New Climate Threat: Will Oil Refineries make California the Gas Station of the Pacific Rim?

Preventing climate disaster requires a global switch from oil before the year 2050.[1] On the U.S. West Coast, where Los Angeles, the Bay Area, and Puget Sound host the 1st, 2nd, and 3rd largest oil refining centers in Western North America,[2] we are using less oil.[3] So we should be leaders in this transition. But instead of switching to sustainable alternatives, as we use less oil, West Coast refiners are boosting production to sell other nations oil-derived fuels.

West Coast demand for finished petroleum products (orange in the charts) peaked during the ten year period ending in 2010—"TY2010" for short—then fell by ≈ 440 million barrels from TY2010 to TY2018.[3]

At the same time, West Coast production of finished petroleum products (black in the charts) increased by ≈ 350 million barrels from TY2007 to TY2018.[3] Production exceeded demand here by TY2012, and this production excess grew to ≈ 470 million barrels by TY2018 as refiners made more fuel for export.[3]

Foreign exports of finished refined products from the West Coast (brown) grew by ≈ 390 million barrels, an increase of ≈ 49 %, from TY2007 to TY2018.[3]

Engine fuel exports are driving this excess refinery production. Increased gasoline, distillate/diesel and jet fuel exports account for the vast majority (93 %) of the total increase from 2007 to 2018 in finished petroleum products exports from the West Coast.[3]

Petroleum coke exports remained the largest share of these exports by volume and also increased from 2007–2018,[3] but pet coke is a byproduct of refining low-quality crude that is exported in part because of air quality controls on this dirty-burning fuel.

California refiners account for 67 % of West Coast refining capacity[2] and made ≈ 84 % of the money from West Coast refined product exports in 2014.[4]

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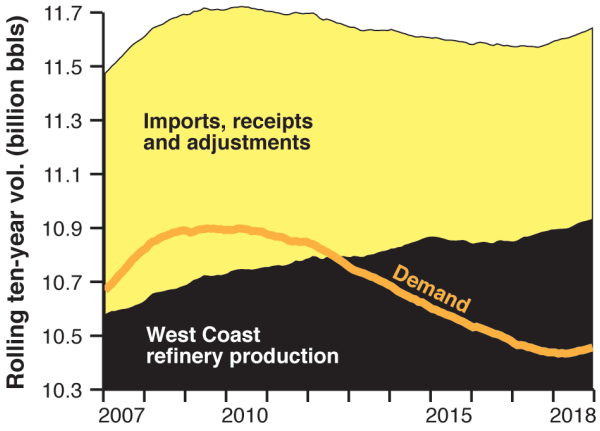
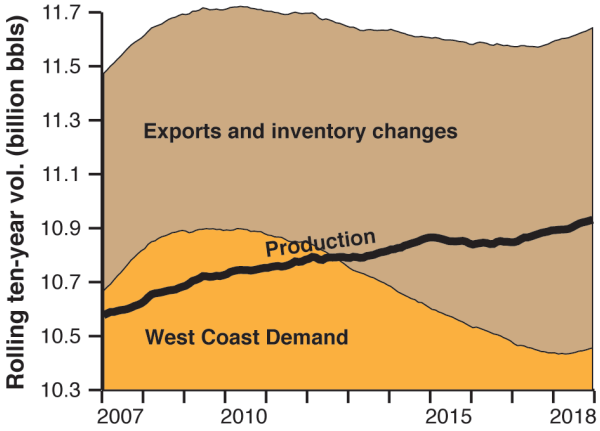
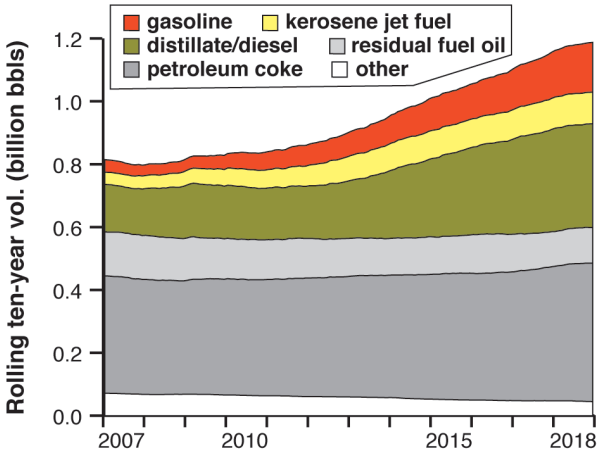


West Coast refined products supply exceeds West Coast demand, 2007–2018.[3]



West Coast refinery production increased to increase refined fuels exports, 2007–2018.[3]



West Coast exports of finished petroleum products increased from 2007–2018.[3]

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Gas Station of the Pacific Rim? *continued*

Further, the major California refining centers, in the Los Angeles and San Francisco Bay areas, supply engine fuels to other states on the West Coast.

