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VIA ELECTRONIC MAIL

9 December 2022

Liane M. Randolph, Chair
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

22-16-1: Public Meeting to Consider the 2022 Climate Change Scoping Plan; Comment on November 2022 Revisions; Need for Specific Refinery Phasedown Planning Guidance

To the California Air Resources Board:

Emission impacts from refining for export are both more severe, and more feasible to avoid, than disclosed by the incomplete description of this issue that was added in response to your Board's direction to plan for petroleum refining phasedown.

The Scoping Plan revision focuses only on exports to two states and suggests a false choice between emissions from exports and those from imports.¹ This comment presents State and US government data for exports from refineries to other states and nations. All told, California could cut up to one-third of its petroleum emissions and cut in-state drilling and oil imports simultaneously without risk to our fuel supply if it curbs pollution from refining for export.

This information rebuts claims that phasing down petroleum in California will necessarily lead to fuel shortages or increased oil imports, and further suggests a need for more specific Board guidance as you move to ensure the needed phasedown planning.

¹ See 16 Nov. 2022 revision to *Scoping Plan* at p. 101: "In addition to supplying in-state demand, California is a net exporter of gasoline, diesel, and jet fuel. California pipelines supply the Nevada and Arizona regions with approximately 87 million barrels gasoline equivalent of refined products annually. California pipelines deliver approximately 85% of Nevada's and 40% of Arizona's refined product. Most fuels flowing from California to Nevada and Arizona are currently produced by California refineries. To manage the phasedown of oil and gas extraction and petroleum refining in California, exports of finished fuels must be considered and factored into that process, in addition to the declining in-state demand. The authorities and considerations related to supply and demand of petroleum fuels span federal, state, and local agencies. If supply of fossil fuels is to decline along with demand, a multi-agency discussion is needed to systematically evaluate and plan for the transition to ensure that it is equitable."

See also p. 102 (if in-state extraction is phased out crude imports could increase to meet future in-state demand). See also p. 106 (if in-state refining is phased out refined fuel imports may be needed to meet in-state demand).

State data reveal refining for export

Oil companies sell fuels refined in California to other states and nations.² 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 Commission³ and California Air Resources Board,⁴ reveal significant—and growing—petroleum refining for export.

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

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; retrieved Oct. 2022 from <https://www.energy.ca.gov/data-reports/reports/weekly-fuels-watch>. c. From California Air Resources 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>. d. Net exports derived by difference. Figures may not add due to rounding.

For example, use the State data shown in this table 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 liquid petroleum fuels production during 2015–2019.

² *West Coast Transportation Fuels Markets*; U.S. Energy Information Administration: Washington, D.C. 2015. <https://www.eia.gov/analysis/transportationfuels/padd5>.

³ California Energy Commission. *Refinery Inputs and Production*; Fuels Watch data; accessed Oct. 2022 from <https://www.energy.ca.gov/data-reports/reports/weekly-fuels-watch>.

⁴ California Air Resources Control Board. *2000–2020 GHG Inventory (2022 Edition)*; Full Inventory, Fuel Combustion and Heat Content; accessed Nov. 2022; <https://ww2.arb.ca.gov/ghg-inventory-data>.

Emission impacts from refining for export are more severe than disclosed in the Plan

The Scoping Plan estimate for exports (87 million barrels per year)¹ can explain less than half the annual average exports of liquid petroleum fuels from refiners in California revealed by the State data during 2015–2019 (≈218 million barrels/year) because it includes only exports to Arizona and Nevada. Refiners in California export to other states and nations.^{2, 5} During 2015–2019, the most recent five-year period before the COVID-19 pandemic disrupted petroleum markets, their total exports of refined petroleum liquids and petroleum coke to *other nations alone* grew to ≈68 million metric tons, an increase of 39 percent over those during 2005–2009.⁵ Their exports of petroleum coke, a refining byproduct fuel that burns roughly as dirty as coal and often is sent to burn overseas for that reason, exceeded 33 million tons during 2015–2019.⁵

Despite this wealth of export data,²⁻⁵ the Scoping Plan does not disclose foreign exports or total exports from refiners here.

