

DOCKETED

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Factors Leading to High California Gasoline Prices in 2022



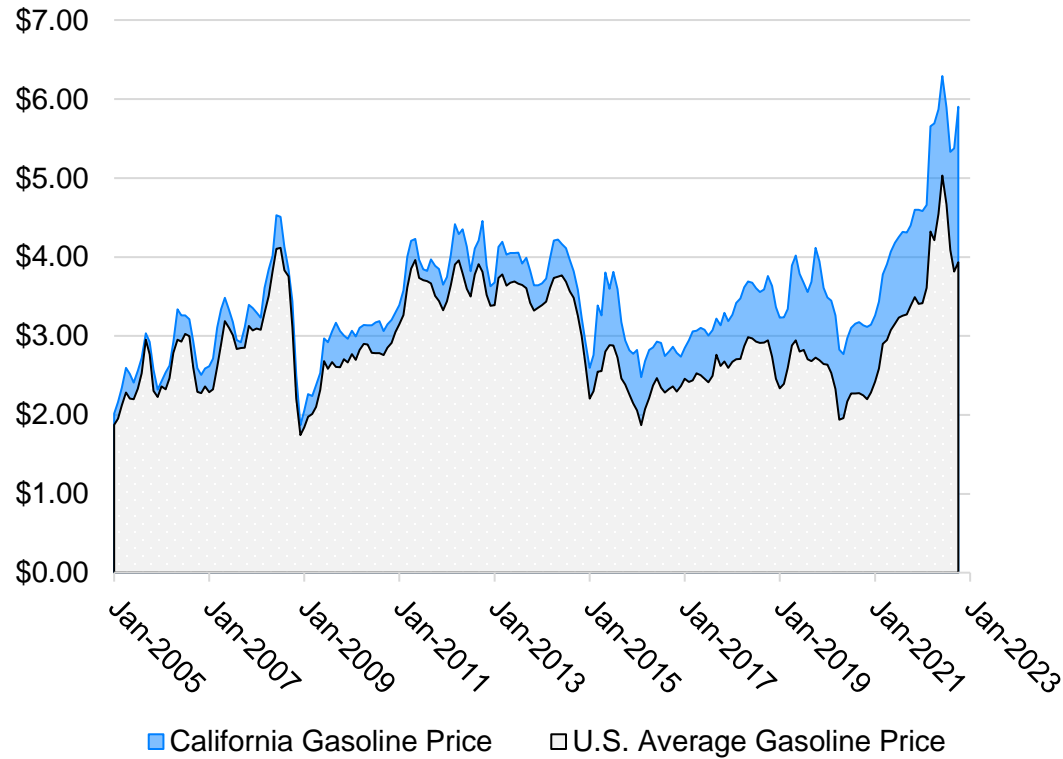
Ysbrand van der Werf, Fuels Price Specialist

