



CO2 Emissions from Scope 1 & Scope 2 Sources at Port of Seattle Maritime 2005 - 2024

All units in tonnes

		2005	2007	2011	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024		
Scope 1	Stationary Source	Natural Gas	Fishermen's Terminal	120	117	101	81	92	111	103	101	101	104	113		
		Marine Maintenance	175	172	156	107	129	142	151	162	161	161	149	140		
		Pier 66 & Marina	-	-	-	264	259	305	522	616	506	482	521			
		Salmon Bay Marina (6)	-	-	-	-	-	-	3	10	8	8	11			
		Shishole Bay Marina	242	37	51	32	36	54	50	50	54	73	67			
		Terminal 91 (3)	1	1	0	1	3	24	27	22	-	-	-			
		Terminal 102	50	65	107	71	81	85	69	106	107	169	172			
		Terminal 117	6	9	0	-	-	-	-	-	-	-	-			
		Duwamish River Hub (9)	-	-	-	-	-	-	-	-	-	-	-	6		
		subtotal	593	401	417	555	600	722	925	1,068	937	985	1,030			
	Biogenic Fuel ⁽¹⁾	THERMAL RENEWABLE NATURAL GAS	-	-	-	-	-	-	-	-	-	-	-	937	861	
	Propane	Terminal 30 Remediation	-	-	-	-	-	-	-	101	180	157	140	11		
	Steam (1)	Pier 66	348	391	365	-	-	-	-	-	-	-	-	-		
	Mobile Source	Fossil Fuel Use	Gasoline used in fleet	-	-	-	-	-	-	-	-	-	-	-	-	
			Diesel used in fleet	464	414	420	476	508	551	615	573	468	469	505	525	495
			CNG used in fleet	-	-	0	3	3	5	4	0	-	-	-	33	60
		Propane used in fleet	-	-	-	-	-	-	-	-	6	6	5	5	6	6
		subtotal	867	477	694	820	820	871	986	888	538	508	542	565	560	
		Biogenic Fuel Use	Biodiesel (B100 equivalent)	-	165	61	37	36	37	49	45	-	-	-	-	-
	Renewable Diesel (R99)	-	-	-	-	-	-	-	6	234	291	189	206	213		
Emissions not counted toward total		-	-	-	-	-	-	-	-	-	-	-	-	-		
Scope 2	Electricity (2)	Fishermen's Terminal (4)	86	87	29	122	78	115	84	105	54	78	26	76	64	
		Marine Maintenance	13	12	4	11	7	10	7	9	4	5	2	7	7	
		Marine Maintenance - Parks	3	3	1	4	2	3	2	2	1	1	0	1	1	
		Maritime Industrial Center (5)	12	6	2	7	6	9	6	7	4	6	3	6	4	
		Pier 2 Uplands & CEM	-	-	0	0	0	0	0	0	0	0	0	0	0	
		Pier 28	1	-	-	-	-	-	-	-	-	-	-	-	-	
		Pier 48	9	6	-	-	-	-	-	-	-	-	-	-	-	
		Pier 66 & Marina	42	44	13	53	35	64	39	50	17	21	11	32	40	
		Pier 69	55	57	14	49	30	46	32	41	17	21	10	28	27	
		Salmon Bay Marina (6)	-	-	-	-	-	-	3	8	4	5	1	6	1	
		Shishole Bay Marina	17	26	21	73	47	55	51	66	48	65	14	48	24	
		Terminal 5 Southeast	2	2	1	2	1	2	1	2	1	1	0	1	1	
		Terminal 18 (7)	0	0	0	0	0	0	0	0	0	0	-	-	-	
		Terminal 30 (Police Station)	-	-	-	-	-	-	-	-	-	-	0	1	1	
		Terminal 34 (7)	-	0	0	1	0	1	0	1	0	0	-	-	-	
		Terminal 86	-	-	-	-	-	-	-	-	-	-	0	-	-	
		Terminal 91 (8)	131	49	41	62	32	63	37	43	12	20	13	20	1	
		Terminal 91 Cruise Shore Power	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Terminal 102 & Marina, T104	27	31	7	27	17	25	15	17	8	11	4	14	11	
		Terminal 106	21	20	5	9	7	9	5	7	3	5	2	4	3	
Terminal 108	0	-	-	-	-	-	-	-	-	-	0	-	-			
Terminal 117	1	0	0	-	-	-	-	-	-	-	-	-	-			
World Trade Center West (9)	29	29	9	31	19	27	18	24	10	11	5	13	13			
Duwamish River Hub (10)	-	-	-	-	-	-	-	-	-	-	0	0	0			
subtotal	448	373	146	452	281	429	299	382	182	249	90	256	200			
TOTAL		2,256	1,642	1,622	1,827	1,683	2,021	2,210	2,439	1,836	1,899	1,802	832	760		