Fuel chain emissions associated with refined fuel exports by refiners in California during 2013–2019, including direct emissions from extracting imported oil used to produce the exports, refining it in-state and burning the exported fuels, totaled some 930 million metric tons CO₂e.⁶

Worse, refining for export in California results in emissions from the degradation of tropical rainforest associated with oil extraction activities in the Western Amazon and elsewhere. California is the largest importer of Amazon oil. And since its declining in-state petroleum demand still exceeds in-state crude oil supply,⁶ increasing refining for export increases crude oil imports. Conversely, decreasing refining for export decreases crude imports by refiners here.

Emissions from refining for export are more feasible to avoid than disclosed in the Plan

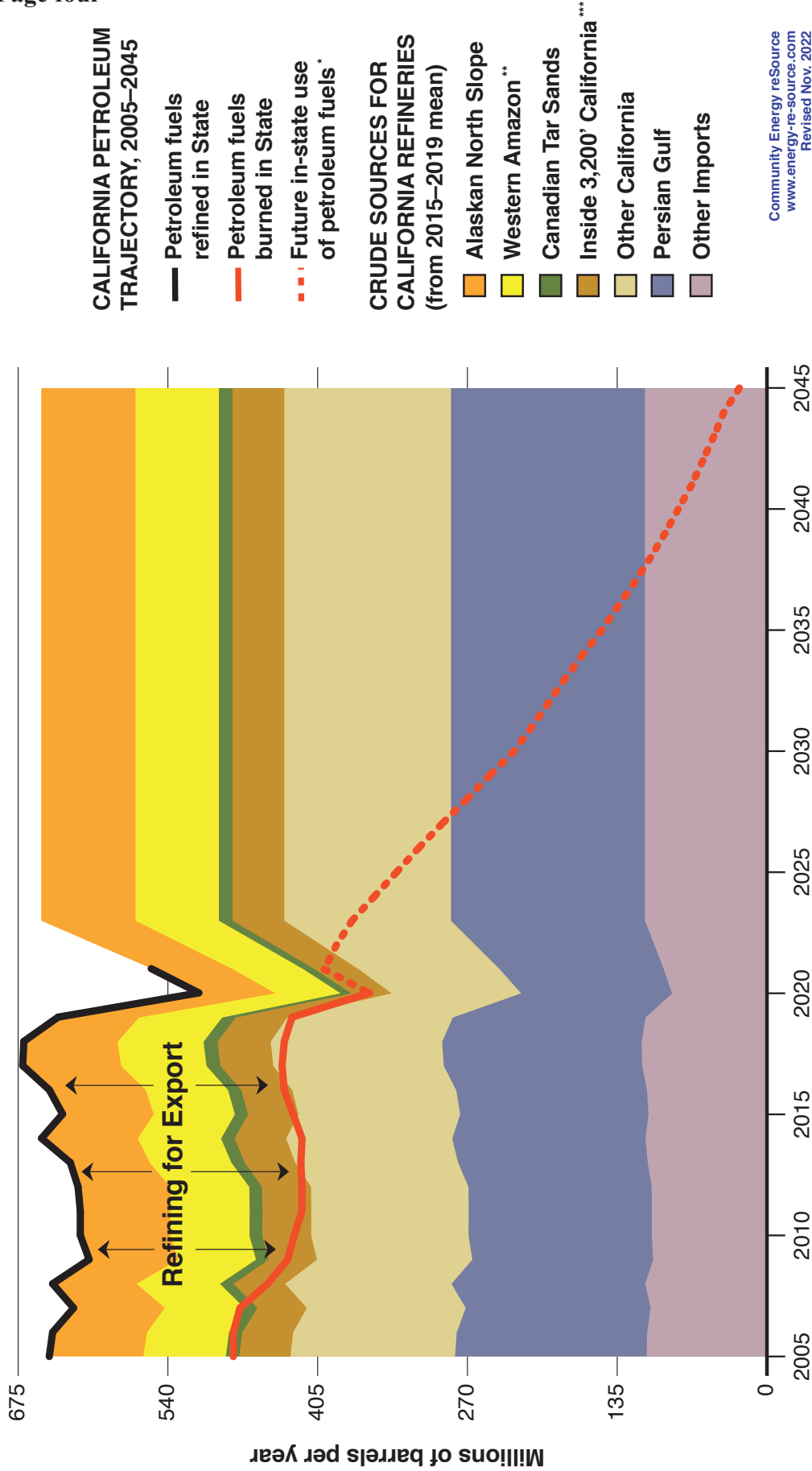
This information matters because it goes to the feasibility of our transition from oil in California. We can phase down refining without additional risk to fuel supplies because petroleum flows through refineries already exceed petroleum fuels demand here by a wide and growing margin. See the chart below.⁷ We can phase down in-state *and* imported oil because the export margin already exceeds the fuels production associated with current crude imports from the Amazon and in-state drilling within the 3,200-foot “EJ” setback combined. *Id.* Moreover, the exports are distributed among dozens of nations that each has alternative access to crude, among various, often cheaper, alternative energy options. See the map on page five. Managed refining and extraction phase downs could complement State plans for continued petroleum demand reduction in all of these ways.