29 November 2022

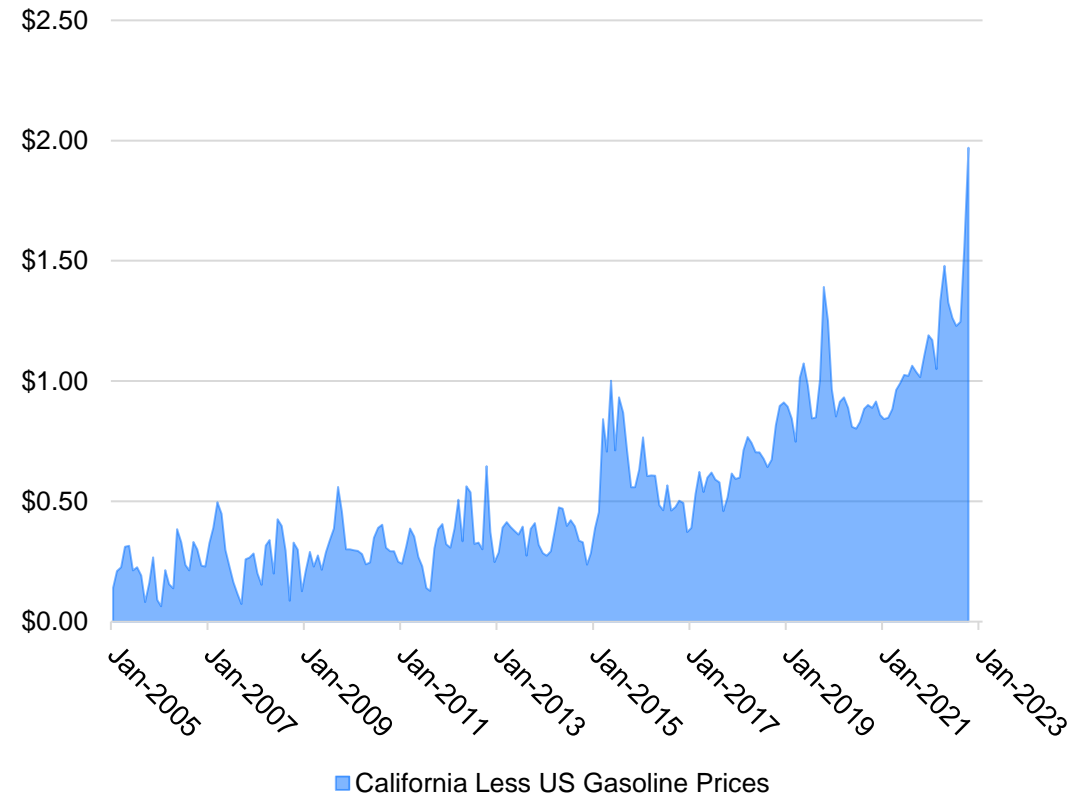


Gasoline Prices Are Unusually High

US & California Monthly Gasoline Prices, 2005-2020



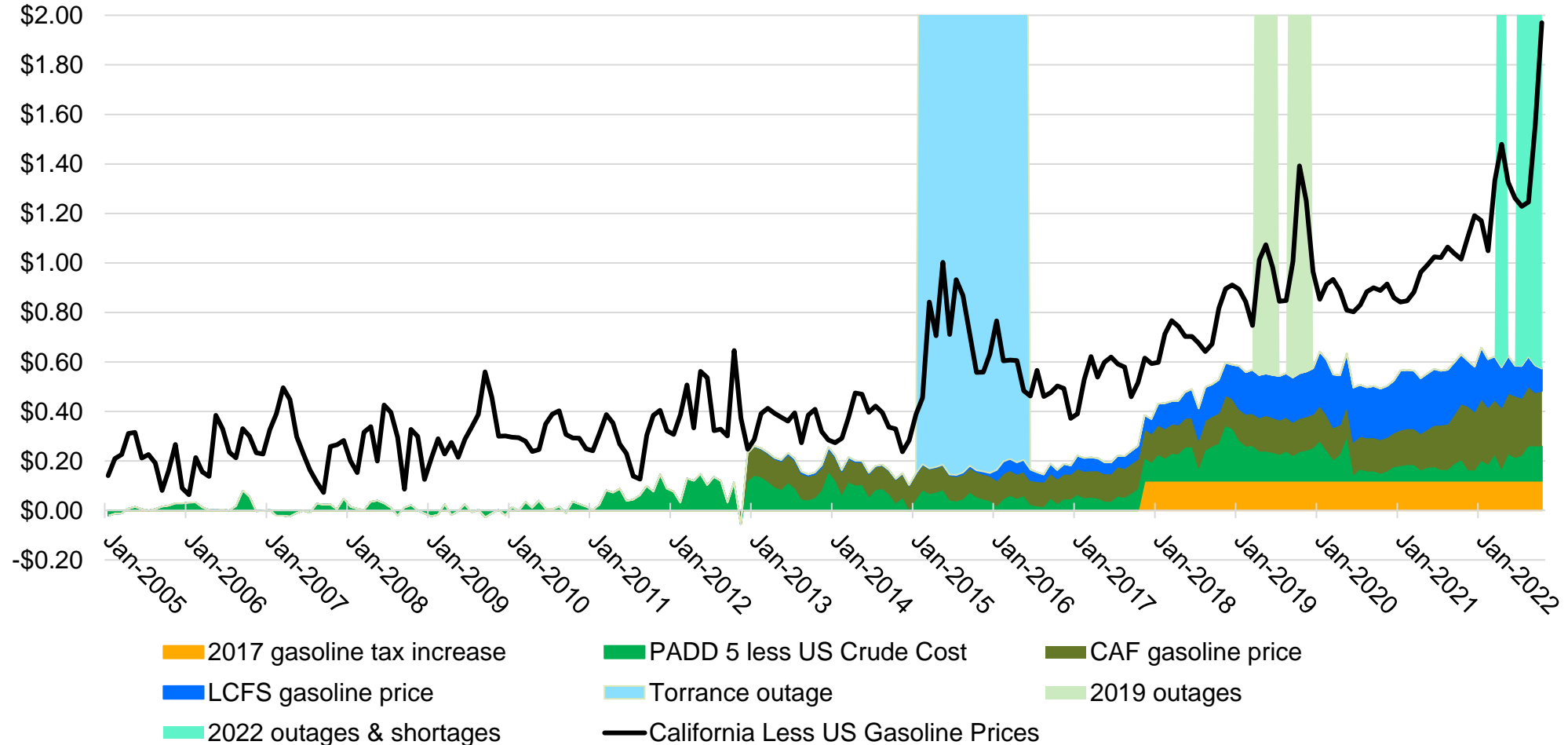
California Gasoline Premium, 2005-2020





The California Premium Is of Long Standing

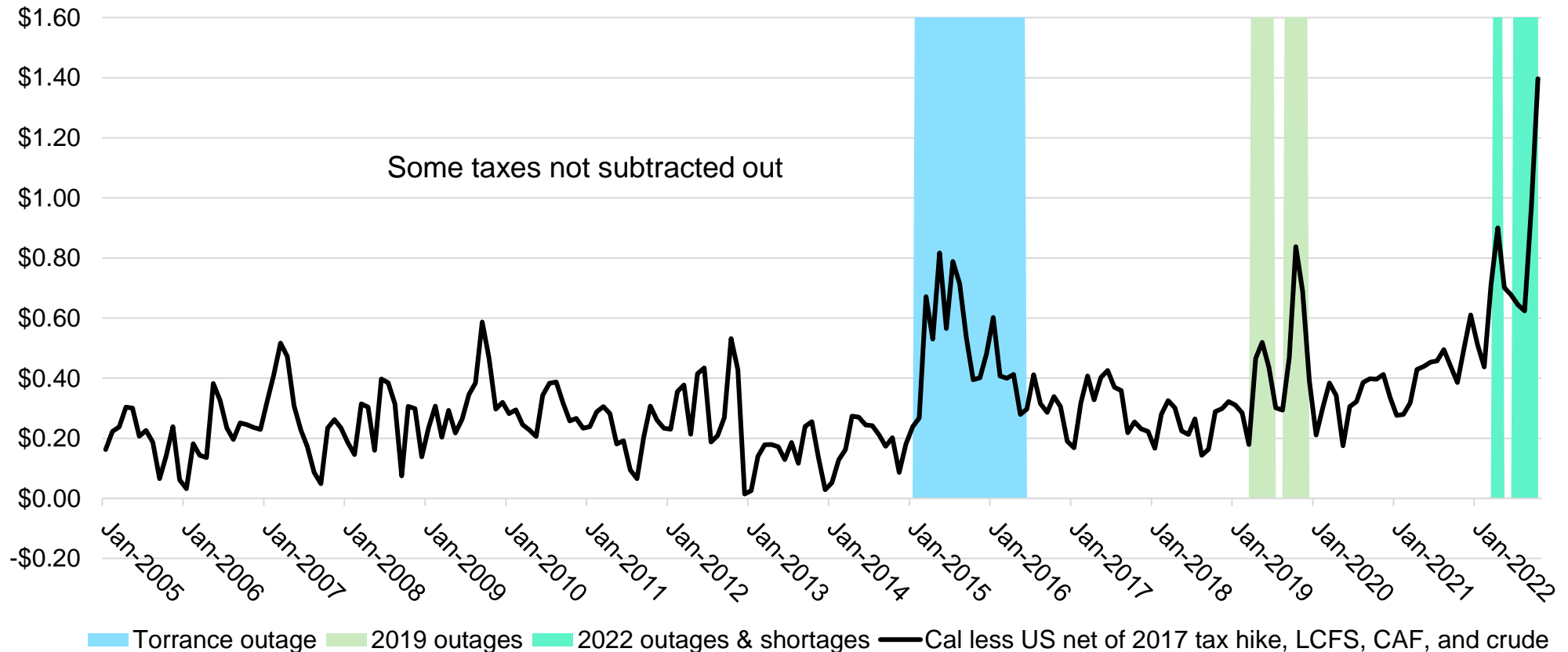
