

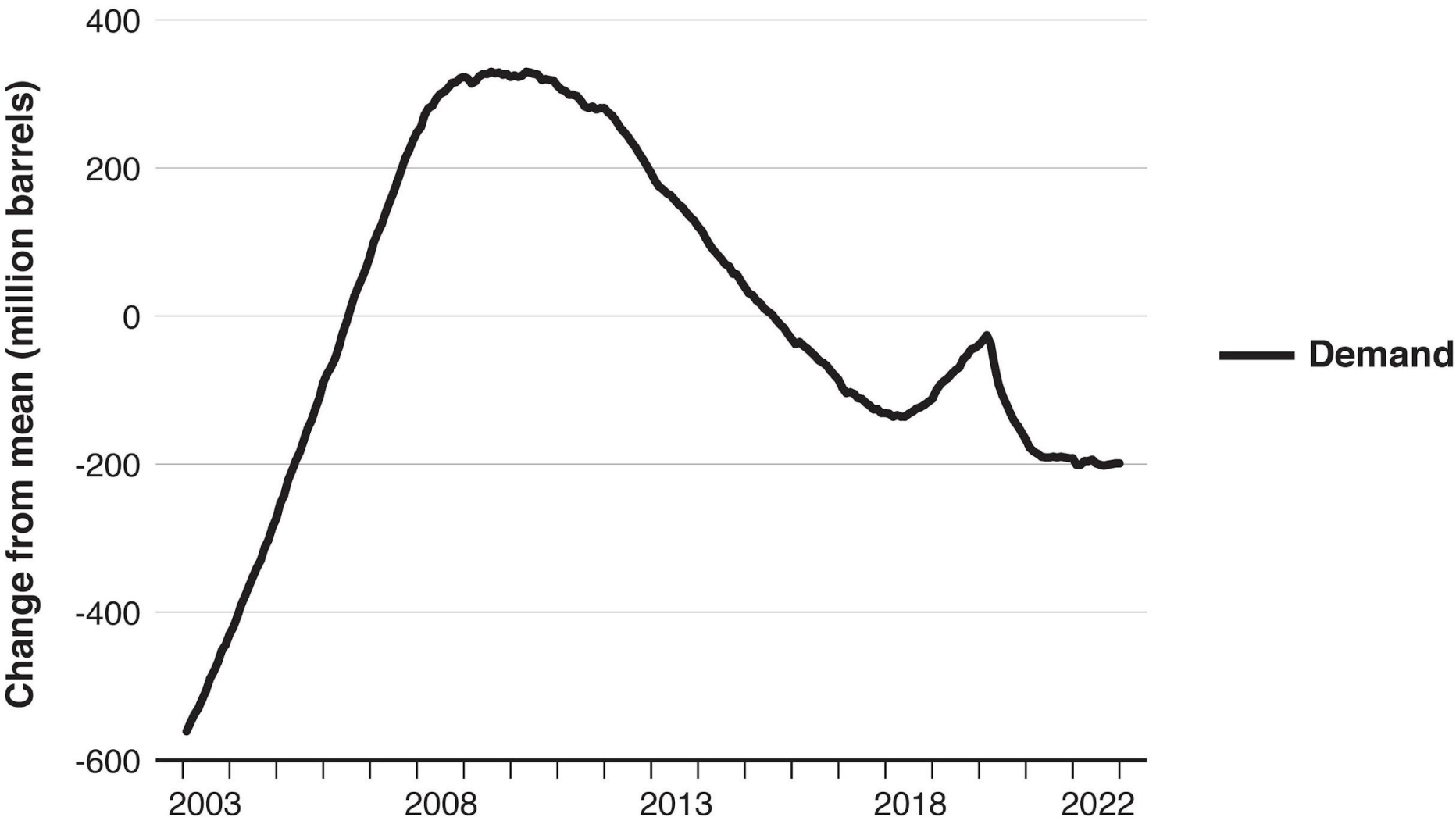
Where Do West Coast Refineries Export Finished Products?



Start phasing out oil refining here now.

