# Energy Use from Scope 1 & 2 Sources at Port of Seattle Maritime 2005, 2015, 2019

| | | | | 2005* | 2015 | 2019 | |
|---|---|---|---|---|---|---|---|
| **Scope 1** | **Stationary Source** | **Natural Gas** | Fishermen's Terminal | 22,635 | 15,209 | 19,093 | therms |
| | | | Marine Maintenance | 32,957 | 20,122 | 30,503 | therms |
| | | | Pier 66 & Marina | - | 49,701 | 116,012 | therms |
| | | | Salmon Bay Marina | - | - | 1,897 | therms |
| | | | Shilshole Bay Marina | 45,568 | 5,988 | 9,416 | therms |
| | | | Terminal 91 | 95 | 9,867 | 40,640 | therms |
| | | | Terminal 102 | 9,422 | 13,402 | 20,051 | therms |
| | | | Terminal 117 | 1,082 | - | - | therms |
| | | | **TOTAL NATURAL GAS** | **111,760** | **114,289** | **237,612** | **therms** |
| | | **Propane** | T30 Remediation **TOTAL PROPANE** | **-** | - | **17,643** | **gallons** |
| | | **Steam** | Pier 66 **TOTAL STEAM** | **5,037** | - | - | **klb** |
| | **Mobile Source** | **Mobile Fleet Fossil Fuel Use** | Gasoline Delivered | 51,004 | 51,908 | 63,898 | gallons |
| | | | Business Miles Personal Vehicles | 1,840 | 2,227 | 1,409 | gallons |
| | | | **TOTAL GASOLINE** | **52,844** | **54,207** | **65,307** | **gallons** |
| | | | **TOTAL DIESEL** | **39,433** | **32,638** | **27,325** | **gallons** |
| | | | **TOTAL CNG** | **-** | **488** | **60** | **GGE** |
| | | | **TOTAL PROPANE** | | **1,390** | **996** | **gallons** |
| | | **Biogenic Fuel (1)** | **TOTAL BIODIESEL (B100)** | **-** | **3,960** | **4,010** | **gallons** |
| | | | **TOTAL RENEWABLE DIESEL (R99)** | **-** | **-** | **571** | **gallons** |
| **Scope 2** | | **Electricity** | Fishermen's Terminal (2) | 4,180,093 | 5,129,427 | 5,561,173 | kWh |
| | | | Marine Maintenance | 605,268 | 444,841 | 451,313 | kWh |
| | | | Marine Maintenance - Parks | 123,729 | 147,957 | 102,800 | kWh |
| | | | Maritime Industrial Center (3) | 590,842 | 288,220 | 393,535 | kWh |
| | | | Pier 2 Uplands & CEM | - | 4,331 | 2,415 | kWh |
| | | | Pier 28 | 30,944 | - | - | kWh |
| | | | Pier 48 | 427,111 | - | - | kWh |
| | | | Pier 66 & Marina | 2,053,113 | 2,209,312 | 2,654,889 | kWh |
| | | | Pier 69 | 2,648,243 | 2,075,603 | 2,197,238 | kWh |
| | | | Salmon Bay Marina | - | - | 433,440 | kWh |
| | | | Shilshole Bay Marina | 843,126 | 3,083,057 | 3,483,707 | kWh |
| | | | Terminal 5 Southeast | 104,920 | 101,520 | 92,160 | kWh |
| | | | Terminal 18 | 11,958 | 1,313 | 610 | kWh |
| | | | Terminal 34 | - | 36,089 | 33,495 | kWh |
| | | | Terminal 86 | | | - | kWh |
| | | | Terminal 91 (4) | 6,351,024 | 2,598,937 | 2,293,240 | kWh |
| | | | Terminal 91 Cruise Shore Power | | | - | kWh |
| | | | Terminal 102 & Marina, T104 | 1,305,769 | 1,149,071 | 917,588 | kWh |
| | | | Terminal 106 | 999,580 | 391,440 | 367,833 | kWh |
| | | | Terminal 108 | 2,880 | - | - | kWh |
| | | | Terminal 117 | 43,313 | - | - | kWh |
| | | | World Trade Center West (5) | 1,380,640 | 1,320,720 | 1,296,560 | kWh |
| | | | **TOTAL ELECTRICITY** | **21,702,553** | **18,981,838** | **20,281,995** | **kWh** |

***Notes:***

*2005 is the baseline year for Port of Seattle's Scope 1&2 greenhouse gas reduction targets.