California Premium for Gasoline Prices





California Premium Does Not Explain Price Spikes

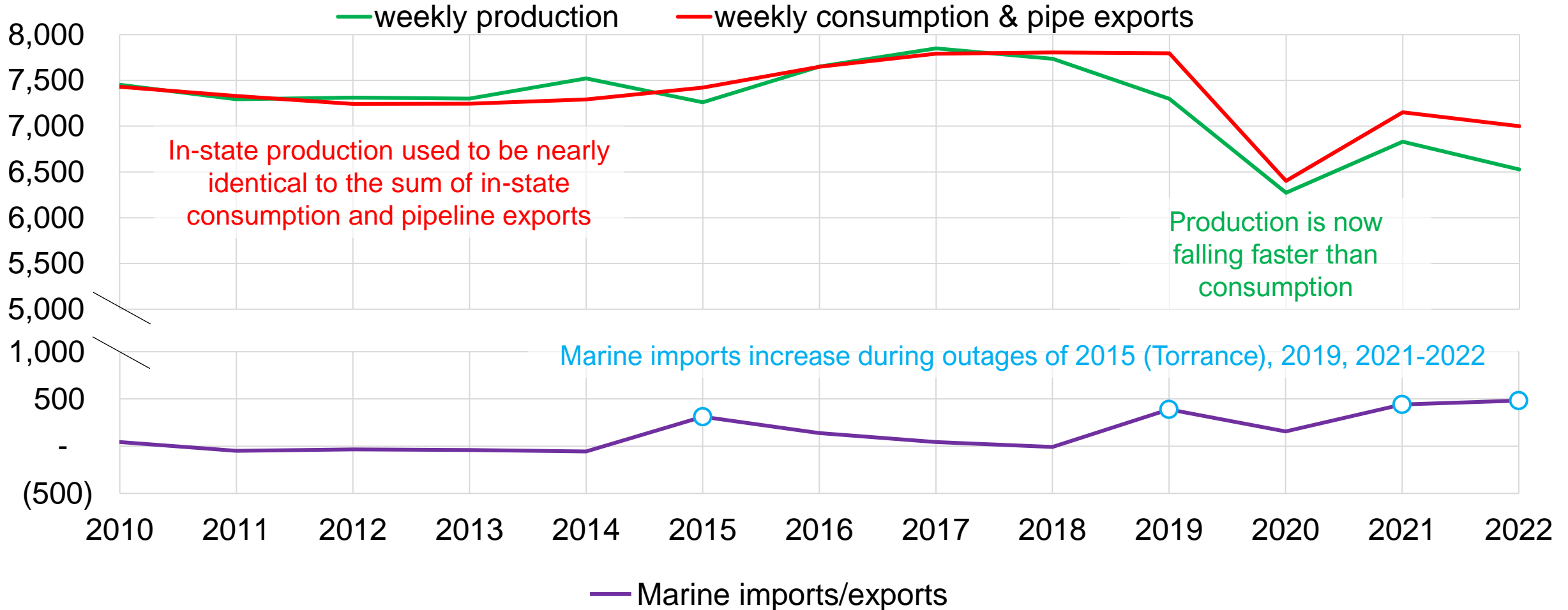
California Premium for Gasoline, Net of 2017 Tax Hike, LCFS, CAF, and Cost of Crude





California Gasoline Deficit Has Been Increasing

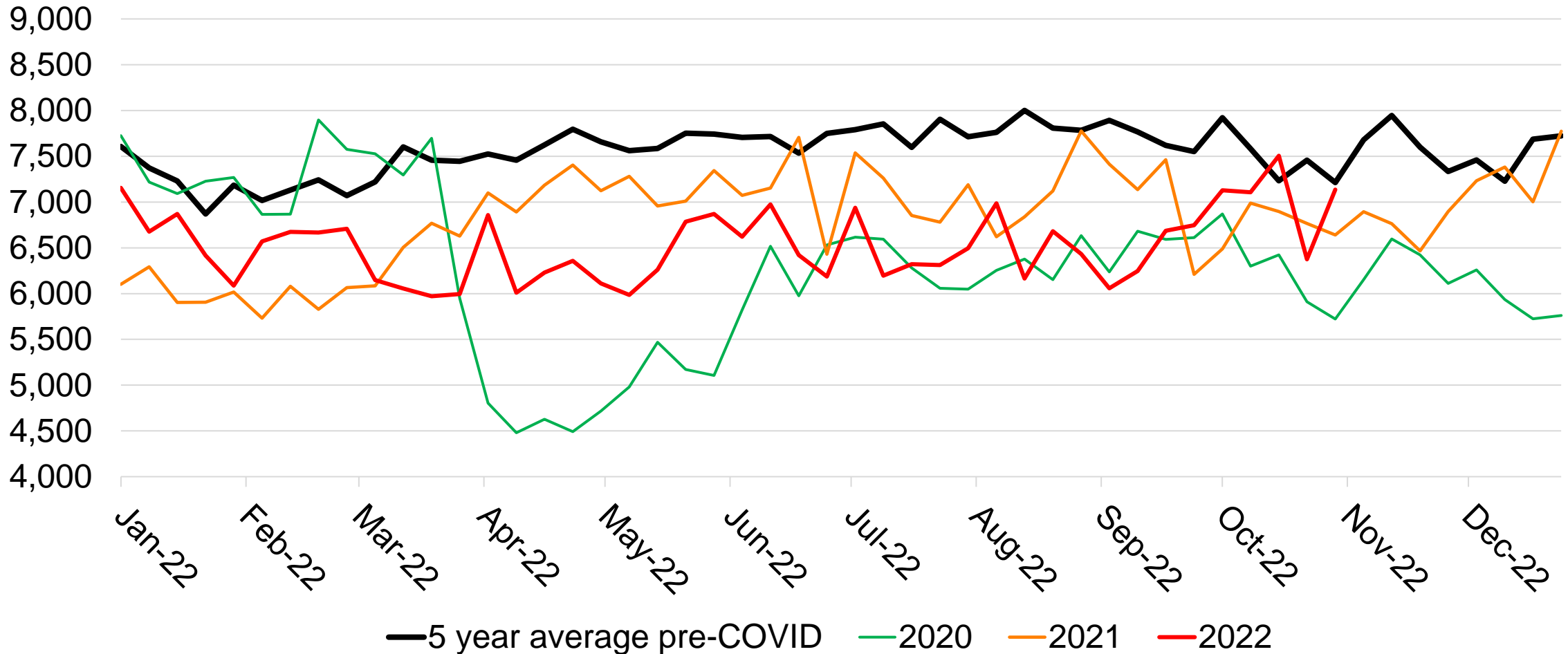
An Average Week, thousand barrels of Gasoline