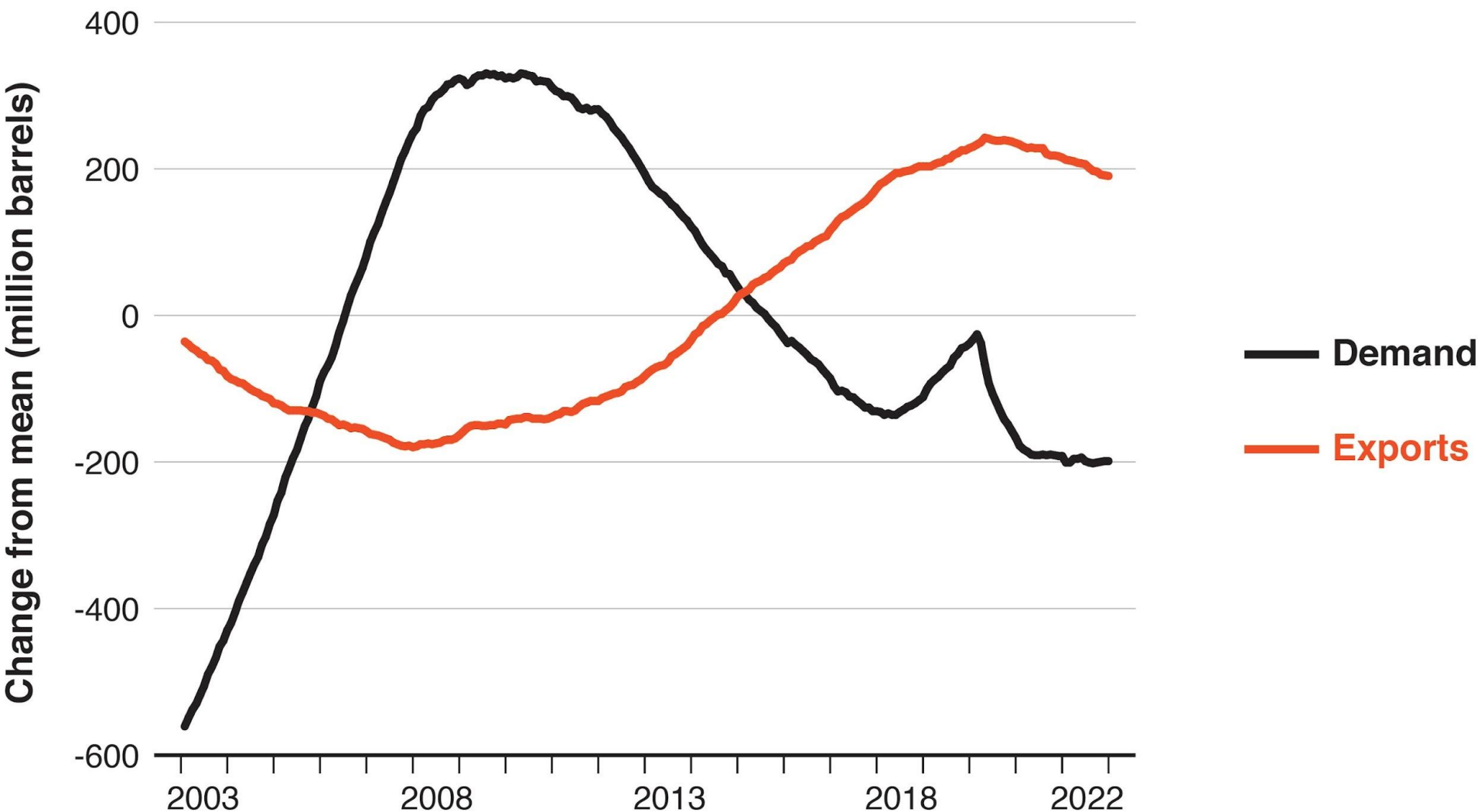
California Climate Policy Summit 2023 • Sacramento, CA • 11 April 2023
Greg Karras, Community Energy reSource