(1) Emissions for this category are expressed in tonnes CO2e; this is assumed proxy for CO2 value.
 (2) As updated annual emission factors become available from Seattle City Light, they are applied to prior years' inventories. In 2022, emissions were recalculated for 2019 (using the 2019 emission factor), and 2020 and 2021 (using the 2020 emission factor).
 (3) In 2022, natural gas use in the Terminal 91 cruise building was reassigned as Scope 3 based on new metering information.
 (4) Fishermen's Terminal 2005 Scope 2 kWh adjusted to 61% of total due to data anomalies.
 (5) Maritime Industrial Center 2005 Scope 2 kWh adjusted to 49% of total due to data anomalies.
 (6) Salmon Bay Marina was purchased by Port of Seattle in 2018.
 (7) Starting in 2022, Terminal 18 and Pier 34 are omitted from the inventory because they are Northwest Seaport Alliance facilities.
 (8) Terminal 91 Scope 2 kWh adjusted to 44% of total for 2005, 13% of total for 2015 and 2018, and 12% of total for 2021 due to data anomalies. (Proportions based on representative years.)
 (9) World Trade Center West: 2010 actuals used as proxy for 2005, 2007 and 2011; 2016 actual used as proxy for 2015.
 (10) Duwamish River Hub is a new property the Port rents, starting in 2021. No natural gas data was available for 2022.