2022 Refinery Production Has Been Low

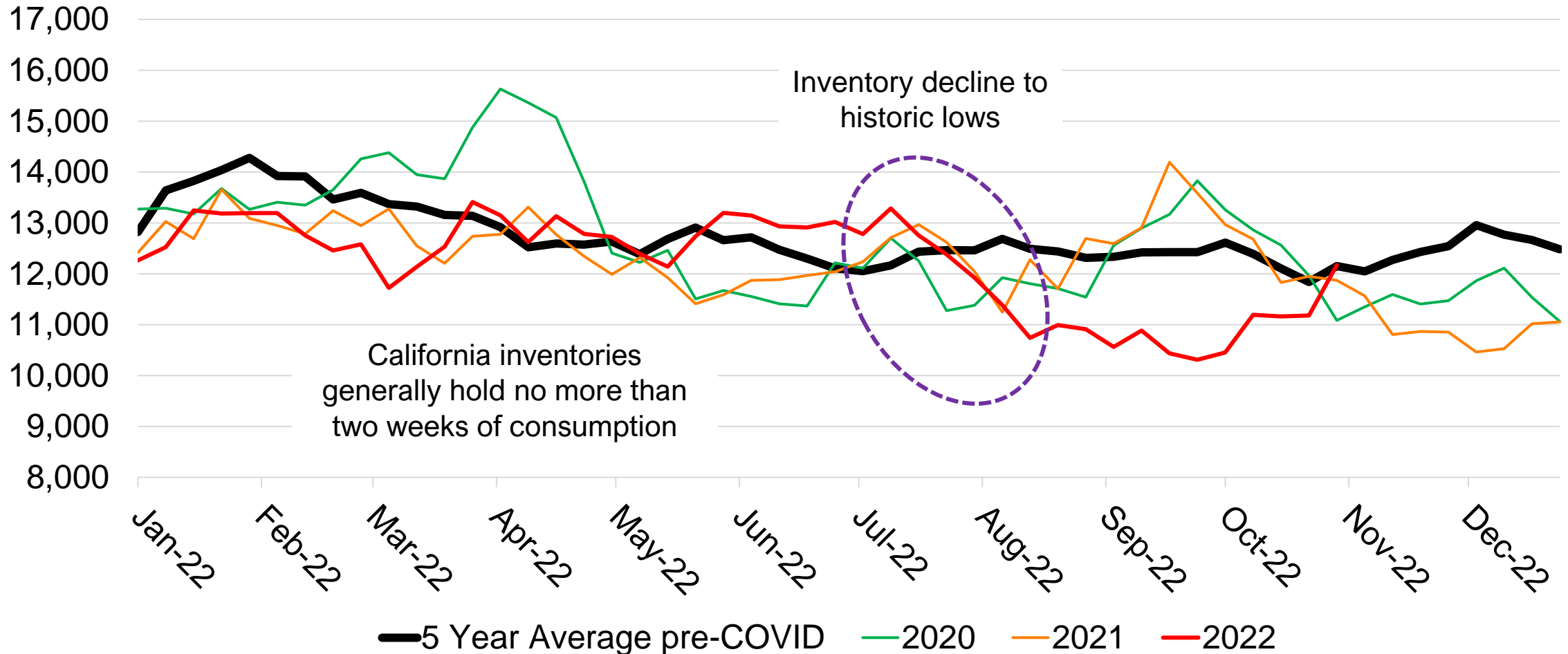
California Gasoline Production, weekly, thousands of barrels