We burned less fuel



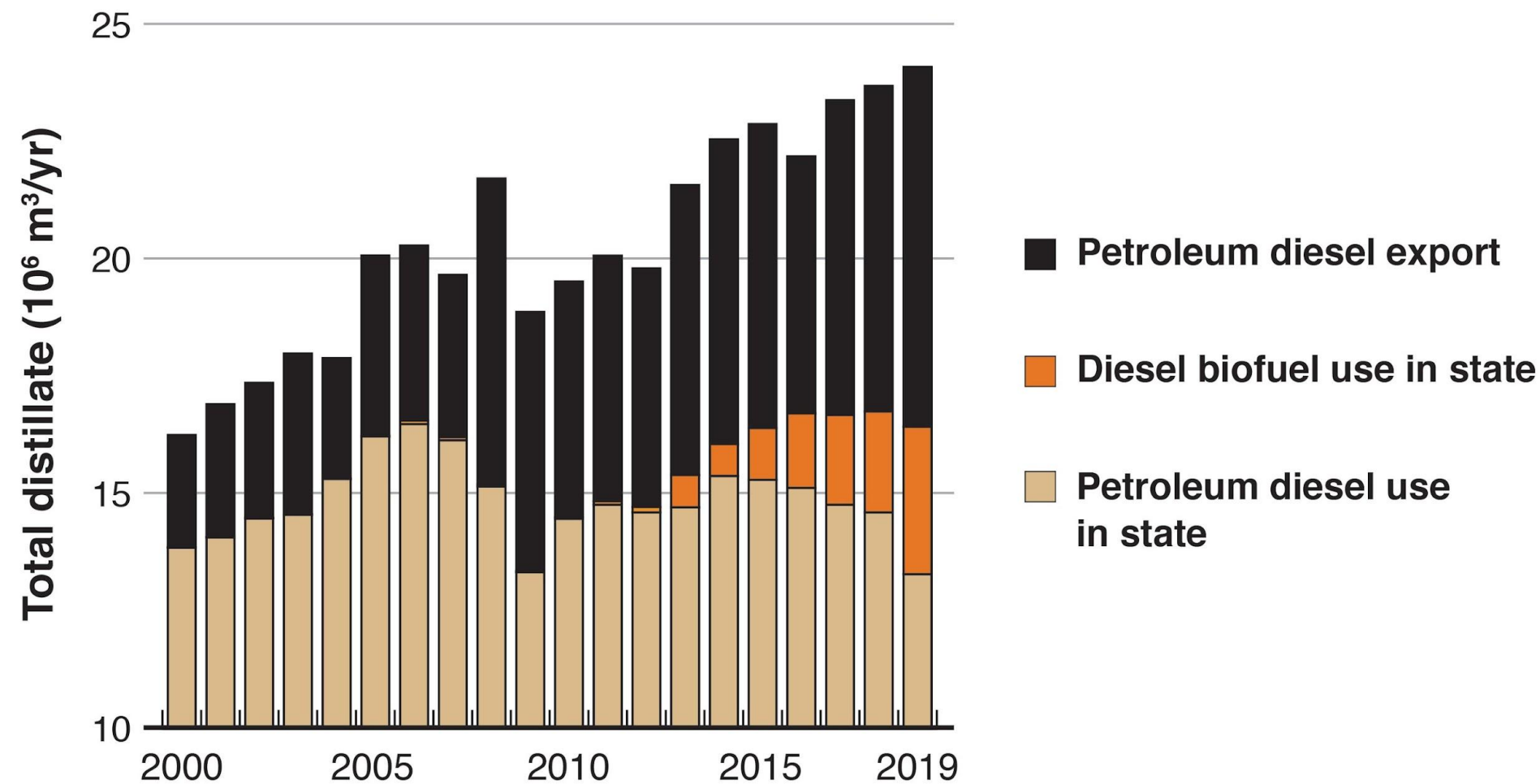
West Coast (PADD 5) refined petroleum products demand, rolling ten-year totals, change from mean during 2003–2022

They refined more for export



West Coast (PADD 5) refined petroleum products demand and exports, rolling ten-year totals, change from mean during 2003–2022

