CO_2 Emissions from Scope 1 & 2 Sources at SEA Airport: 2005, 2010 - 2023

All units in tonnes

			2005*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Scope 1	**Stationary Source**	Natural Gas Boilers	14,102	15,065	14,758	15,107	15,650	15,630	14,193	14,521	15,631	15,431	14,633	13,036	7,811	8,865	8,679
	Stationary Source	Diesel in Back-up Generators	UNKNOWN	167	108	162	244	160	151	104	66	709	369	290	420	448	520
	Mobile Source	Gasoline Use in Fleet	1,267	1,030	1,069	1,090	1,013	1,069	1,084	1,051	1,063	1,182	1,187	1,035	1,117	1,098	1,012
		Diesel Use in Fleet	171	182	147	311	251	265	242	277	382	382	128	111	205	74	3
		CNG Use in Fleet	1,241	855	840	2,507	2,973	964	1,777	2,846	2,915	2,966	3,118	1,709	0	0	0
Scope 2	**Indirect Energy - Location Based Approach** [c]	All Electricity Purchased	61,261	44,214	43,436	34,207	33,042	45,984	47,621	33,637	35,045	35,063	39,726	31,523	34,353	35,118	36,242
	Indirect Energy - Market Based Approach	BPA Electricity Purchased [b]	6,326	2,475	2,427	1,846	2,105	2,309	1,838	1,767	1,841	1,216	1,850	1,420	1,438	1,462	3,463
		PSE Electricity Purchased [d]	UNKNOWN	277	387	543	782	881	1,027	907	1,026	1,088	775	79	107	80	146
		SCL Electricity Purchased	UNKNOWN	34	10	19	25	15	45	29	45	29	31	20	19	22	23
		TOTAL	**23,106**	**20,086**	**19,745**	**21,585**	**23,041**	**21,294**	**20,356**	**21,502**	**22,969**	**23,004**	**22,090**	**17,700**	**11,115**	**12,047**	**13,847**

*2005 is the baseline year for Port of Seattle's Scope 1&2 greenhouse gas reduction targets. Most baseline data is from the airport's 2006 published inventory.
Where "-" is shown, the value is zero, typically because the facility was not yet built. Where "UNKNOWN" is shown, the facility was operational but no data was collected in that year's inventory
Emissions associated with biogenic sources of energy are not included in the total fossil carbon emissions as they are part of the natural carbon cycle and are excluded under UNFCCC guidelines
(b) For 2005, this total includes tenants who are metered and billed. For all remaining years, billed tenants and billed users of electrictricity are not included in this total.
(c) The Port follows the GHG Protocol by including both Location- and Market-based electricity, but uses Market-based to track its goals due to our contractual ability to influence GHG intensity
(d) In 2019, the Port purchased PSE's Green Direct electricity for half of the year, which is why the emissions in the total only reflect half of the year's expected GHG emissions