Gasoline Inventories Dropped Sharply in 2022

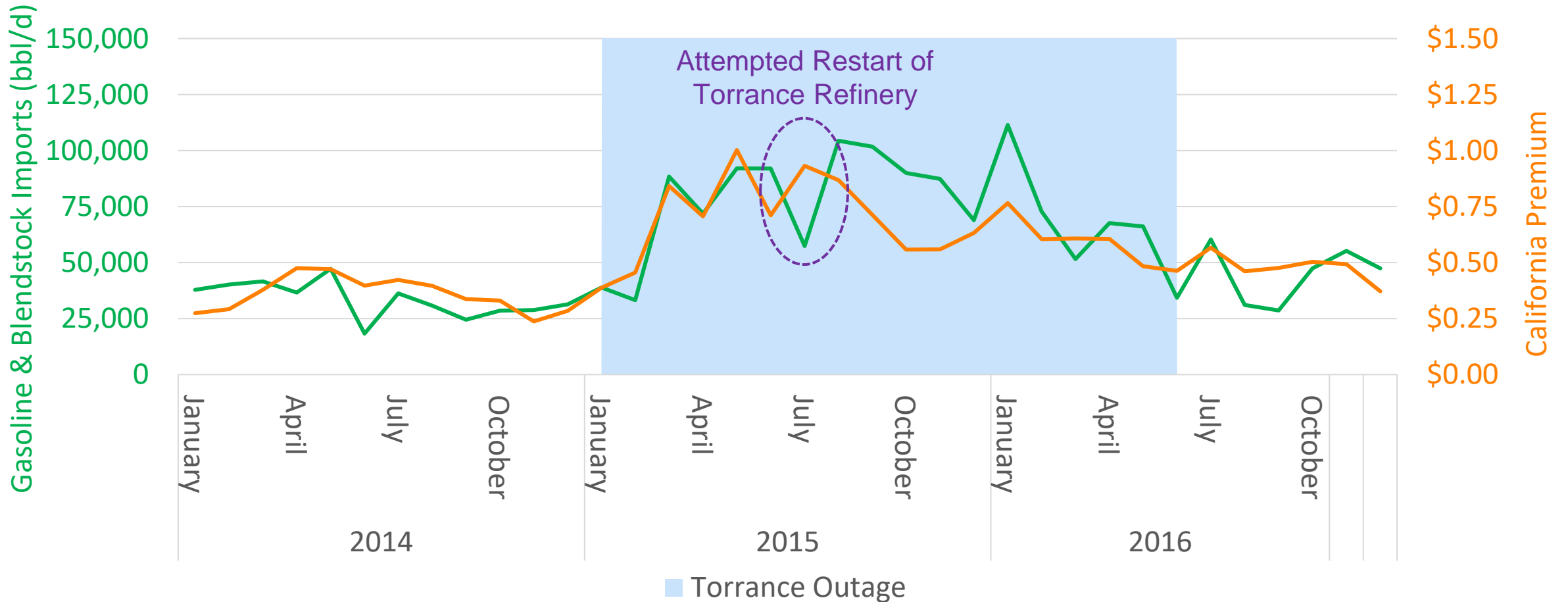
California Gasoline Inventories Weekly, thousands of gallons





The Role of Imports

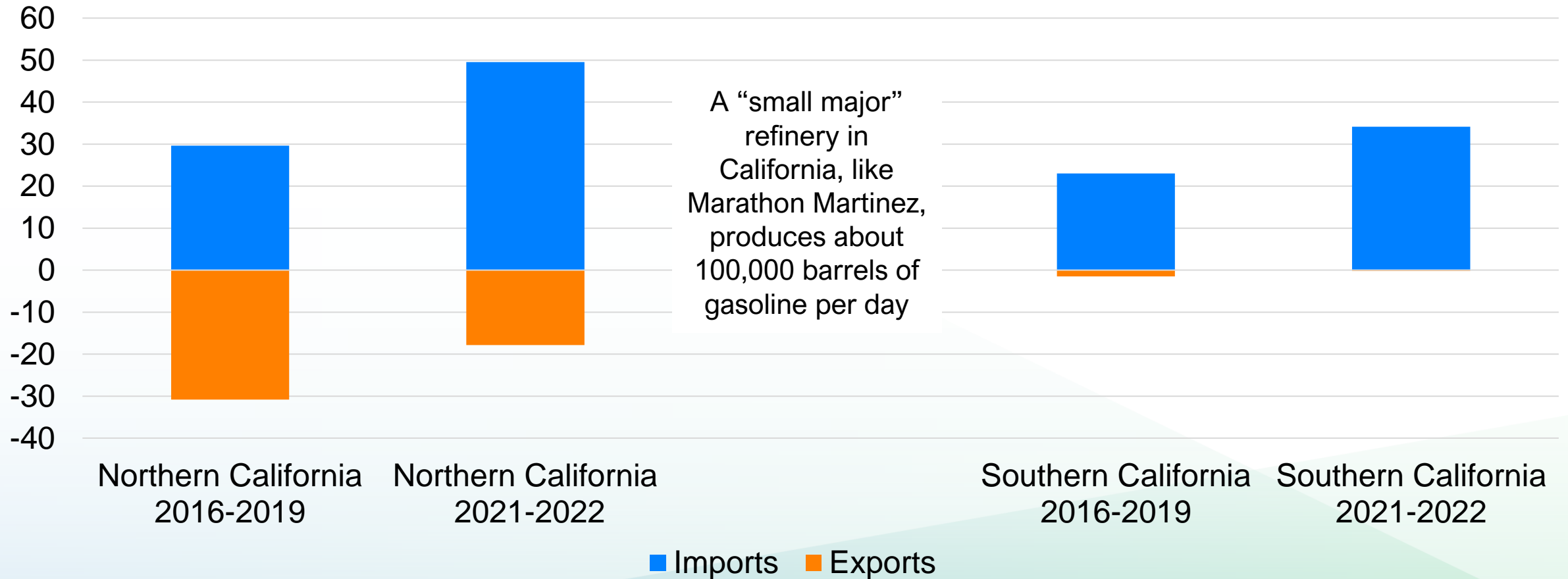
Torrance Refinery Outage: Marine Imports and California Premium





