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Refinery fuel exports map and table, annotated

Importing oil to refine fuels for export pollutes across the fuel chain—where the oil is extracted, where it is refined, and where the fuels are burned. Refiners in California have already pivoted toward export of the dirtiest-burning fuels they refine here. Now a crucial question arises: Instead of phasing down oil refining as the state moves toward zero emission vehicles, will refiners here pivot to export more and more of their ongoing fuels production? Tracking exports from refineries in California matters.

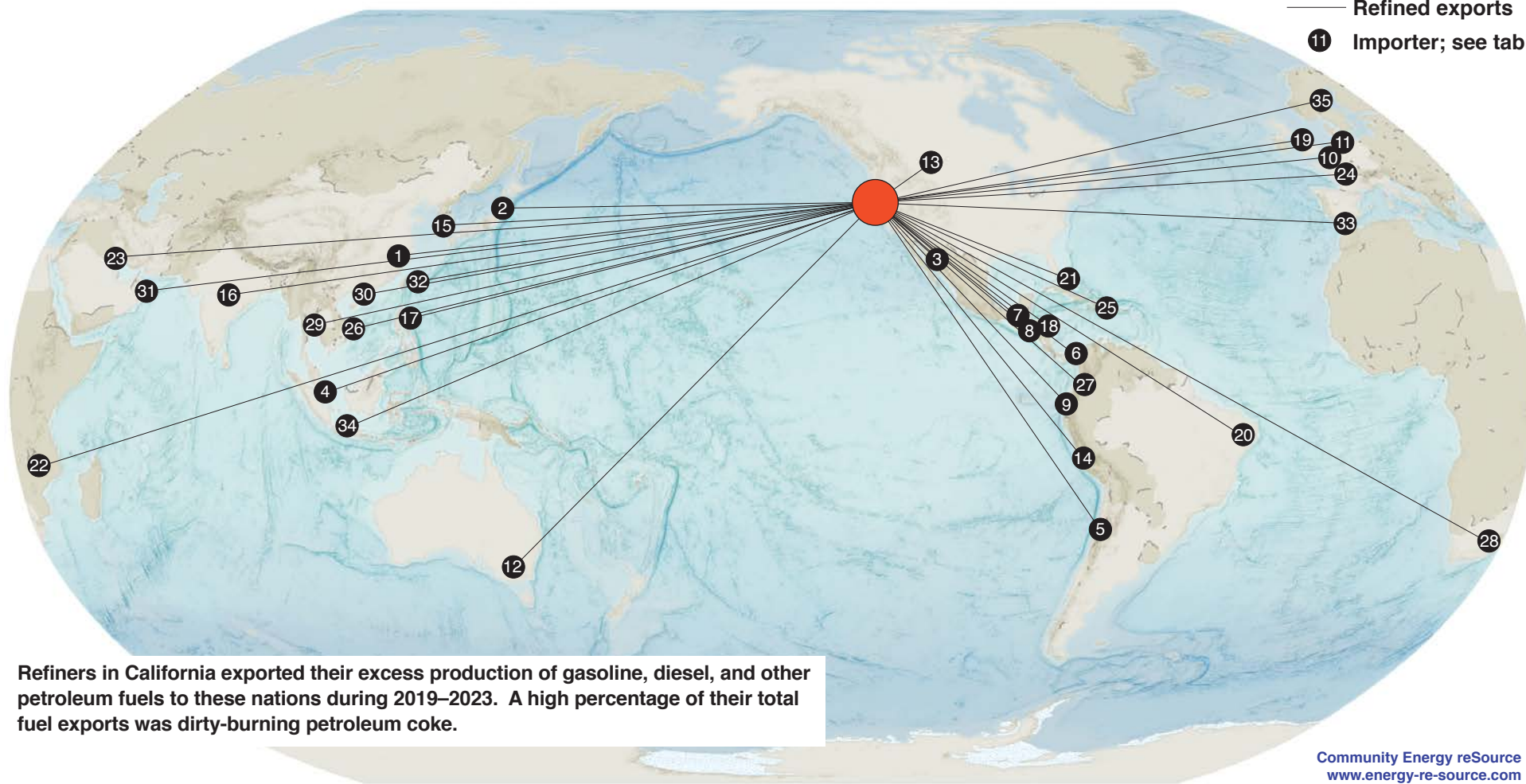
Exports to other US states comprise a large portion of California refinery exports now, but demand for oil is in long-term decline across California and the US West Coast while it is rising in some other nations to which refiners here export. Whether oil companies will protect otherwise stranded assets through exports that make California into the “gas station of the Pacific Rim” is not yet decided. Analysis of global export patterns such as those illustrated in the map and table may help to inform this climate and health risk.

Please consider the attached map and table of exports from refineries in California to other nations.

Additional submitted attachment is included below.

Where Do Refineries in California Export Petroleum Fuels?

- Petroleum refineries in California^a
- Refined exports
- ⑪ Importer; see table



Refiners in California exported their excess production of gasoline, diesel, and other petroleum fuels to these nations during 2019–2023. A high percentage of their total fuel exports was dirty-burning petroleum coke.