(1) Emissions associated with biogenic sources of energy are not included in teh total emissions as they are part of the natrual carbon cycle and so are excluded under UNFCCC guidelines. B100 is not currently used by Port of Seattle Maritime. When biofuel blends are used, a composite emission calculation will be performed. For example, B20 used in fleet vehicles is accounted for as 80% Diesel and 20% B100.

(2) Fishermen's Terminal 2005 Scope 2 kWh adjusted to 61% of total due to data anomalies.

(3) Maritime Industrial Center 2005 Scope 2 kWh adjusted to 49% of total due to data anomalies.

(4) Terminal 91 Scope 2 kWh adjusted to 44% of total for 2005 and 13% of total for 2015 due to data anomalies.

(5) World Trade Center West: 2010 actuals used as proxy for 2005, 2007 and 2011; 2016 actual used as proxy for 2015.

## CO2 Emissions from Scope 1 & Scope 2 Sources at Port of Seattle Maritime 2005, 2015, 2019

*All units in tonnes*

| | | | | 2005* | 2015 | 2019 |
|---|---|---|---|---|---|---|
| **Scope 1** | **Stationary Source** | **Stationary Source Natural Gas** | Fishermen's Terminal | 120 | 81 | 101 |
| | | | Marine Maintenance | 175 | 107 | 162 |
| | | | Pier 66 & Marina | - | 264 | 616 |
| | | | Salmon Bay Marina | - | - | 10 |
| | | | Shilshole Bay Marina | 242 | 32 | 50 |
| | | | Terminal 91 | 1 | 52 | 216 |
| | | | Terminal 102 | 50 | 71 | 106 |
| | | | Terminal 117 | 6 | - | - |
| | | | **subtotal** | **593** | **606** | **1,261** |
| | | **Propane** | Terminal 30 Remediation | **-** | **-** | **101** |
| | | **Steam** | Pier 66 | **348** | **-** | **-** |
| | **Mobile Source** | **Mobile Fleet Fossil Fuel Use** | Gasoline used in fleet | 464 | 476 | 573 |
| | | | Diesel used in fleet | 403 | 333 | 279 |
| | | | CNG used in fleet | - | 3 | 0 |
| | | | Propane used in fleet | - | 8 | 6 |
| | | | **subtotal** | **867** | **820** | **858** |
| | | **Biogenic Fuel Use (1)** | Biodiesel (B100 equivalent) | - | 37 | 38 |
| | | **emissions not counted toward total* | Renewable Diesel (R99) | - | - | 6 |
| **Scope 2** | | **Electricity** | Fishermen's Terminal (2) | 86 | 122 | 117 |
| | | | Marine Maintenance | 13 | 11 | 9 |
| | | | Marine Maintenance - Parks | 3 | 4 | 2 |
| | | | Maritime Industrial Center (3) | 12 | 7 | 8 |
| | | | Pier 2 Uplands & CEM | - | 0 | 0 |
| | | | Pier 28 | 1 | - | - |
| | | | Pier 48 | 9 | - | - |
| | | | Pier 66 & Marina | 42 | 53 | 56 |
| | | | Pier 69 | 55 | 49 | 46 |
| | | | Salmon Bay Marina | - | - | 9 |
| | | | Shilshole Bay Marina | 17 | 73 | 73 |
| | | | Terminal 5 Southeast | 2 | 2 | 2 |
| | | | Terminal 18 | 0 | 0 | 0 |
| | | | Terminal 34 | - | 1 | 1 |
| | | | Terminal 86 | | | - |
| | | | Terminal 91 (4) | 131 | 62 | 48 |
| | | | Terminal 91 Cruise Shore Power | | | - |
| | | | Terminal 102 & Marina, T104 | 27 | 27 | 19 |
| | | | Terminal 106 | 21 | 9 | 8 |
| | | | Terminal 108 | 0 | - | - |
| | | | Terminal 117 | 1 | - | - |
| | | | World Trade Center West (5) | 29 | 31 | 27 |
| | | | **subtotal** | **420** | **420** | **427** |
| | | | **TOTAL** | **2,227** | **1,847** | **2,647** |

***Notes:***

*2005 is the baseline year for Port of Seattle's Scope 1&2 greenhouse gas reduction targets.