In fact, a managed phasedown of oil extraction and refining in California can be coupled with a phasedown of oil imports, it can start gradually now, and it need not present any new risk to Californians’ fuel supply.

⁵ U.S. Census Bureau Trade Data Reports; exports of petroleum refinery products from California; accessed Nov. 2022 from <https://usatrade.census.gov/>; attached.

⁶ CEJA (2022). *Climate Pathways in an Oil State—2022*; A California Environmental Justice Alliance Report. Prepared by Greg Karras, Community Energy reSource. Attached hereto.

⁷ Your Staff’s most recently-reported modeling detail for future in-state use of petroleum fuels in its preferred planning scenario is illustrated by the dotted red line in the chart below.



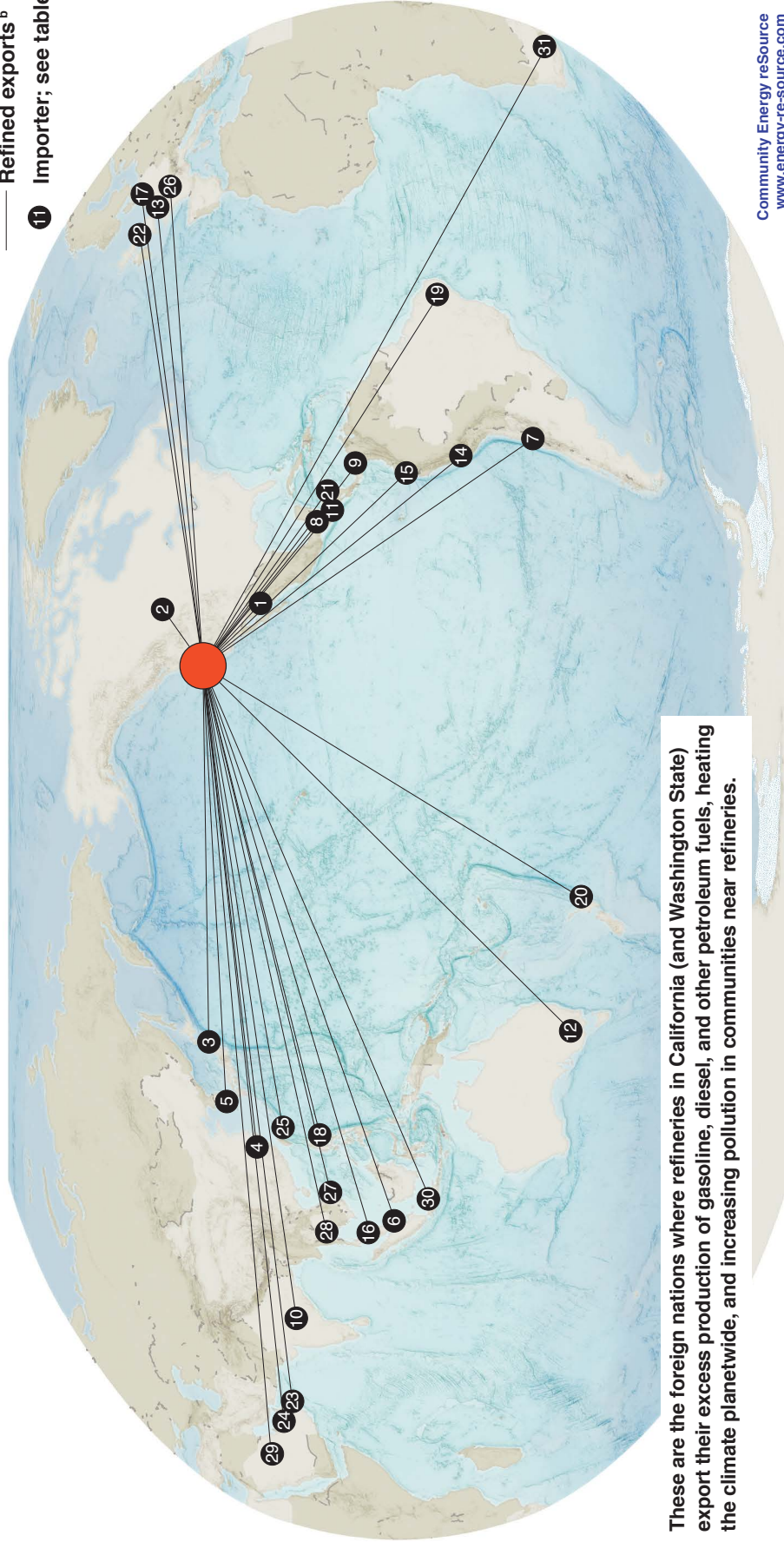
California refineries process much more oil than California consumes. Refiners here processed approximately 1.5 billion barrels more crude oil than Californians burned from 2013-2019. That's more than they imported from the Western Amazon, Alaskan North Slope and Canadian Tar Sands combined. And we plan to burn much less oil in the future. So why the extra pollution? Because the State's climate and environment efforts have not yet curbed refining for export.