SEA Seattle-Tacoma International Airport

Energy Use from Scope 1 & 2 Sources at SEA Airport: 2005, 2010 - 2023

				2005*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Scope 1	Stationary Source	Natural Gas	Central Plant Boiler	2,657,740	2,725,559	2,661,720	2,723,127	2,822,765	2,831,209	2,555,579	2,610,907	2,778,918	2,720,675	2,545,547	2,272,020	1,291,876	1,480,291	1,582,680
			Pumphouse	UNKNOWN	1,091	1,867	1,643	2,632	1,236	544	890	496	14	176	1,664	5,936	6,890	2,189
			Fleet Maintenance (AC2 Bldg)	UNKNOWN	66,548	69,454	65,741	61,551	51,171	55,991	54,855	55,069	56,798	43,206	13,065	11,557	15,087	9,171
			Fire Department	UNKNOWN	37,613	36,163	28,371	26,724	27,057	23,687	23,695	32,593	29,424	29,000	25,210	24,795	27,354	7,409
			Learning Center Building	UNKNOWN	8,517	8,136	10,103	8,215	8,401	8,574	8,639	9,237	8,464	7,339	8,442	7,254	6,882	1,825
			Bus Maintenance Facility	-	-	-	12,492	21,755	20,917	21,289	27,167	33,067	32,478	45,157	39,667	36,647	36,771	9,411
			Distribution Center	-	-	4,040	5,613	5,761	5,756	5,856	5,582	5,715	5,588	5,854	7,076	8,171	9,448	2,413
			Cargo Building 161E	-	-	-	-	-	-	3,285	5,053	6,110	6,199	7,024	7,313	8,173	8,981	262
			Interim Fire Station (built 2021)	-	-	-	-	-	-	-	-	-	-	-	-	835	1,840	17,823
			Cargo Building 166B-2380 S 166th St	-	-	-	-	-	-	-	-	22,270	47,852	73,857	80,877	75,190	75,214	740
			Airfield Security Gate	-	-	-	-	-	-	-	-	2,435	697	712	1,576	1,590	1,967	1,741
			TOTAL NATURAL GAS	**2,657,740**	**2,839,327**	**2,781,380**	**2,847,088**	**2,949,402**	**2,945,747**	**2,674,804**	**2,736,788**	**2,945,910**	**2,908,189**	**2,757,871**	**2,456,910**	**1,472,024**	**1,670,725**	**1,635,664**
		Biogenic Fuel[a]	**THERMAL RENEWABLE NATURAL GAS**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**450,000**	**1,500,000**	**1,500,000**	**1,685,892**
		Generator Diesel	**TOTAL DIESEL**	**UNKNOWN**	16,391	10,536	15,844	23,883	15,695	14,784	10,195	6,451	69,405	36,111	28,384	41,118	43,857	50,953
	Mobile Source	Mobile Fleet Fossil Fuel Use	Gasoline Delivered	144,268	115,814	119,876	122,363	113,301	120,165	121,181	117,750	119,360	133,536	132,540	117,573	127,008	124,140	114,081
			Gasoline Commercial	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	1,237	126	-	173	405
			Business Miles Personal Vehicles	UNKNOWN	1,548	1,840	1,764	2,129	1,611	2,227	1,952	1,688	1,143	1,409	226	204	712	766
			TOTAL GASOLINE	**144,268**	**117,362**	**121,716**	**124,127**	**115,430**	**121,776**	**123,408**	**119,702**	**121,048**	**134,679**	**135,186**	**117,924**	**127,212**	**125,025**	**115,252**
			TOTAL DIESEL	**16,745**	**17,802**	**14,362**	**30,499**	**24,548**	**25,973**	**23,734**	**27,091**	**37,415**	**37,415**	**12,518**	**10,883**	**20,042**	**7,208**	**336**
			TOTAL CNG	**179,710**	**123,864**	**121,658**	**363,173**	**430,597**	**139,657**	**257,382**	**412,206**	**422,275**	**429,624**	**451,633**	**247,484**	-	-	**39**
		Biogenic Fuel[a]	**TOTAL RENEWABLE NATURAL GAS**	**-**	**-**	**-**	**-**	**-**	**276,086**	**160,820**	**-**	**-**	**-**	**-**	**94,948**	**385,277**	**357,760**	**425,123**
			TOTAL RENEWABLE DIESEL (R99)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**57,034**	**30,858**	**22,401**	**29,029**	**33,558**
Scope 2		Electricity	Airport-Only Electricity (BPA)	149,691,000	114,057,239	111,855,167	110,514,327	106,295,055	108,407,358	111,173,466	109,079,501	113,631,859	115,819,178	117,817,071	110,759,374	114,087,470	116,925,143	120,407,378
			eGSE electricity (a)	-	-	-	-	-		-	-	-	1,317,784	836,346	445,885	477,092	414,685	361,532
			Runway Lighting (Seattle City Light)	-	1,628,400	1,663,800	1,649,400	1,634,400	1,652,400	1,458,300	1,612,500	1,673,700	1,548,300	1,697,100	1,731,300	1,714,949	1,732,684	1,773,169
			Distribution Center (PSE)	-	-	131,729	128,154	128,676	140,079	140,257	146,290	161,218	161,605	168,096	167,130	150,265	151,501	159,755
			Bus Mnt Facility (PSE)	-	-	-	395,700	790,020	786,856	808,727	871,514	882,950	883,628	893,110	794,536	890,536	837,218	820,807
			North Employee Parking Lot (SCL)	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	439,435	431,340	472,118	477,299	437,179	458,227	448,729	305,329	434,316
			Westfield Office (PSE)	-	-	-	-	-	-	-	16,897	126,663	153,360	159,920	158,149	145,526	141,779	138,146
			Misc PSE Srcs (PSE)	UNKNOWN	704,479	852,758	823,514	845,987	1,042,102	917,589	987,208	935,412	1,108,282	1,275,735	1,032,095	1,161,955	1,117,324	1,389,498
			Misc SCL Srcs (SCL)	-	-		-	-	-	-	-	-	-	-	-	11,728	41,751	10,400
			TOTAL ELECTRICITY	**149,691,000**	**115,685,639**	**113,650,696**	**112,687,581**	**108,848,151**	**110,986,693**	**114,937,775**	**113,145,250**	**117,883,920**	**120,151,652**	**122,448,211**	**115,100,811**	**118,611,158**	**121,252,729**	**125,133,469**

