than 6,000 square-miles, stretching from south Puget Sound to the Canadian border, and from central Washington's Kittitas Valley west to the Kitsap Peninsula. PSE's primary sources of direct GHG emissions are due to its role as a power provider and its natural gas operations, including pipeline leaks, gas storage, fugitive emissions and consumption by the end-user.

**Industry:** 22 – Utilities

**Address:** 355 110th Avenue NE  
Bellevue, WA 98004

**Issued:** December 14, 2023

## Reporting Information

**Emissions Year:** January 1, 2022 – December 31, 2022

**Reporting Protocol:** General Reporting Protocol 3.0 and associated updated and clarifications

**Additional Reporting Standards:** None

**Greenhouse Gases (GHGs):** Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and sulfur hexafluoride (SF<sub>6</sub>)<sup>1</sup>

**Global Warming Potential (GWP) Standard:** AR4<sup>2</sup>

**Consolidation Methodology:** Equity Share

**North American Industry Classification System (NAIC) Codes:** 221112 (Fossil Fuel Electric Power Generation) and 221210 (Natural Gas Distribution)

**Geography:** Washington State

## PSE Power Generation Fleet Information

Facility Name	Resource Type	Equity Share
Lower Baker River	Hydro	100%
Snoqualmie Falls	Hydro	100%
Upper Baker River	Hydro	100%
Hopkins Ridge	Wind	100%
Lower Snake River	Wind	100%
Wild Horse	Wind and Solar	100%
Encogen	Natural Gas/Oil	100%
Ferndale	Natural Gas/Oil	100%
Frederickson	Natural Gas/Oil	100%
Fredonia	Natural Gas/Oil	100%
Whitehorn	Natural Gas/Oil	100%
Frederickson (Freddy) Unit 1	Natural Gas	49.85%
Goldendale	Natural Gas	100%
Mint Farm	Natural Gas	100%
Sumas	Natural Gas	100%
Crystal Mountain	Oil	100%
Colstrip	Coal	25%

<sup>1</sup> The remaining gases, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF<sub>3</sub>), are not currently accounted for in the inventory due to a lack of robust data collection on usage at this time.

<sup>2</sup> Specific GWP values are listed in the attached Greenhouse Gas Inventory tables.

## Reporting Boundary

PSE inventories its Scope 1, 2 and 3 emissions as follows:

- Scope 1: direct emissions from PSE-owned facilities<sup>3</sup>
- Scope 2: indirect emissions associated with purchased energy for PSE use
- Scope 3: indirect emissions attributed to PSE's activities that are not owned or controlled by PSE

PSE's Scope 1 and 2 emissions are dominated by CO<sub>2</sub> produced during electricity generation. The majority of PSE's Scope 3 emissions are derived from natural gas sales to end-users and electricity purchased from other generators to serve our customer load.

Line losses associated with the electricity purchased to serve PSE customer load are included in Scope 2 and were calculated based on net electricity purchased and PSE's calculated percent loss for all electricity used to serve load. For the 2022 inventory, line loss data was calculated from PSE's 2022 Inventory to be 5% of total purchased power.

The attached tables summarize PSE's GHG inventory by scope and source. Emission intensity is calculated based on PSE's total electric operations, including Scope 1 emissions from PSE-generated electricity and Scope 3 from generation of purchased electricity from firm and non-firm contracts. Emissions are adjusted for renewable energy credits bought and sold.

### *Scope 3 Indirect Emissions Disclosure*

Scope 3 emissions from firm contract purchased electricity were calculated using the amount of electricity purchased, broken down by the electricity generation technology (e.g., coal, natural gas or petroleum). For all firm Bonneville Power Administration transactions and "non-unit-specific" purchases, PSE defaults to the Washington Department of Ecology emissions intensity metric according to WAC 480-109-300(4).<sup>4</sup>

Natural gas distributed to PSE customers is considered "Direct Use Phase Emissions" and, therefore, emissions can be calculated with the same methodology that is used for combustion emissions.

### *Exclusion of Miniscule Sources*

PSE has not included refrigerants in its GHG inventory because the associated emissions are expected to be insignificant compared to the total Scope 1 and 2 emissions. Refrigerants are used in office spaces and vehicles for cooling and fire suppression, and the associated emissions are judged to be insignificant in comparison with those associated with electricity generation.

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<sup>3</sup> Line losses associated with owned generation are included in Scope 1 emissions to avoid double-counting.

<sup>4</sup> GHG Protocol, Category 3: Fuel- and Energy-Related Activities not included in Scope 1 or Scope 2.