Refining a new combustion fuel added to the problem



California: diesel biofuel added to (did not replace) petroleum distillate

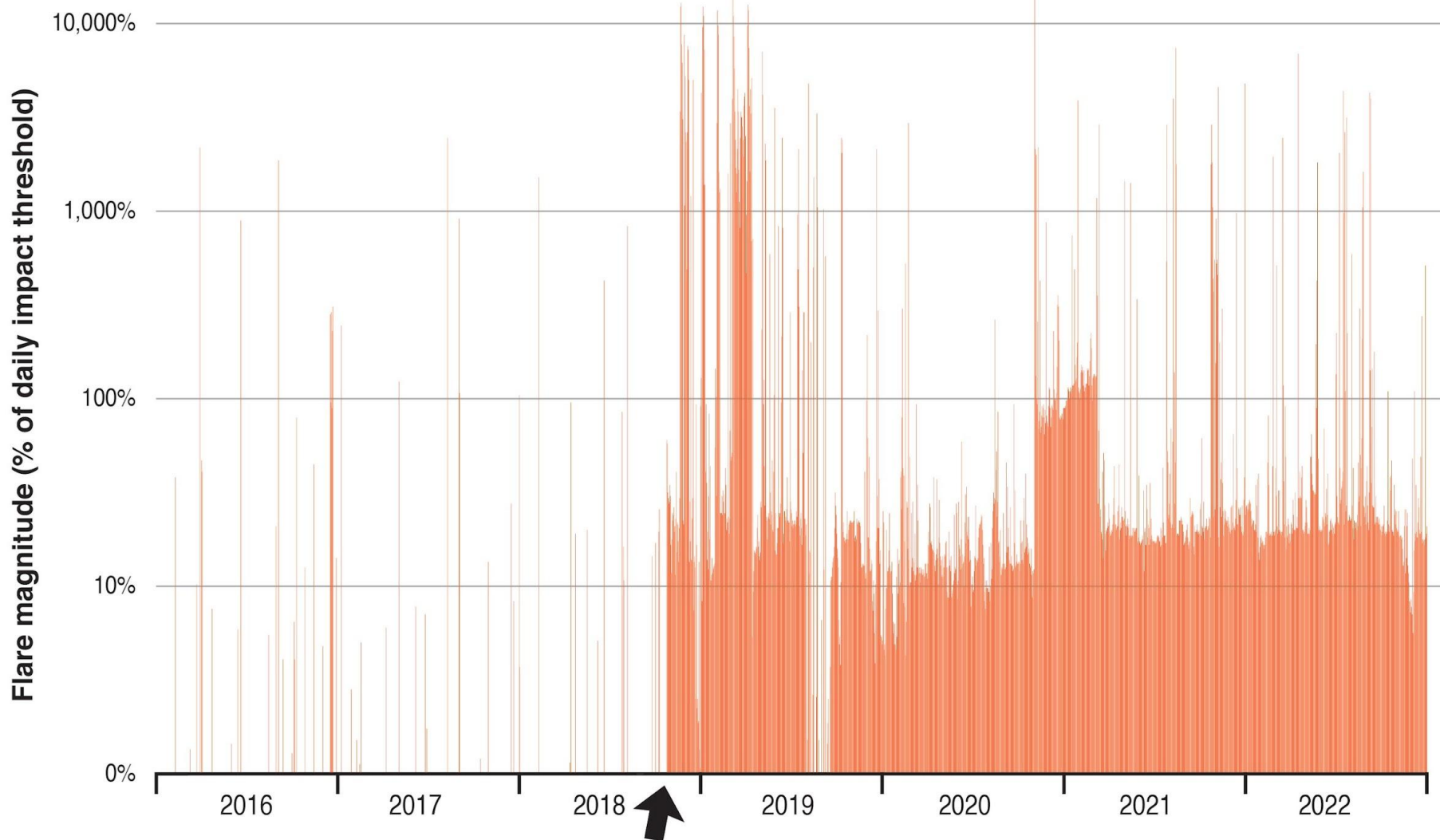
Emissions associated with fuel exports by refiners in California during 2013–2019, including direct emissions from extracting imported oil used to refine the exports, refining the exports in-state, and burning the exported fuels, totaled approximately 930 million metric tons CO₂e.

During those seven years, emissions from all of the oil refined in California totaled nearly 2.6 billion metric tons.

All other activities in the state combined emitted approximately 1.4 billion tons.

From *Climate Pathways in an Oil State – 2022*, a report for the California Environmental Justice Alliance.

Making exports causes roughly a *third* of CA refinery emissions.



Frequency and magnitude of flaring at the Chevron Richmond refinery, 2016–2022.