(a) Fully metered/billing eGSE system to airlines not in place until 2018. For 2015, eGSE electricity is included in Airport-Only Electricity

SEA Seattle-Tacoma International Airport

Emission Factors Used for Scope 1 & 2 Sources at SEA Airport

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	Diesel in Generators	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	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	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
2	2010	PSE Electricity	n/a	n/a	0.00039338	tonnes CO2/kWh	Same as 2011 - no data
	2011	PSE Electricity	n/a	n/a	0.00039338	tonnes CO2/kWh	http://pse.com/aboutpse/Environment/Documents/GHG_Inventory2011.pdf
	2012	PSE Electricity	n/a	n/a	0.00040306	tonnes CO2/kWh	http://pse.com/aboutpse/Environment/Documents/GHG_Inventory2012.pdf
	2013	PSE Electricity	n/a	n/a	0.00044304	tonnes CO2/kWh	http://pse.com/aboutpse/Environment/Documents/GHG_Inventory2013.pdf
	2014	PSE Electricity	n/a	n/a	0.00044721	tonnes CO2/kWh	http://pse.com/aboutpse/Environment/Documents/GHG_Inventory2014.pdf
	2015	PSE Electricity	n/a	n/a	0.00055010	tonnes CO2/kWh	https://pse.com/aboutpse/Environment/Documents/GHG_Inventory_2015.pdf
	2016	PSE Electricity	0.989	n/a	0.00044860	tonnes CO2/kWh	https://pse.com/aboutpse/Environment/Documents/GHG_Inventory_2016.pdf
	2017	PSE Electricity	1.074	n/a	0.00048716	tonnes CO2/kWh	https://www.pse.com/-/media/PDFs/GHG_Inventory_2017.pdf
	2018	PSE Electricity	1.04	lbs CO2/kWh	0.00047174	tonnes CO2/kWh	https://www.pse.com/-/media/PDFs/GHG_Inventory_2018.pdf
	2019	PSE Electricity	1.15	lbs CO2/kWh	0.00052163	tonnes CO2/kWh	https://www.pse.com/-/media/PDFs/2019-Greenhouse-InventoryFinalPSEWeb-1.pdf
	2020	PSE Electricity	0.919	lbs CO2/kWh	0.00041685	tonnes CO2/kWh	https://www.pse.com/-/media/PDFs/GHG_Inventory_2020.pdf
	2021	PSE Electricity	0.917	lbs CO2/kWh	0.00041594	tonnes CO2/kWh	https://www.pse.com/-/media/PDFs/GHG-_Inventory_2021.pdf
	2022	PSE Electricity	0.9040	lbs CO2/kWh	0.00041004	tonnes CO2/kWh	https://www.pse.com/-/media/PDFs/Sustainability/GHG-Inventory-2022RY
	2005	BPA Electricity	0.04226	tonnes CO2/MWh	0.00004226	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2010	BPA Electricity	0.0217	tonnes CO2/MWh	0.00002170	tonnes CO2/kWh	Same as 2011 - no data
	2011	BPA Electricity	0.0217	tonnes CO2/MWh	0.00002170	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2012	BPA Electricity	0.0167	tonnes CO2/MWh	0.00001670	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2013	BPA Electricity	0.0198	tonnes CO2/MWh	0.00001980	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2014	BPA Electricity	0.0213	tonnes CO2/MWh	0.00002130	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2015	BPA Electricity	0.0165	tonnes CO2/MWh	0.00001653	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2016	BPA Electricity	0.0162	tonnes CO2/MWh	0.00001620	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2017	BPA Electricity	0.0162	tonnes CO2/MWh	0.00001620	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2018	BPA Electricity	0.0105	tonnes CO2/MWh	0.00001050	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2019	BPA Electricity	0.0157	tonnes