## Puget Sound Energy - 2022 Greenhouse Gas Inventory Summary

Emission Sources	Energy Amount (UOM) <sup>1</sup>	Emissions (metric ton)				Emissions in CO <sub>2</sub> Equivalents (CO <sub>2</sub> e) - 100-Year Timeframe (metric ton CO <sub>2</sub> e)				
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	Total CO <sub>2</sub> e
<b>Scope I</b>										
Total PSE-owned Electric Operations	11,198,936,259 kWh	5,227,670	353.6	49.390	0.319	5,227,670	8,839	14,718.2	7,272	5,258,499
Total PSE-owned Natural Gas Operations	1,216,396,802 thm	4,591	2,717.2	0.008	0	4,591	67,929	2.5	0	72,418
Total PSE-owned Other Operations	—	8,905	1.1	0.145	0	8,905	27	43.1	0	8,975
<b>Total Scope I</b>		<b>5,241,165</b>	<b>3,071.8</b>	<b>49.543</b>	<b>0.319</b>	<b>5,241,165</b>	<b>76,796</b>	<b>14,763.8</b>	<b>7,272</b>	<b>5,339,892</b>
<b>Scope II</b>										
<b>Total Scope II, Location-Based<sup>2</sup></b>		<b>219,854</b>	<b>0.8</b>	<b>0.112</b>	<b>0</b>	<b>219,854</b>	<b>20</b>	<b>33.3</b>	<b>0</b>	<b>219,938</b>
<b>Total Scope II, Market-Based<sup>3</sup></b>		<b>219,854</b>	<b>0.8</b>	<b>0.112</b>	<b>0</b>	<b>219,854</b>	<b>20</b>	<b>33.3</b>	<b>0</b>	<b>219,938</b>
<b>Scope III</b>										
Total Electricity Purchases	11,807,868,134 kWh	3,995,102	0.0	0.000	0	3,995,102	0	0.0	0	3,995,102
Total Natural Gas Supply	1,090,927,959 thm	5,769,577	109.1	10.909	0	5,769,577	2,727	3,251.0	0	5,775,555
<b>Total Scope III</b>		<b>9,764,678</b>	<b>109.1</b>	<b>10.909</b>	<b>0</b>	<b>9,764,678</b>	<b>2,727</b>	<b>3,251.0</b>	<b>0</b>	<b>9,770,657</b>

Emission Sources	Energy Amount (UOM) <sup>1</sup>	Total CO <sub>2</sub> e (metric ton)	CO <sub>2</sub> e Emission Intensity (lb/kWh)
<b>Total Electric Operations</b>	<b>23,006,804,393 kWh</b>	<b>9,253,600</b>	<b>0.8877</b>

### Global Warming Potential for 100-year lifecycle

CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>
1	25	298	22,800

### 2021 eGrid Subregion Emission Rate (lb/MWh)

CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
634.60	0.058	0.008

<sup>1</sup> UOM stands for unit of measure.

<sup>2</sup> Except for line losses and sold renewable energy credits (RECs) from own electricity generation, purchased energy is calculated using 2021 eGrid subregion NWPP.

<sup>3</sup> Except for line losses and sold renewable energy credits (RECs) from own electricity generation, purchased energy is calculated using grid average.

## Puget Sound Energy - 2022 Greenhouse Gas Inventory, Scope 1

Emission Sources	Energy Amount (UOM)	Emissions (metric ton)				Emissions in CO <sub>2</sub> Equivalents (CO <sub>2</sub> e) - 100-Year Timeframe (metric ton CO <sub>2</sub> e)				
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	Total CO <sub>2</sub> e
<b>Scope I</b>										
<i>Electric Operations</i>										
Hydro	758,615,340 kWh	0	0	0	0	0	0	0.0	0	0
Coal	2,726,665,000 kWh	2,663,357	308.0	44.800	0	2,663,357	7,700	13,350.4	0	2,684,409
Natural Gas/ Oil	6,028,682,020 kWh	2,564,313	45.6	4.590	0	2,564,313	1,139	1,367.8	0	2,566,817
Wind	1,684,973,899 kWh	0	0	0	0	0	0	0.0	0	0
Electrical Transmission and Distribution Equipment	—	0	0.0	0.000	0.319	0	0	0.0	7,272	7,272
<b>Total PSE-owned Electric Operations</b>	<b>11,198,936,259 kWh</b>	<b>5,227,670</b>	<b>353.6</b>	<b>49.390</b>	<b>0.319</b>	<b>5,227,670</b>	<b>8,839</b>	<b>14,718.2</b>	<b>7,272</b>	<b>5,258,499</b>
<i>Natural Gas Operations</i>										
Distribution	1,216,396,802 thm	722	2,643.1	0.001	0	722	66,077	0.4	0	66,799
Underground Storage	—	3,869	74.1	0.007	0	3,869	1,852	2.2	0	5,619
<b>Total PSE-owned Natural Gas Operations</b>	<b>1,216,396,802 thm</b>	<b>4,591</b>	<b>2,717.2</b>	<b>0.008</b>	<b>0</b>	<b>4,591</b>	<b>67,929</b>	<b>2.5</b>	<b>0</b>	<b>72,418</b>
<i>Other Operations</i>										
PSE-owned Vehicle Fleet	—	8,905	1.1	0.145	0	8,905	27	43.1	0	8,975
<b>Total PSE-owned Other Operations</b>	<b>—</b>	<b>8,905</b>	<b>1.1</b>	<b>0.145</b>	<b>0</b>	<b>8,905</b>	<b>27</b>	<b>43.1</b>	<b>0</b>	<b>8,975</b>
<b>Total Scope I</b>		<b>5,241,165</b>	<b>3,071.8</b>	<b>49.543</b>	<b>0.319</b>	<b>5,241,165</b>	<b>76,796</b>	<b>14,763.8</b>	<b>7,272</b>	<b>5,339,892</b>