Community Energy reSource
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<i>Millions of tonnes</i>	Total fuels	Liquids	Coke		Total fuels	Liquids	Coke		Total fuels	Liquids	Coke
All importers	56.78	47%	53%	14 Peru	0.89	93%	7%	28 South Africa	0.12	6%	94%
1 China	13.15	1%	99%	15 Korea, S.	0.88	44%	56%	29 Thailand	0.12	5%	95%
2 Japan	11.83	3%	97%	16 India	0.49	13%	87%	30 Hong Kong	0.11	3%	97%
3 Mexico	5.09	94%	6%	17 Philippines	0.30	12%	88%	31 Oman	0.11	0%	100%
4 Singapore	3.14	98%	2%	18 Honduras	0.20	86%	14%	32 Taiwan	0.10	100%	0%
5 Chile	3.13	100%	0%	19 United K.	0.19	20%	80%	33 Gibraltar	0.09	100%	0%
6 Panama	3.00	100%	0%	20 Brazil	0.19	79%	21%	34 Indonesia	0.08	62%	38%
7 Guatemala	2.95	99%	1%	21 Bahamas	0.18	100%	0%	35 Sweden	0.05	2%	98%
8 El Salvador	2.07	100%	0%	22 Mozambique	0.16	0%	100%				
9 Ecuador	1.89	98%	2%	23 Kuwait	0.15	0%	100%				
10 Belgium	1.62	80%	20%	24 France	0.15	100%	0%				
11 Netherlands	1.24	47%	53%	25 Dominican R.	0.15	100%	0%				
12 Australia	1.16	6%	94%	26 Vietnam	0.14	7%	93%				
13 Canada	1.04	89%	11%	27 Colombia	0.12	100%	0%				

California refined products exports from 2019–2023 for each significant (>0.1%) importer. Liquids: distillate oils, gasoline & jet fuel with small amounts of gases. Coke: petroleum coke with small amounts of residual products. Data for foreign exports from the US Census Bureau.^b

Notes

Importing oil to refine fuels for export pollutes across the fuel chain—where the oil is extracted, where it is refined, and where the fuels are burned. Refiners in California have already pivoted toward export of the dirtiest-burning fuels they refine here. Now a crucial question arises: Instead of phasing down oil refining as the state moves toward zero emission vehicles, will refiners here pivot to export more and more of their ongoing fuels production? Tracking exports from refineries in California matters.

(a) Refineries: California hosts the dominant oil refining center in Western North America.¹ Refiners here export roughly one-third of their total fuels production—including the vast majority of their marketable petroleum coke.² Pet coke is a dirty-burning byproduct of boosting liquid fuels production from their relatively “heavy” statewide crude slate. The map and table illustrate the global reach and carbon intensity of these exports from refineries in California to other nations.

(b) Data and methods: Aggregate and nation-specific exports from January 2019 through December 2023 were accessed from the US Census Bureau³ on 10 May 2024. State exports to each other nation for “Harmonized System” codes 2710 (oil [not crude] from petrol & bitum mineral etc.), 2711 (petroleum gases & other gaseous hydrocarbons), 2712 (petroleum jelly, mineral waxes & similar products), and 2713 (petroleum coke, petroleum bitumen & other residues) were summed for each receiving nation and across all receiving nations. Liquefied natural gas (LNG) exports (HS code 271111) were conservatively assumed to originate from natural gas production rather than oil refining and were excluded from these summed values.

Receiving nations (“importers” of these exports) were ranked by total mass of refined products exported from 2019 through 2023. The top-ranked 35 nations are shown in the map and table; 56 other nations that each received small portions (<0.1%) of total exports from California during this period are not shown.

Exports were apportioned between “liquids” (HS codes 2710 and 2711) and “coke” (HS Code 2713) based on percentage of total mass exported. Petroleum gases (HS Code 2711, except six-digit Code 271111) were included with the much larger volumes of liquids in HS Code 2710. Refined petroleum jelly and waxes (HS Code 2712) were generally less than 1 percent of exports.

Other notes: US Census data for gasoline and diesel exports to other nations compare to California Energy Commission foreign export estimates reasonably well.² The Census data also include petroleum coke exports, and nations receiving the exports, but do not include fuels movements between US states.

Exports to other US states comprise a large portion of California refinery exports now, but demand for oil is in long-term decline across California and the US West Coast while it is rising in some other nations to which refiners here export. Whether oil companies will protect otherwise stranded assets through exports that make California into the “gas station of the Pacific Rim” is not yet decided. Analysis of global export patterns such as those illustrated in the map and table may help to inform this climate and health risk.

(1) Worldwide, US Refinery Survey. *Oil & Gas Journal*; <https://www.ogj.com/ogj-survey-downloads/worldwide-refining>

(2) *Comment recommending monthly online reporting of oil and refined fuels imports and exports*; Stand.earth and Community Energy reSource. 21 Nov 2023. TN # 253277 in California Energy Commission Docket No. 23-OIR-03.

(3) US Census Bureau, Economic Indicators Division, USA Trade Online; <https://usatrade.census.gov/data/Perspective60/Dim/dimension.aspx?ReportId=6541>