CO2/MWh	0.00001570	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2020	BPA Electricity	0.0128	tonnes CO2/MWh	0.00001282	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2021	BPA Electricity	0.0126	tonnes CO2/MWh	0.00001260	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2022	BPA Electricity	0.0125	tonnes CO2/MWh	0.00001250	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2023	BPA Electricity	63.41	lbs CO2/MWh	0.00002876	tonnes CO2/kWh	BPA correspondence using eGRID/TCR methodology
	2010	SCL Retail Electricity	45.57	lbs CO2/MWh	0.00002066	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2011	SCL Retail Electricity	13.77	lbs CO2/MWh	0.00000625	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2012	SCL Retail Electricity	25.62	lbs CO2/MWh	0.00001162	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2013	SCL Retail Electricity	33.23	lbs CO2/MWh	0.00001507	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2014	SCL Retail Electricity	20.08	lbs CO2/MWh	0.00000911	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2015	SCL Retail Electricity	52.44	lbs CO2/MWh	0.00002379	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2016	SCL Retail Electricity	31.22	lbs CO2/MWh	0.00001416	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2017	SCL Retail Electricity	46.37	lbs CO2/MWh	0.00002103	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2018	SCL Retail Electricity	32.05	lbs CO2/MWh	0.00001454	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2019	SCL Retail Electricity	32.05	lbs CO2/MWh	0.00001454	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2020	SCL Retail Electricity	19.64	lbs CO2/MWh	0.00000891	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2021	SCL Retail Electricity	23.17	lbs CO2/MWh	0.00001051	tonnes CO2/kWh	SCL correspondence & SCL retail factors found at https://www.theclimateregistry.org/our-members/cris-
	2005	eGRID NWPP Electricity	902.24	lbs CO2e/MWh	0.00040925	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2010-11	eGRID NWPP Electricity	842.58	lbs CO2e/MWh	0.00038219	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
2	2012-13	eGRID NWPP Electricity	669.23	lbs CO2e/MWh	0.00030356	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2014-15	eGRID NWPP Electricity	913.42	lbs CO2e/MWh	0.00041432	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2016-17	eGRID NWPP Electricity	655.41	lbs CO2e/MWh	0.00029729	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2018	eGRID NWPP Electricity	643.36	lbs CO2e/MWh	0.00029182	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2019	eGRID NWPP Electricity	715.24	lbs CO2e/MWh	0.00032443	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2020	eGRID NWPP Electricity	603.79	lbs CO2e/MWh	0.00027387	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2021-22	eGRID NWPP Electricity	638.52	lbs CO2e/MWh	0.00028963	tonnes CO2/kWh	https://www.epa.gov/energy/egrid
	2023	eGRID NWPP Electricity	634.60	lbs CO2e/MWh	0.00028793	tonnes CO2/kWh	https://www.epa.gov/energy/egrid

Note: The emission factor for Renewable Natural Gas (RNG) and 99% Renewable Diesel (R99) 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.