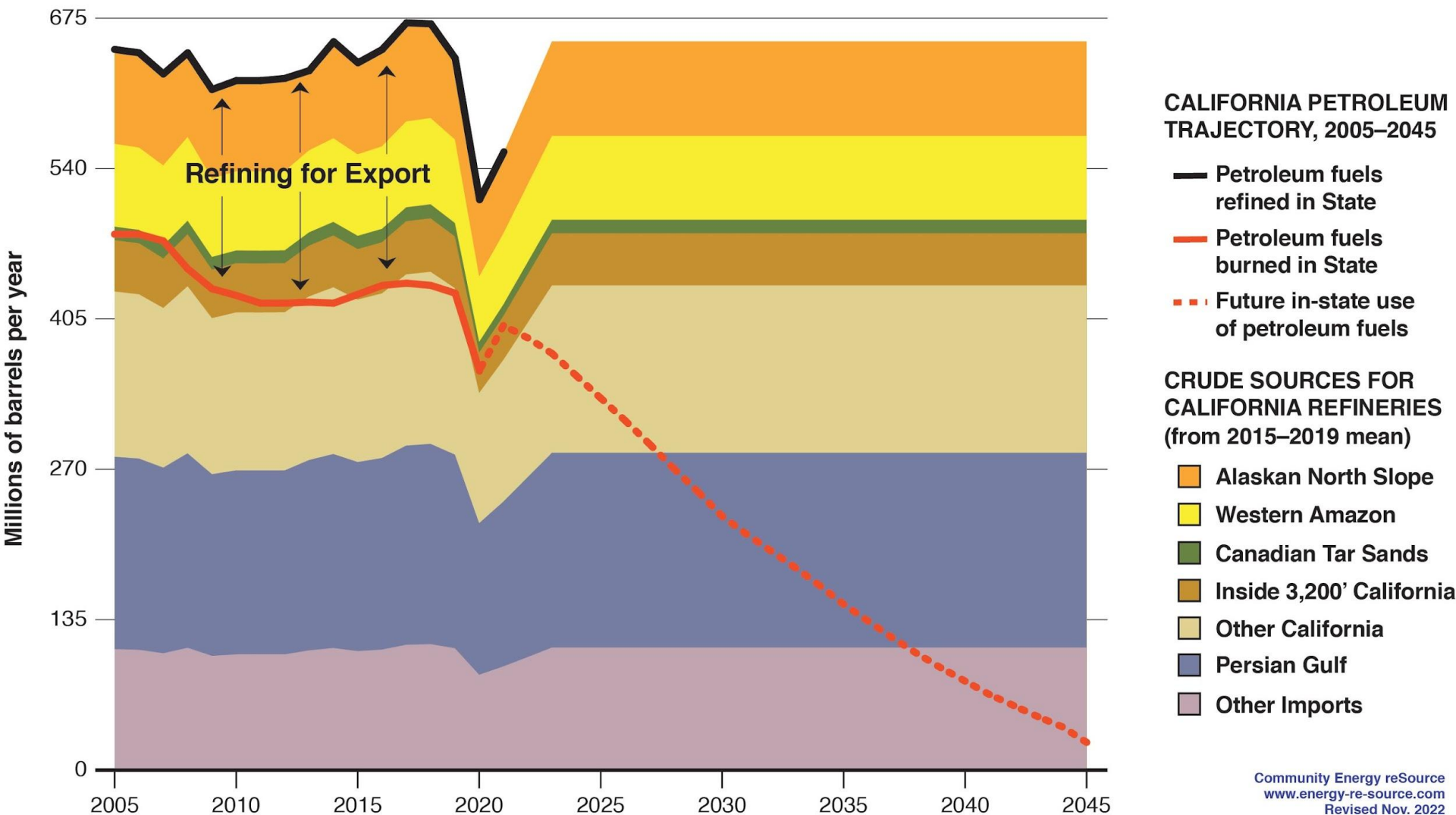
Frequency shown ranges from 0–31 days per month. Magnitude shown as percentage of BAAQMD cause analysis threshold; 0.5 million cubic feet of vent gas flared or 500 pounds of SO₂ emitted per day (criteria triggering flare incident causal analysis from BAAQMD Rule 12-12). Arrow: approximate date the refinery commissioned a new and larger fossil fueled hydrogen plant.



WHAT IF

California enforced health-based refinery emission standards?