Energy Use from Scope 1 & 2 Sources at Port of Seattle Maritime 2005 - 2024

		2005	2007	2011	2019	2020	2021	2022	2023	2024			
Scope 1	Stationary Source	Natural Gas	Fishermen's Terminal	22,635	22,034	19,096	19,093	18,944	19,607	21,220		therms	
			Marine Maintenance	32,957	32,520	29,459	30,503	30,318	28,055	26,416		therms	
			Pier 66 & Marina	-	-	-	116,012	95,458	90,851	98,208		therms	
			Salmon Bay Marina (2)	-	-	-	1,897	1,515	1,564	2,003		therms	
			Shilshole Bay Marina	45,568	7,038	9,673	9,416	10,218	13,772	12,692		therms	
			Terminal 91 (3)	95	109	87	4,235	-	-	-		therms	
			Terminal 102	9,422	12,252	20,270	20,051	20,101	31,771	32,352		therms	
			Terminal 117	1,082	1,717	28	-	-	-	-		therms	
			Duwamish River Hub (9)	-	-	-	-	-	-	1,150		therms	
			TOTAL NATURAL GAS	111,760	75,670	78,613	201,207	176,555	185,620	192,890		therms	
	Biogenic Fuel^(a)	THERMAL RENEWABLE NATURAL GAS	-	-	-	-	-	-	-	172,457	162,292	therms	
	Propane	T30 Remediation TOTAL PROPANE	-	-	-	17,643	31,488	27,500	24,430	1,903		gallons	
	Steam	Pier 66 TOTAL STEAM	5,037	5,656	5,284	-	-	-	-	-		klb	
	Mobile Source	Mobile Fleet Fossil Fuel Use	Gasoline Delivered	51,004	45,300	46,049	63,898	53,129	53,172	56,816	59,075	55,464	gallons
			Business Miles Personal Vehicles	1,840	1,840	1,840	1,409	226	204	712	766	870	gallons
TOTAL GASOLINE			52,844	47,140	47,889	65,307	53,355	53,376	57,528	59,841	56,334	gallons	
TOTAL DIESEL			39,433	6,219	26,781	30,243	6,227	3,688	3,330	3,265	5,844	gallons	
TOTAL CNG			-	-	41	60	-	-	-	-	-	-	GGE
TOTAL PROPANE			-	-	-	996	1,010	847	798	1,129	976	976	gallons
Biogenic Fuel (1)	TOTAL BIODIESEL (B100)	-	17,479	6,416	4,740	-	#REF!	-	-	-	gallons		
	TOTAL RENEWABLE DIESEL (R99)	-	-	-	571	22,907	28,553	18,337	21,764	25,483	gallons		
Scope 2	Electricity	Fishermen's Terminal (4)	4,180,093	4,210,132	4,701,915	5,561,173	6,064,896	7,406,345	5,446,394	5,322,038	4,462,308	kWh	
		Marine Maintenance	605,268	568,258	602,433	451,313	451,754	448,362	471,341	484,083	507,599	kWh	
		Marine Maintenance - Parks	123,729	129,263	107,506	102,800	109,838	99,081	53,894	41,810	70,550	kWh	
		Maritime Industrial Center (5)	590,842	308,016	400,128	393,535	462,220	548,523	549,541	410,868	246,217	kWh	
		Pier 2 Uplands & CEM	-	-	31	2,415	2,602	3,868	4,404	3,522	3,346	kWh	
		Pier 28	30,944	-	-	-	-	-	-	-	-	kWh	
		Pier 48	427,111	314,590	-	-	-	-	-	-	-	kWh	
		Pier 66 & Marina	2,053,113	2,108,872	2,015,526	2,654,889	1,922,209	1,985,037	2,250,845	2,216,284	2,830,568	kWh	
		Pier 69	2,648,243	2,743,615	2,278,577	2,197,238	1,877,723	2,015,053	2,121,852	1,956,768	1,918,690	kWh	
		Salmon Bay Marina (2)	-	-	-	433,440	411,080	434,052	233,060	391,121	93,098	kWh	
		Shilshole Bay Marina	843,126	1,282,413	3,294,950	3,483,707	5,354,110	6,192,733	2,849,750	3,366,207	1,701,539	kWh	
		Terminal 5 Southeast	104,920	117,547	106,520	92,160	61,720	77,108	360	79,446	85,556	kWh	
		Terminal 18 (6)	11,958	10,384	1,595	610	9,079	418	-	-	-	kWh	
		Terminal 30 (Police Station)	-	-	-	-	-	-	72,927	69,352	72,351	kWh	
		Terminal 34 (6)	-	18,887	24,545	33,495	41,293	42,868	-	-	-	kWh	
		Terminal 86	-	-	-	-	-	-	(0)	-	-	kWh	
		Terminal 91 (7)	6,351,024	2,393,920	6,575,276	2,293,240	1,312,224	1,929,537	2,687,941	1,364,127	77,447	kWh	
		Terminal 91 Cruise Shore Power	-	-	-	-	-	-	-	-	-	kWh	
		Terminal 102 & Marina, T104	1,305,769	1,480,806	1,152,249	917,588	844,662	1,030,647	753,560	1,003,112	764,719	kWh	
		Terminal 106	999,580	959,100	759,898	367,833	355,972	432,511	405,923	245,391	212,556	kWh	
		Terminal 108	2,880	-	-	-	-	-	-	3	-	kWh	
		Terminal 117	43,313	7,176	9,923	-	-	-	-	-	-	kWh	
		World Trade Center West (8)	1,380,640	1,380,640	1,380,640	1,296,560	1,113,280	1,066,000	1,125,920	923,550	913,840	kWh	
		Duwamish River Hub (9)	-	-	-	-	-	3,092	16,897	11,914	8,775	8,775	kWh
		TOTAL ELECTRICITY	21,702,553	18,033,618	23,411,712	20,281,995	20,394,661	23,715,235	19,044,611	17,889,593	13,969,160	kWh	

- (a) In 2023, the Port started purchasing Renewable Natural Gas (RNG) from Puget Sound Energy (PSE) to replace all its Scope 1 fossil natural gas usage.
- (1) Emissions associated with burning fuel from biogenic sources are not accounted for in the POS Maritime Inventory. The Inventory tracks the gallons of biogenic fuels used in operations.
- (2) Salmon Bay Marina was purchased by POS in 2018.
- (3) In 2022, natural gas use in the Terminal 91 (T91) cruise building was reassigned as Scope 3 based on new metering information
- (4) Fishermen's Terminal (FT) 2005 Scope 2 kWh adjusted to 61% of total due to data anomalies
- (5) Maritime Industrial Center (MIC) 2005 Scope 2 kWh adjusted to 49% of total due to data anomalies
- (6) Starting in 2022, Terminal 18 and Pier 34 are omitted from the inventory because they are Northwest Seaport Alliance facilities
- (7) T91 Scope 2 kWh adjusted to 44% of total for 2005, 13% of total for 2015 and 2018, and 12% of total for 2021 due to data anomalies. (Proportions based on representative years)
- (8) World Trade Center West: 2010 actuals used as proxy for 2005, 2007 and 2011; 2016 actual used as proxy for 2015
- (9) Duwamish River Hub is a new property the Port rents, starting in 2021. No natural gas data was available for 2022