Marine Trade Has Adjusted

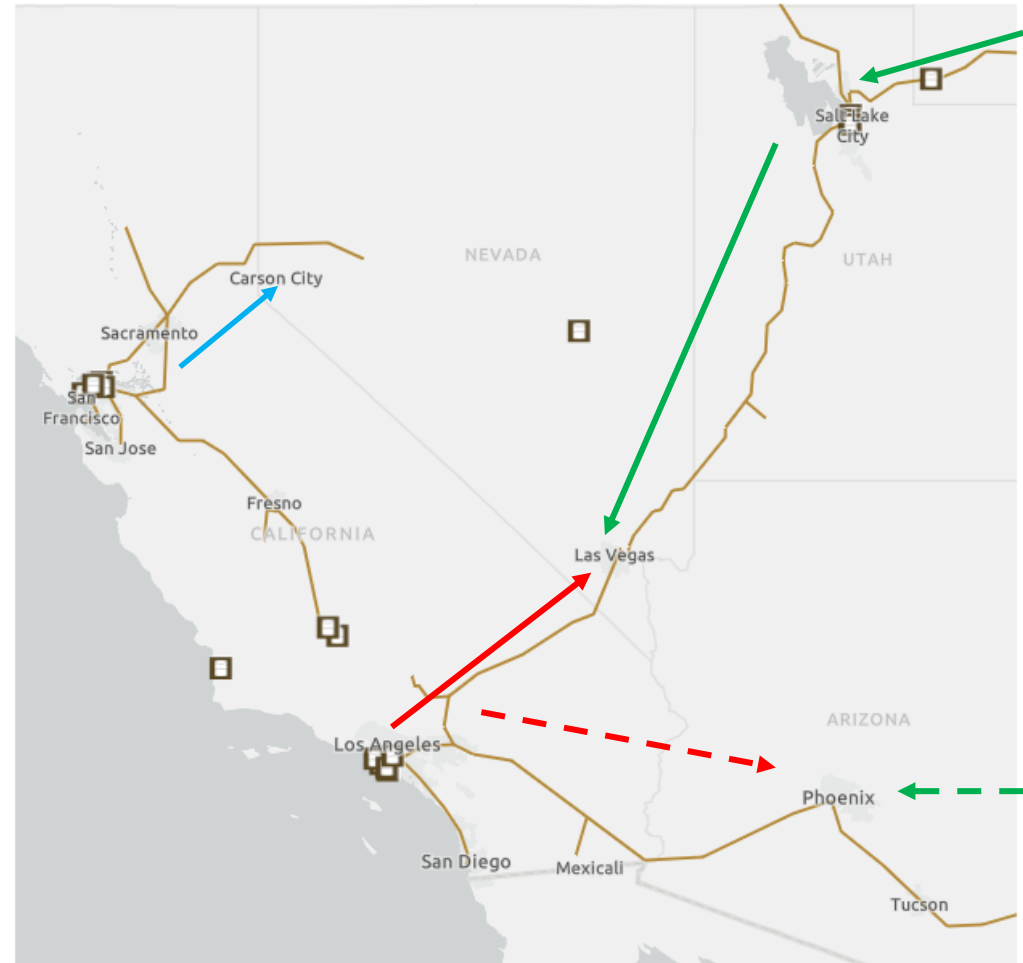
Gasoline Marine Trade, Interstate and International (thousand bbls/day)





Pipeline Exports Remain Substantial, For Now

- California exports over 100,000 barrels of gasoline per day to Nevada and Arizona by pipeline
 - 10% of California consumption
 - 23% increase post-COVID
- Pipeline expansions elsewhere give reason to expect that pipeline exports could decline a year from now





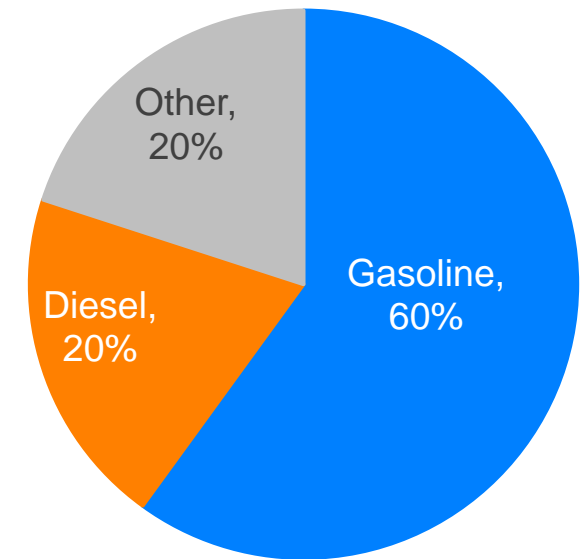
Why are Refineries Closing in California?

- California is a good market for gasoline producers:
- So, why would refineries close?

Answer:

- Gasoline is not the only refined product:

Average California Refinery Output

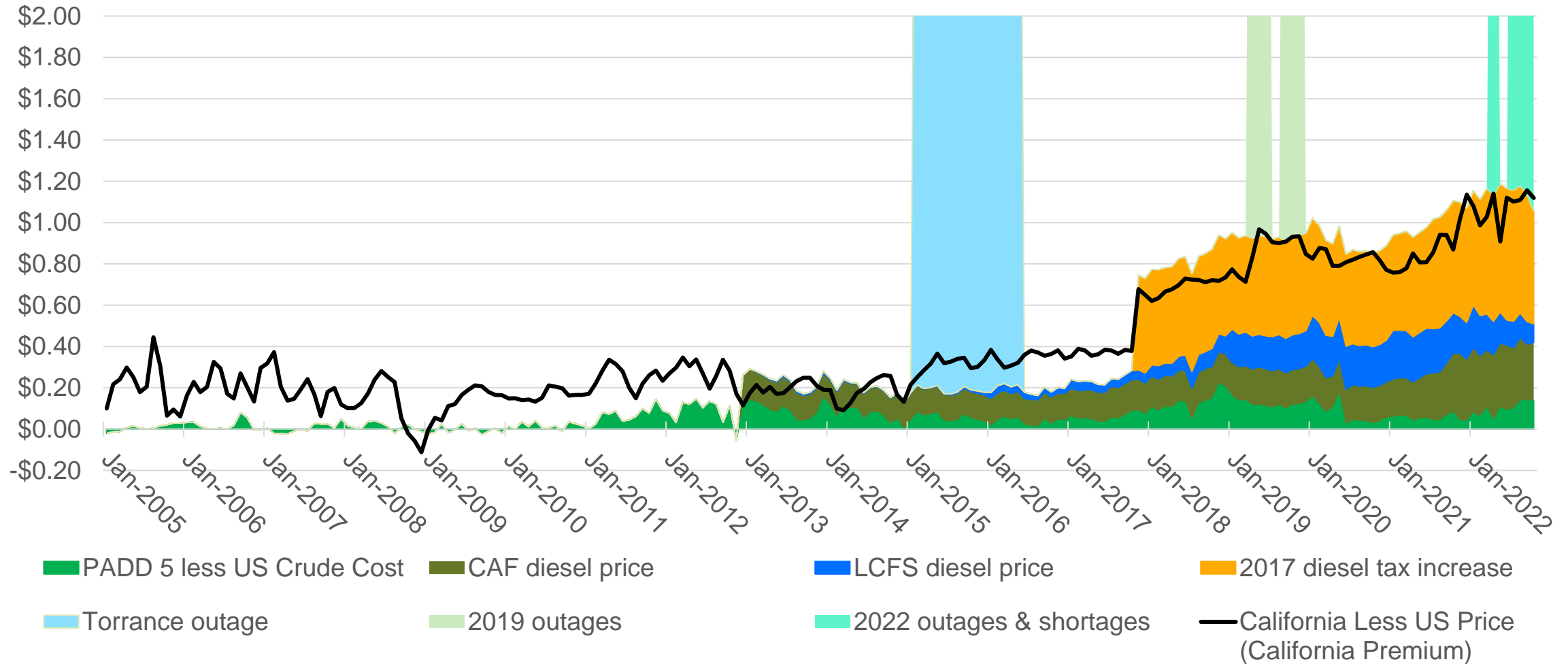


- The California diesel market is more challenging for refiners



The California Diesel Market Is Difficult for Producers

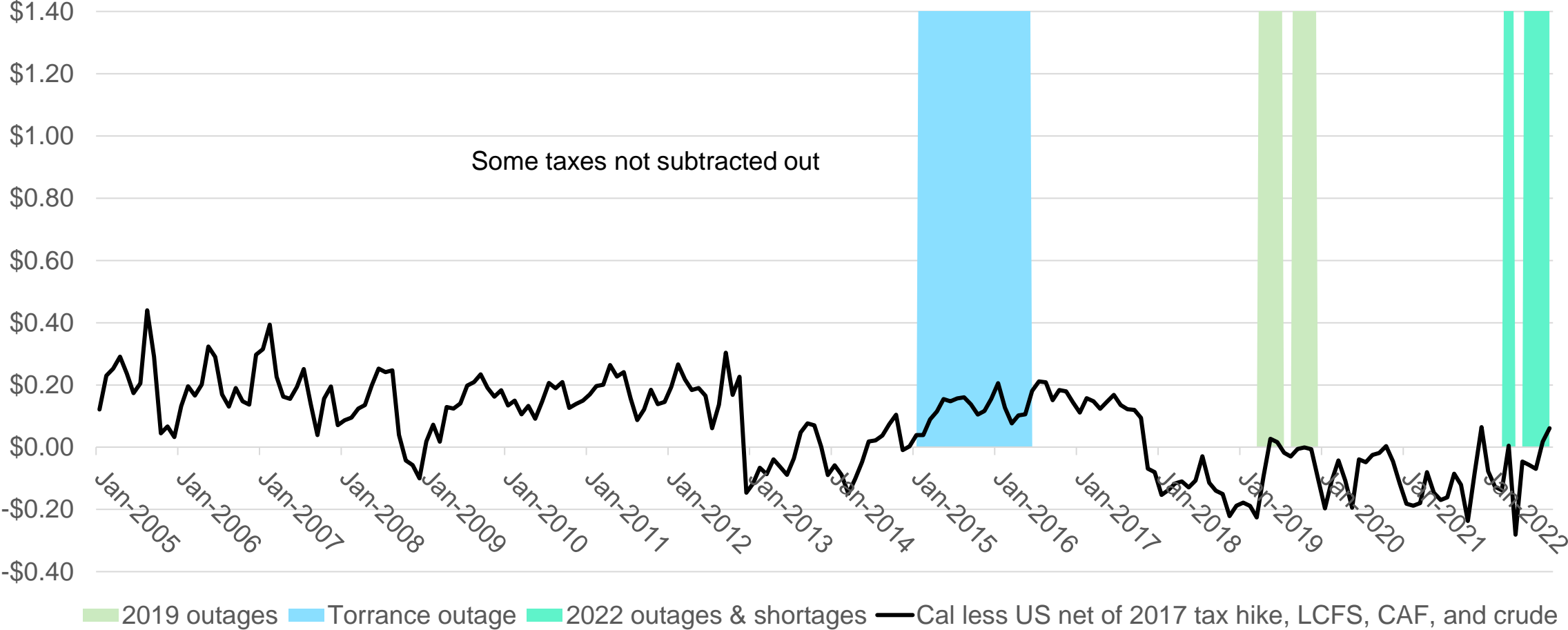
California Premium for Diesel Prices





There Is No California Premium for Diesel