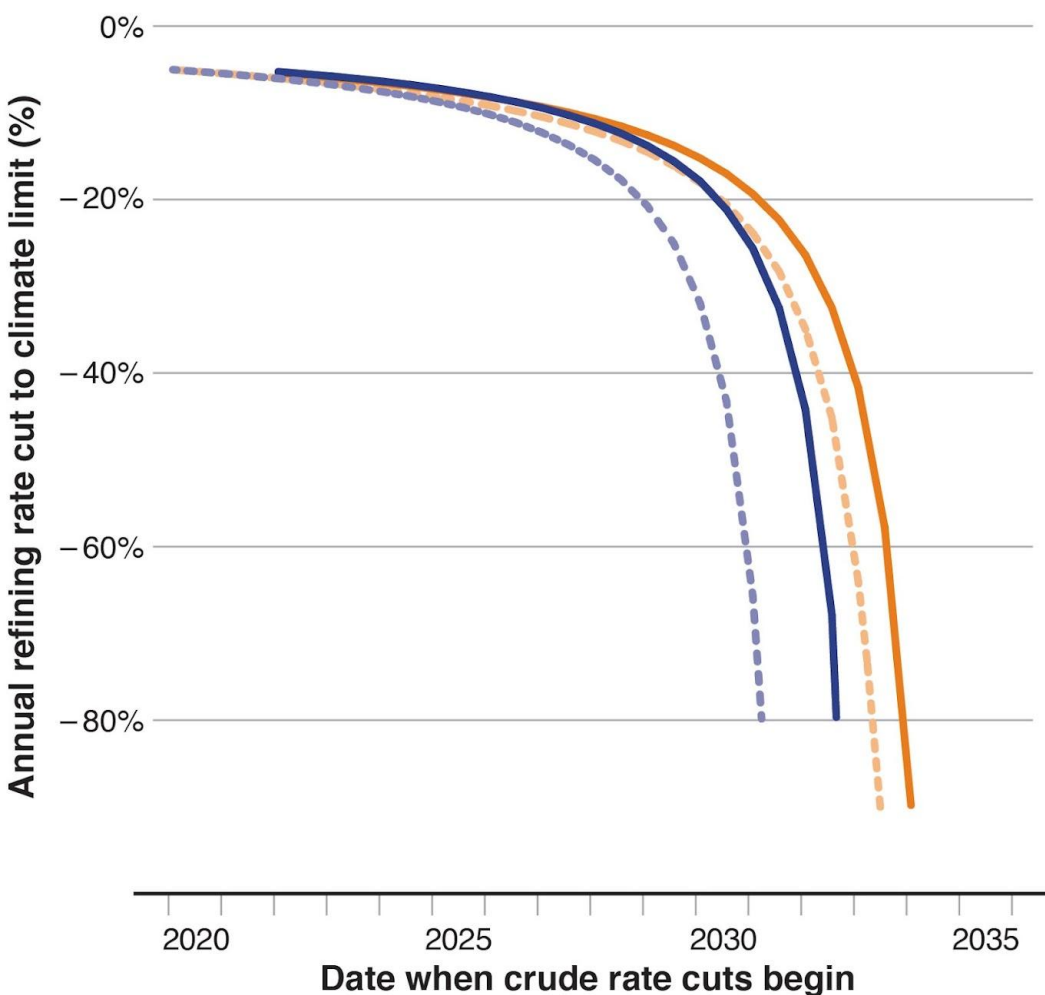
We can phase down in-state oil drilling **AND** imports



Community Energy reSource
www.energy-re-source.com
 Revised Nov. 2022

Petroleum refined in California: volumes, sources and disposition

Out of time: tipping points for climate stabilization feasibility



Case 1. 20% refining capacity reserve for potentially irreplaceable products; does not assume jet biofuel

— This report; based on 2013–2021 data

- - - CBE (2020); based on 2013–2017 data

Case 2. 10% refining capacity reserve for potentially irreplaceable products; switch to biofuel for half of jet fuel^a