Chart data: Total petroleum fuels refined from Cal. Energy Commission, www.energy.ca.gov/data-reports/reports/weekly-fuels-watch. Fuels burned in-state from Cal. Air Resources Board GHG Inventory, Fuel Combustion & Heat Content, <https://ww2.arb.ca.gov/ghg-inventory-data>. Crude source data from CARB, <https://ww2.arb.ca.gov/resources/documents/lcfs-crude-oil-life-cycle-assessment>, apportioned to fuels production. This apportionment basis (2015-2019) is a conservative estimate for the continued refining-for-export scenario. Crude imports could continue to grow faster than flow from in-state oil fields declines. * Decline in petroleum fuels use in-state from CARB proposed climate plan modeling (Scenario 3) <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>. ** Western Amazon crude streams: Napo, Oriente (Ecuador); Cano Limon, Chaza, Magdalena, South Blend (Colombia); Loreto, Mayna, Pirana, RPS-Residual Peruano de la Selva (Peru). *** Inside 3,200' California: Wells surfacing within 3,200 feet of homes, hospitals or schools, volume % from www.fractracker.org/2022/04/implications-of-a-3200-foot-setback-in-california.

Where Do West Coast Refineries Export Finished Products?

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- West Coast (PADD 5)
- Petroleum Refining ^a
- Refined exports ^b
- ① Importer; see table ^b



These are the foreign nations where refineries in California (and Washington State) export their excess production of gasoline, diesel, and other petroleum fuels, heating the climate planetwide, and increasing pollution in communities near refineries.