Scope	Year	Fuel	Emission Factor	Original Units	Converted Emission Factor	Converted Units	Citation	Notes
1	All	Natural Gas in Boilers	53.0600	kg CO2/MMBTU	0.00530600	tonnes CO2/therm	2023-Default-Emission-Factors-Final.pdf	Emission Factors for Greenhouse Gas Inventories (epa.gov)
	All	Gasoline in Vehicles	8.7800	kg CO2/gallon	0.00878000	tonnes CO2/gallon	2023-Default-Emission-Factors-Final.pdf	Emission Factors for Greenhouse Gas Inventories (epa.gov)
	All	Fossil Diesel in Vehicles (1)	10.2100	kg CO2/gallon	0.01021000	tonnes CO2/gallon	2023-Default-Emission-Factors-Final.pdf	Emission Factors for Greenhouse Gas Inventories (epa.gov)
	All	Natural Gas in Vehicles	0.0545	kg CO2/scf	0.00690352	tonnes CO2/GGE	2023-Default-Emission-Factors-Final.pdf	
	All	Propane	5.72	kg CO2/gallon	0.00572000	tonnes CO2/gallon	2023-Default-Emission-Factors-Final.pdf	
	2005-2011	Steam (2)		156	Lbs. CO2e/MMBtu	0.069084097	tonnes CO2e/klb	Emission Factors for Greenhouse Gas Inventories (epa.gov)
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	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/	
	2018	SCL Retail Electricity	32.05	lb CO2/MWh (2)	0.00001454	tonnes CO2/kWh	SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-public-reports/ , 2018 EF found at https://www.theclimateregistry.org/wp-content/uploads/2021/05/2021-Default-Emission-Factors-Final-1.pdf (Table 3.8)	
	2019	SCL Retail Electricity (3)	41.57	lb CO2/MWh (2)	0.00001886	tonnes CO2/kWh	SCL retail factor for 2019, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	The 2019 SCL retail electricity emissions factor was applied to 2019 electricity use, as the most recent published emissions factor.
	2020	SCL Retail Electricity (3)	19.64	lb CO2/MWh (2)	0.00000891	tonnes CO2/kWh	SCL retail factor for 2020, found at: https://www.theclimateregistry.org/wp-content/uploads/2023/06/2023-Default-Emission-Factors-Final-1.pdf (Table 3.8)	The 2020 emissions factor was used to recalculate 2020 and 2021 emissions herein, and to calculate 2022 emissions.
2021	SCL Retail Electricity (3)	23.17	lb CO2/MWh (2)	0.00001051	tonnes CO2/kWh	SCL retail factor for 2021, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/		
2	2022	SCL Retail Electricity	10.46	lbs CO2/MWh	0.00000475	tonnes CO2/kWh	https://www.theclimateregistry.org/our-members/cris-public-reports/	
	2021	SCL Retail Electricity (3)	0.03	lb CH4/MWh	0.00000001	tonnes CH4/kWh	SCL retail factor for 2021, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	
2	2021	SCL Retail Electricity (3)	0.004	lbs N2O/MWh	0.000000018	tonnes N2O/kWh	SCL retail factor for 2021, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	
2	2022	SCL Retail Electricity (3)	10.46	lb CO2/MWh (2)	0.00000474	tonnes CO2/kWh	SCL retail factor for 2021, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	
2	2023	SCL Retail Electricity (3)	31.53	lb CO2/MWh (2)	0.00001430	tonnes CO2/kWh	SCL retail factor for 2022, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	
2	2023	SCL Retail Electricity (3)	0.03	lb CH4/MWh (2)	0.00000001	tonnes N2O/kWh	SCL retail factor for 2022, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	
2	2023	SCL Retail Electricity (3)	0.004	lb N2O/MWh (2)	0.000000018	tonnes N2O/kWh	SCL retail factor for 2022, found at: https://www.theclimateregistry.org/our-members/cris-public-reports/	

Notes:

- (1) The emission factor for 99% of Renewable Diesel (R99) as a vehicle fuel is 0 because combustion of the fuel is considered to produce biogenic CO2 emissions. Emissions from renewable diesel 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.
- (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