

State Data Reveal Refining for Export

Oil companies sell fuels refined in California to other states and nations.¹ This expands their carbon footprint globally, and worsens toxic injustice in communities exposed to emissions from refining more oil here. State data document the refiners’ use of production for export as a business strategy. These data, from the California Energy Commission² and California Air Resources Board,³ reveal significant—and growing—petroleum refining for export.

1. California Data for In-State Refining, In-State Use, and Export of Liquid Petroleum Fuels.

In millions of barrels (MM b)

(MM b)	Gasoline ^a			Diesel ^a			Total liquid petroleum fuels ^a		
	Refining ^b	Use ^c	Export ^d	Refining ^b	Use ^c	Export ^d	Refining ^b	Use ^c	Export ^d
2005	406	366	40.9	126	101.3	24.8	647	481	166
2006	406	363	43.5	127	103.1	24.0	644	481	163
2007	396	359	37.0	123	100.8	22.3	625	475	150
2008	382	342	40.2	136	94.5	41.7	644	450	194
2009	384	336	47.8	118	83.4	35.1	611	432	180
2010	388	326	62.6	123	90.6	32.0	619	426	194
2011	380	317	63.7	126	92.5	33.2	619	419	200
2012	382	319	63.4	124	90.7	33.0	621	419	202
2013	381	319	62.0	131	91.9	39.5	628	420	208
2014	392	319	73.3	138	90.5	47.0	654	419	235
2015	378	327	50.9	135	90.2	44.7	635	427	208
2016	401	334	67.1	130	89.9	39.6	647	435	212
2017	409	336	72.9	135	88.9	46.1	671	437	234
2018	404	333	70.8	135	91.0	44.4	670	435	235
2019	381	333	47.3	132	84.2	47.5	639	429	211
2005–2009	1,973	1,764	209	631	483	148	3,172	2,319	853
2015–2019	1,972	1,663	309	667	444	222	3,262	2,163	1,099
change (vol.)	–1	–101	+100	+36	–39	+74	+90	–156	+246

The period 2015–2019 represents the most recent five years before COVID-19 disrupted energy systems. **a.** Gasoline: all types and grades; diesel: No. 1, No. 2 and No. 4 diesel & distillate fuel oils; total liquid petroleum fuels: gasoline, diesel, jet fuel, and No. 5 and No. 6 residual fuel oils. **b.** From Calif. Energy Commission, Calif. Refinery Inputs and Production; Fuels Watch.² **c.** From California Air Resources Board, 2000–2020 GHG Inventory (2022 Edition), Full Inventory, Fuel Combustion and Heat Content.³ **d.** Net exports derived by difference. Figures may not add due to rounding.

For example, use the State data shown in Table 1 to compare the five-year period from 2015 through 2019 with that from 2005–2009. Total liquid petroleum fuels consumed in California fell by approximately 156 million barrels. But refineries here increased their production of these fuels by ≈90 million barrels. Thus, compared with 2005–2009, during 2015–2019 total liquid petroleum fuels exports from refineries in California increased by ≈246 million barrels. On top of the 156 million barrels no longer used here, they exported the 90 million from their increased production (156 + 90 = 246). Export increments for gasoline (100 million barrels) and diesel (74 million bbls) account for 71 percent of that 246 million-barrel liquid fuels export increment. Jet fuel and residual fuel oils make up the balance. In total, the refiners exported nearly 1.1 billion barrels, or 34 percent, of their total liquid petroleum fuels production during 2015–2019.

continued

State Data Reveal Refining for Export—*continued*

In-state burning of the solid fuel produced by the refineries fell deeper, boosting their exports still higher. This fuel is petroleum coke ('pet coke'), a carbonaceous material formed as the denser ('heavier') compounds in crude oils decompose under high heat. Pet coke burns roughly as dirty as coal.

California data show in-state burning of pet coke fell by 73 percent, from approximately 13.5 million tons during 2000–2009 to ≈3.7 million tons during 2011–2020.³ Pet coke exports from refineries in California rose by ≈10.3 million tons, to ≈67.2 million tons during 2011–2020.⁴ Most of those exports went to China, Japan and India.⁴

Ninety-five percent of the pet coke produced by refiners in California during 2011–2020 was exported. See Table 2.

At ≈16 and ≈33 percent, respectively, refinery gasoline and diesel export rates here during 2015–2019 are proportionately less extreme than that for pet coke. But zero emission vehicle policies could cut in-state gasoline and diesel use by more than the 73 percent cut in coke use associated with exporting 95 percent of that fuel. Absent new policy intervention, refiners' already-huge carbon exports from California could skyrocket.

2. In-State Use and Export of Petroleum Coke from Refineries in California, 2000–2020^a

In millions of short tons (MM t)

Period (yr)	Used in CA (MM t)	Exported	
		(MM t)	(%)
2000	1.71	6.52	79%
2001	1.32	5.60	81%
2002	1.74	6.46	79%
2003	1.19	5.76	83%
2004	1.27	5.60	82%
2005	1.37	5.64	80%
2006	1.36	5.69	81%
2007	1.30	4.41	77%
2008	1.09	4.93	82%
2009	1.13	6.36	85%
2010	0.97	6.29	87%
2011	0.79	6.75	90%
2012	0.32	7.21	96%
2013	0.35	7.22	95%
2014	0.35	6.87	95%
2015	0.31	6.54	95%
2016	0.31	6.57	96%
2017	0.27	7.16	96%
2018	0.31	7.03	96%
2019	0.26	6.22	96%
2020	0.41	5.66	93%
2000–2009	13.48	56.96	81%
2011–2020	3.69	67.23	95%
change	–9.79	+10.27	

a. Exports shown include exports to other nations only and do not include cross-border exports to other U.S. states, so that figures may understate total exports. CA usage data from Air Resources Board 2000–2020 GHG Inventory (2022 Edition), Full Inventory, Fuel Combustion and Heat Content.³ CA pet coke export data from US Census, Harmonized Commodity codes 271311/12.⁴

¹ *West Coast Transportation Fuels Markets*; U.S. Energy Information Administration: Washington, D.C. 2015. <https://www.eia.gov/analysis/transportationfuels/padd5>.

² California Energy Commission. *Refinery Inputs and Production*; Fuels Watch data; retrieved Oct. 2022 from <https://www.energy.ca.gov/data-reports/reports/weekly-fuels-watch>.

³ California Air Resources Control Board. *2000–2020 GHG Inventory (2022 Edition)*; Full Inventory, Fuel Combustion and Heat Content; retrieved Nov. 2022 from <https://ww2.arb.ca.gov/ghg-inventory-data>.

⁴ U.S. Census Bureau. Export data for Harmonized Commodity codes 271311, 271312; <https://usatrade.census.gov/>