(1) Emissions associated with biogenic sources of energy are not included in teh total emissions as they are part of the natrual carbon cycle and so are excluded under UNFCCC guidelines. B100 is not currently used by Port of Seattle Maritime. When biofuel blends are used, a composite emission calculation will be performed. For example, B20 used in fleet vehicles is accounted for as 80% Diesel and 20% B100.

(2) Fishermen's Terminal 2005 Scope 2 kWh adjusted to 61% of total due to data anomalies.

(3) Maritime Industrial Center 2005 Scope 2 kWh adjusted to 49% of total due to data anomalies.

(4) Terminal 91 Scope 2 kWh adjusted to 44% of total for 2005 and 13% of total for 2015 due to data anomalies.

(5) World Trade Center West: 2010 actuals used as proxy for 2005, 2007 and 2011; 2016 actual used as proxy for 2015.

# SCOPE 1 & 2 EMISSION FACTORS USED FOR PORT OF SEATTLE MARITIME GHG INVENTORY

Updated: 7/31/2020

## Scope 1 &2 Emission Factors

| Scope | Year | Fuel | Emission Factor | Original Units | Converted Emission Factor | Converted Units | Citation |
|---|---|---|---|---|---|---|---|
| 1 | All | Natural Gas in Boilers | 53.0600 | kg CO2/MMBTU | 0.00530600 | tonnes CO2/therm | https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf |
| | All | Gasoline in Vehicles | 8.7800 | kg CO2/gallon | 0.00878000 | tonnes CO2/gallon | https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf |
| | All | Diesel in Vehicles (1) | 10.2100 | kg CO2/gallon | 0.01021000 | tonnes CO2/gallon | https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf |
| | All | Natural Gas in Vehicles | 0.0545 | kg CO2/scf | 0.00690352 | tonnes CO2/GGE | https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf |
| | All | Propane | 5.72 | kg CO2/gallon | 0.00572000 | tonnes CO2/gallon | https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf |
| | 2005-2011 | Steam (2) | 156 | Lbs. CO2e/MMBtu | 0.069084097 | tonnes CO2e/klb | Emission factor provided by Enwave Seattle |
| 2 | 2010 | SCL Retail Electricity | 45.57 | lb CO2/MWh (2) | 0.00002066 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2011 | SCL Retail Electricity | 13.77 | lb CO2/MWh (2) | 0.00000625 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2012 | SCL Retail Electricity | 25.62 | lb CO2/MWh (2) | 0.00001162 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2013 | SCL Retail Electricity | 33.23 | lb CO2/MWh (2) | 0.00001507 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2014 | SCL Retail Electricity | 20.08 | lb CO2/MWh (2) | 0.00000911 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2015 | SCL Retail Electricity | 52.44 | lb CO2/MWh (2) | 0.00002379 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2016 | SCL Retail Electricity | 31.22 | lb CO2/MWh (2) | 0.00001416 | tonnes CO2/kWh | SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |
| | 2017 | SCL Retail Electricity (3) | 46.37 | lb CO2/MWh (2) | 0.00002103 | tonnes CO2/kWh | SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ |

***Notes:***

(1) The emission factor for Renewable Diesel and 100% biodiesel (B100) is 0 because combustion of the fuel is considered to produce biogenic CO2 emissions. These emissions and are not included in the total emissions estimate, because they are considered to be part of the natural carbon cycle and so are excluded under UNFCCC guidelines. B100 is not currently used by Port of Seattle Maritime. When biofuel blends are used, a composite emission calculation will be performed. For example, B20 used in fleet vehicles is accounted for as 80% Diesel and 20% B100.

(2) Enwave Seattle provides an emission factor for CO2e, not CO2.

(3) SCL emissions factors converted from lb CO2/Mwh to tonnes CO2 as follows: (lb CO2/MWh)*(0.0004536 MT/lb)*1 MWH/1000KWh) or value*0.000454/1000