Community Energy reSource
www.energy-re-source.com

In millions of barrels	2015–2019	2010–2014	Change	2015–2019	2010–2014	Change	2015–2019	2010–2014	Change	
All importers	734.8	636.9	97.9	13.4	8.3	5.1	28 Thailand	1.4	0.6	0.8
1 Mexico	151.1	120.5	30.5	12.2	9.2	2.9	29 Saudi Arabia	1.3	0.7	0.6
2 Canada	101.3	129.1	-27.8	11.5	2.7	8.8	30 Indonesia	0.7	0.5	0.2
3 Japan	91.9	104.1	-12.2	3.8	3.3	0.5	31 South Africa	0.7	1.0	-0.3
4 China	64.1	55.2	8.9	3.6	0.1	3.6				
5 S. Korea	53.5	14.3	39.2	3.2	6.4	-3.1				
6 Singapore	45.6	40.4	5.2	3.0	3.8	-0.8				
7 Chile	43.5	60.0	-16.5	2.8	0.0	2.8				
8 Guatemala	27.1	8.8	18.3	2.5	0.3	2.1				
9 Panama	19.0	8.1	10.9	2.0	0.0	2.0				
10 India	17.2	18.9	-1.7	1.9	0.5	1.4				
11 El Salvador	15.4	4.9	10.6	1.8	1.2	0.6				
12 Australia	14.6	16.1	-1.5	1.7	1.5	0.1				
13 Belgium	14.2	8.3	6.0	1.5	0.2	1.3				

a. California (15 refineries) and Washington (5 plants) host 90% of West Coast (PADD 5) refining capacity.
 b. The table shows West Coast refined products exports for each significant (>0.1%) importer; net exports rose 97.9 million barrels in 2015–2019. Data: www.eia.gov/dnav/pet/pet_move_expcp_az_r50_epp0_eex_mbbbl_a.htm. Figures may not add due to rounding.

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However, a fair reading of the revised Scoping Plan¹ suggests that it highlights fears about continued and increased petroleum imports and refining to meet future in-state fuels demand without disclosing or reporting adequately complete data to reveal that those fears are misplaced.

Recommendations

Evidence presented and discussed herein further supports beginning gradual phase downs of petroleum refining and extraction in California without further delay, and suggests that the Board consider directing Staff to ensure complete and transparent import-export analysis will be used in public planning for these urgently needed measures.

Thank you for considering these comments. Please let us know if there is a question about them which you might wish to discuss with us.

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Attachments provided with this letter

California Refinery Inputs and Production; Fuel Watch; California Energy Commission. Accessed Dec. 2022 from https://www.energy.ca.gov/data-reports/reports/weekly-fuels-watch/refinery-inputs-and-production?utm_medium=email&utm_source=govdelivery

Fuel Combustion and Heat Content; Full Inventory; GHG Inventory; California Air Resources Board. Accessed Dec. 2022 from <https://ww2.arb.ca.gov/ghg-inventory-data>

Four (4) Trade database query reports accessed Nov. 2022 from the U.S. Census Bureau website, <https://usatrade.census.gov/>:

1. Exports from California to all other nations of petroleum products manufactured by all facilities in the North American Industrial Classification (NAIC) 3241.
2. Exports from California to all other nations of gasoline and other light petroleum oils excluding crude and excluding biodiesel, HS Commodity Code 271012.
3. Exports from California to all other nations of jet fuel, diesel, distillate and other medium and heavy oils, excluding crude and excluding biodiesel, HS Commodity Code 271019.
4. Exports from California to all other nations of petroleum coke, calcined and not calcined, HS commodity codes 271311 and 271312.

CEJA (2022). *Climate Pathways in an Oil State—2022*; A California Environmental Justice Alliance Report. Prepared by Greg Karras, Community Energy reSource.