## Puget Sound Energy - 2022 Greenhouse Gas Inventory, Scope 2

Emission Sources	Energy Amount (UOM)	Emissions (metric ton)				Emissions in CO <sub>2</sub> Equivalents (CO <sub>2</sub> e) - 100-Year Timeframe (metric ton CO <sub>2</sub> e)				
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	Total CO <sub>2</sub> e
<b>Scope II</b>										
<i>Location-Based<sup>1</sup></i>										
Purchased Heating	54,386 thm	459	0.0	0.006	0	459	1	1.7	0	491
Purchased Electricity	29,200,581 kWh	8,405	0.8	0.106	0	8,405	19	31.6	0	8,456
Sold renewable energy credits (RECs)	18,600,000 kWh	8,128	0.0	0.000	0	8,128	0	0.0	0	8,128
Line Losses <sup>2</sup>	—	202,862	0.0	0.000	0	202,862	0	0.0	0	202,862
<b>Total Scope II, Location-Based</b>	<b>—</b>	<b>219,854</b>	<b>0.8</b>	<b>0.112</b>	<b>0</b>	<b>219,854</b>	<b>20</b>	<b>33.3</b>	<b>0</b>	<b>219,938</b>
<i>Market-Based<sup>3</sup></i>										
Purchased Heating	54,386 thm	459	0.0	0.006	0	459	1	1.7	0	491
Purchased Electricity	29,200,581 kWh	8,405	0.8	0.106	0	8,405	19	31.6	0	8,456
Sold renewable energy credits (RECs)	18,600,000 kWh	8,128	0.0	0.000	0	8,128	0	0.0	0	8,128
Line Losses <sup>2</sup>	—	202,862	0.0	0.000	0	202,862	0	0.0	0	202,862
<b>Total Scope II, Market-Based</b>	<b>—</b>	<b>219,854</b>	<b>0.8</b>	<b>0.112</b>	<b>0</b>	<b>219,854</b>	<b>20</b>	<b>33.3</b>	<b>0</b>	<b>219,938</b>

## Puget Sound Energy - 2022 Greenhouse Gas Inventory, Scope 3

Emission Sources	Energy Amount (UOM)	Emissions (metric ton)				Emissions in CO <sub>2</sub> Equivalents (CO <sub>2</sub> e) - 100-Year Timeframe (metric ton CO <sub>2</sub> e)				
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	SF <sub>6</sub>	Total CO <sub>2</sub> e
<b>Scope III</b>										
<i>Electricity Purchases</i>										
Firm Contracts	9,825,319,110 kWh	3,128,728	0.0	0.000	0	3,128,728	0	0.0	0	3,128,728
Non-Firm Contracts	1,982,549,024 kWh	866,374	0.0	0.000	0	866,374	0	0.0	0	866,374
<b>Total Electricity Purchases</b>	<b>11,807,868,134 kWh</b>	<b>3,995,102</b>	<b>0.0</b>	<b>0.000</b>	<b>0</b>	<b>3,995,102</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>3,995,102</b>
<i>Natural Gas Supply</i>										
Supply to End-Users	1,087,368,429 thm	5,769,577	108.7	10.874	0	5,769,577	2,718	3,240.4	0	5,775,536
RNG	3,559,530 thm	0	0.4	0.036	0	0	9	10.6	0	20
<b>Total Natural Gas Supply</b>	<b>1,090,927,959 thm</b>	<b>5,769,577</b>	<b>109.1</b>	<b>10.909</b>	<b>0</b>	<b>5,769,577</b>	<b>2,727</b>	<b>3,251.0</b>	<b>0</b>	<b>5,775,555</b>
<b>Total Scope III</b>		<b>9,764,678</b>	<b>109.1</b>	<b>10.909</b>	<b>0</b>	<b>9,764,678</b>	<b>2,727</b>	<b>3,251.0</b>	<b>0</b>	<b>9,770,657</b>

<sup>1</sup> Except for line losses and sold renewable energy credits (RECs) from own electricity generation, purchased energy is calculated using 2021 eGrid subregion NWPP.

<sup>2</sup> For the 2022 inventory, line loss data was calculated from PSE's 2022 Inventory to be 5% of total purchased power.

<sup>3</sup> Except for line losses and sold renewable energy credits (RECs) from own electricity generation, purchased energy is calculated using grid average.