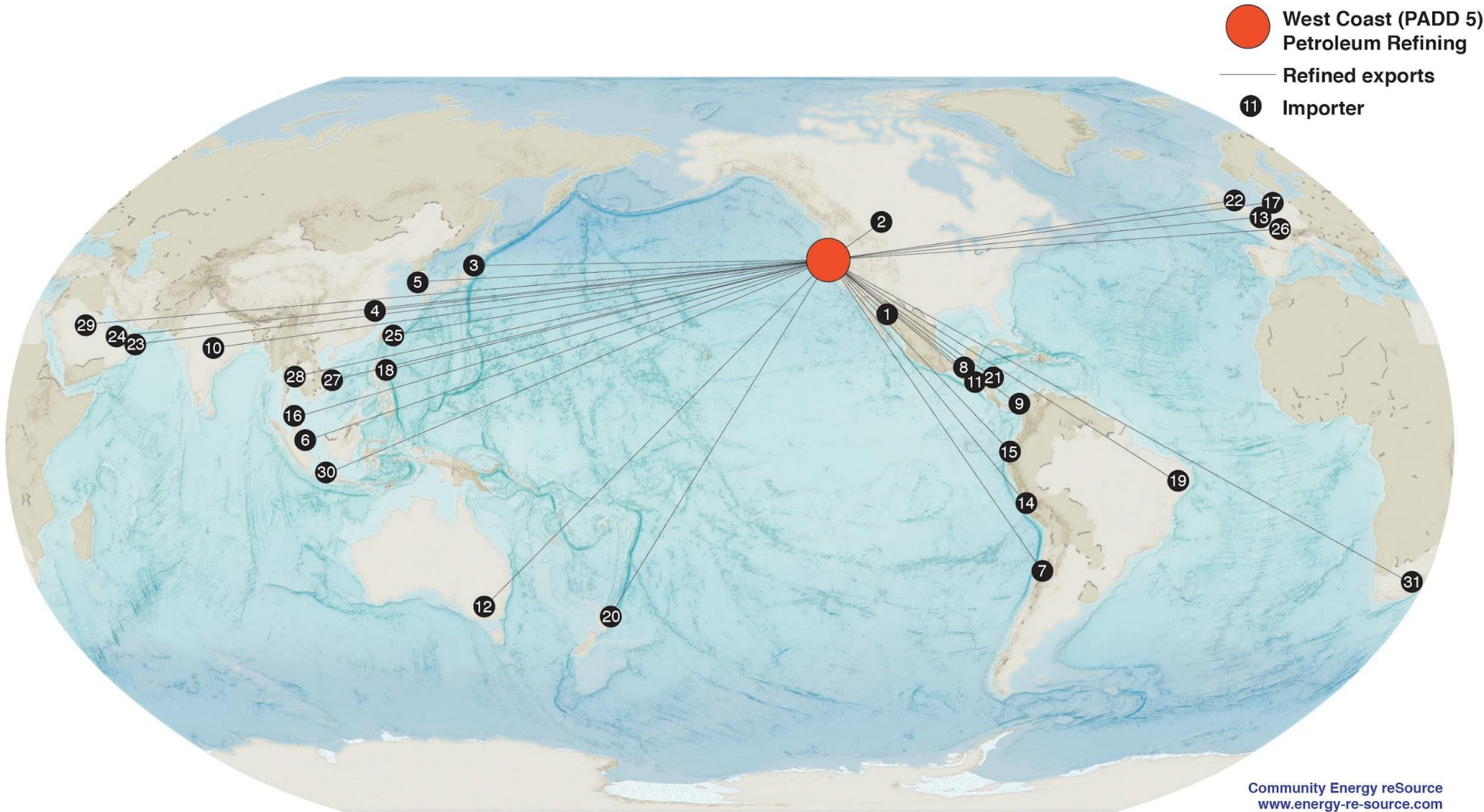
— This report; based on 2013–2021 data
HEFA jet biofuel refining^a

- - - CBE (2020); based on 2013–2017 data
Jet fuel alternative unspecified

Effect of delay on annual refinery crude rate cuts to the State climate limit.

Assumes non-petroleum emission cuts to their share of the climate limit. (a) Case 2, in this report, assumes repurposing refining capacity lost along climate pathways with HEFA refining up to the 50/50 biofuel/petroleum jet fuel blending limit.

HEFA: Hydrotreated esters and fatty acids; type of biofuel.



Start phasing out oil refining here now.

California Climate Policy Summit 2023 • Sacramento, CA • 11 April 2023
Greg Karras, Community Energy reSource

For details and data sources:

Slide 1. US Energy Information Administration (EIA) refining and export data. See *The Oil California Could Keep in the Ground*;

www.energy-re-source.com/latest

Slides 2 and 3. EIA Supply and Disposition, product supplied and exports, Finished Petroleum Products; www.eia.gov/dnav/pet/pet_sum_snd_d_r50_mbbbl_m_cur.htm

Slide 4. California Energy Commission and Air Resources Board data. See *Throwing [bio]fuel on the fire*; www.energy-re-source.com/latest

Slide 5. See *Climate Pathways in an Oil State–2022*; a report for the California Environmental Justice Alliance. Available at www.energy-re-source.com/publications

Slide 6. Public records reported by the Bay Area Air Quality Management District pursuant to its rules 12-11 (Flare Monitoring) and 12-12 (Flare Minimization).

Slide 8. California Energy Commission, Air Resources Board, and various other data sources. See *The Oil California Could Keep in the Ground*; www.energy-re-source.com/latest

Slide 9. See *Climate Pathways in an Oil State–2022*; a report for the California Environmental Justice Alliance. Available at www.energy-re-source.com/publications