Bay Area refinery production of gasoline, distillate-diesel, and jet fuel exceeds demand in its primary regional markets—northern California and northern Nevada.[5] (*See* bar chart.) LA refinery production (not shown in chart) exceeds demand in its primary regional markets for distillate-diesel.[5]

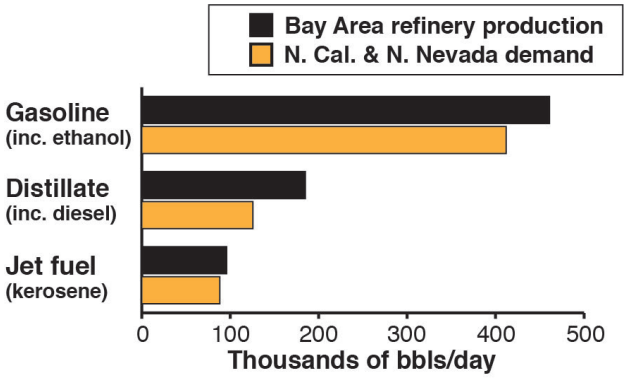
Bay Area refineries supply engine fuels to southern California and Oregon as well as to northern California and Nevada, while LA Area refineries supply southern California, southern Nevada and Arizona. (*See* map.) In 2013, Bay Area refiners exported ≈ 71 % of the distillate and virtually all the gasoline and jet fuel sent to other nations from California.[5]

Across the Pacific, 3.8 billion people live in 24 Asian, Latin American and Oceanic nations that imported ≈ 1.11 billion barrels of oil products from the U.S. in 2017—354 % more than in 2007.[6] Their per capita oil demand is low and rising.[6] If U.S. exports to them keep growing at half the 2007–2017 rate, by 2035 total U.S. refinery exports to these 24 nations could grow by a factor of 17 times the current total West Coast refinery production rate.[6]

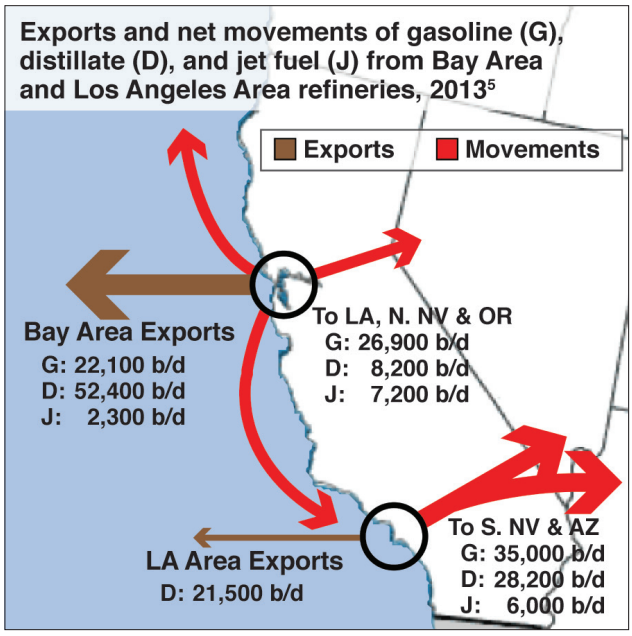
California is not yet the Pacific Rim's gas station. A Just Transition from oil can avoid that climate-killing scenario. But ***allowing*** oil refining for export to worsen air pollution from refineries here and from tailpipes everywhere ***allows*** oil to compete unfairly with this urgently needed solution.

Bay Area refiners got more money exporting than other West Coast refining centers, 2014.

Refining Center	Exports in 2014[4]
San Francisco Bay Area	$ 4,376,000,000
Los Angeles Area	$ 3,519,000,000
Puget Sound Area, WA	$ 1,369,000,000
Bakersfield Area, CA	$ 650,000,000
Other areas (AK & HI)	$ 290,000,000



Bay Area refinery production of engine fuels exceeds N. Cal. and N. Nevada demand, 2013[5]



Notes. (**1**) *See* Intergovernmental Panel on Climate Change, IPCC AR 5; Lilieveld et al., 2019. DOI: 10.1073/pnas.1819989116; and Williams et al., 2011. DOI: 10.1126/science.1208365. (**2**) *Oil & Gas Journal* "2018 Worldwide Refining Survey." (**3**) *West Coast (PADD 5) Supply and Disposition;* Energy Information Admin. (EIA), 2019; www.eia.gov/dnav/pet/pet_sum_snd_d_r50_mbbl_m_cur.htm. (**4**) Brookings Institute, 2015. *Export Monitor 2015;* data for petroleum & coal products exports produced by metro area (note that CA refining centers do not produce coal); www.brookings.edu/research/interactives/2015/export-m. (**5**) Data from EIA, 2015. *PADD 5 Transportation Fuels Markets;* www.eia.gov/analysis/transportationfuels/padd5. (**6**) Australia, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, India, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Nicaragua, Panama, Peru, Philippines, Singapore, Taiwan, Thailand, Venezuela and Vietnam: U.S. non-crude exports to these nations from *Total Products Exports by Destination;* www.eia.gov/dnav/pet/pet_move_expc_a_epp0_eex_mbblpd_a.htm. Per capita demand (3.43 b/y collectively in these nations *v.* 22.2 b/y in U.S.) based on 2015 data from databank.worldbank.org (population) and www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=5&pid=5&aid=2 (petroleum consumption). In 2018 WC refinery production was ≈ 1.133 billion b/y (note **3**).