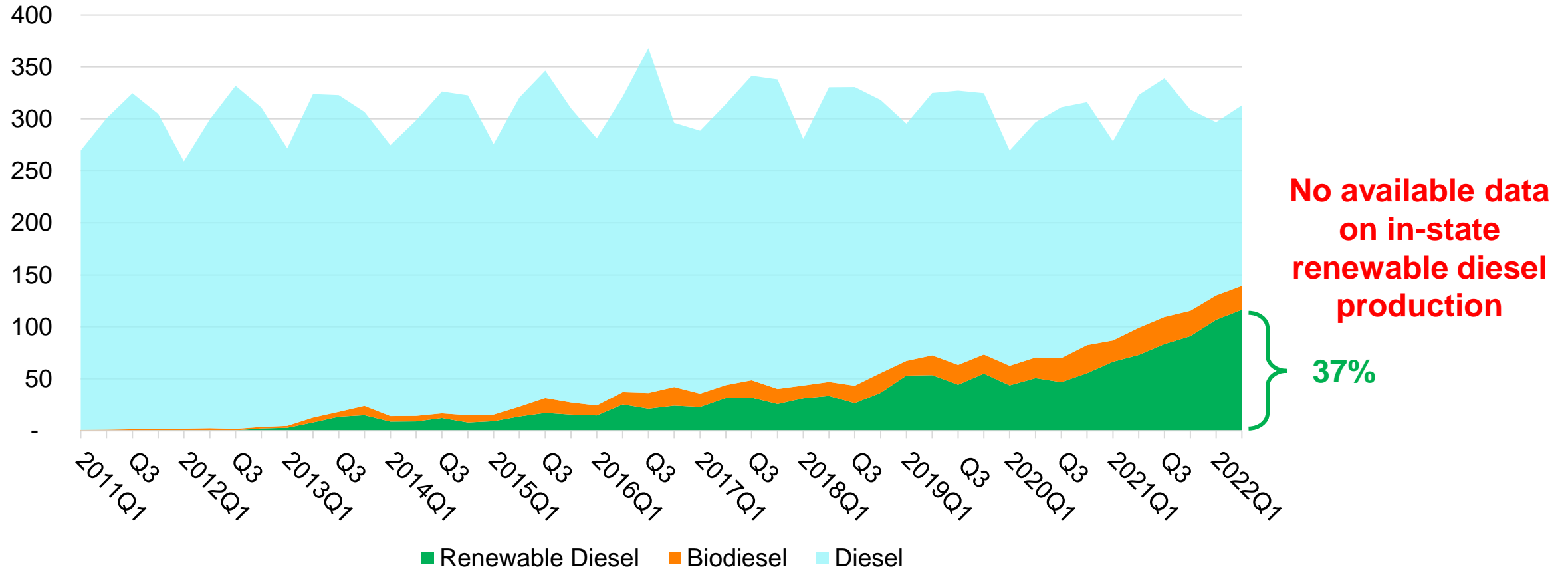
Diesel California Premium, Net of 2017 Tax Hike, Fees, and Crude Cost





Renewable Diesel Is a Drop-In Substitute

Consumption of Diesel Fuels in California
million gallons per month

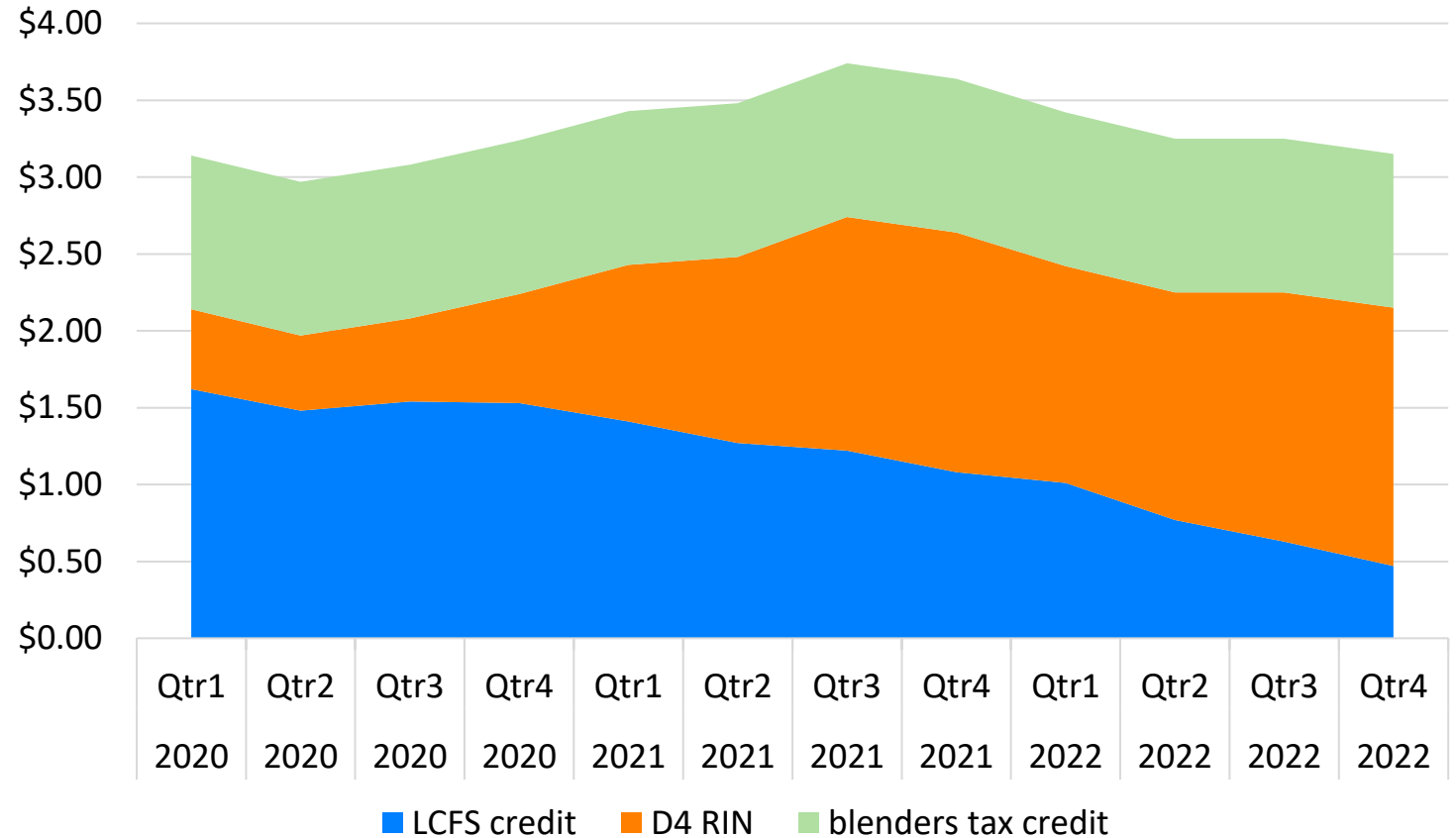




Renewable Diesel Subsidies

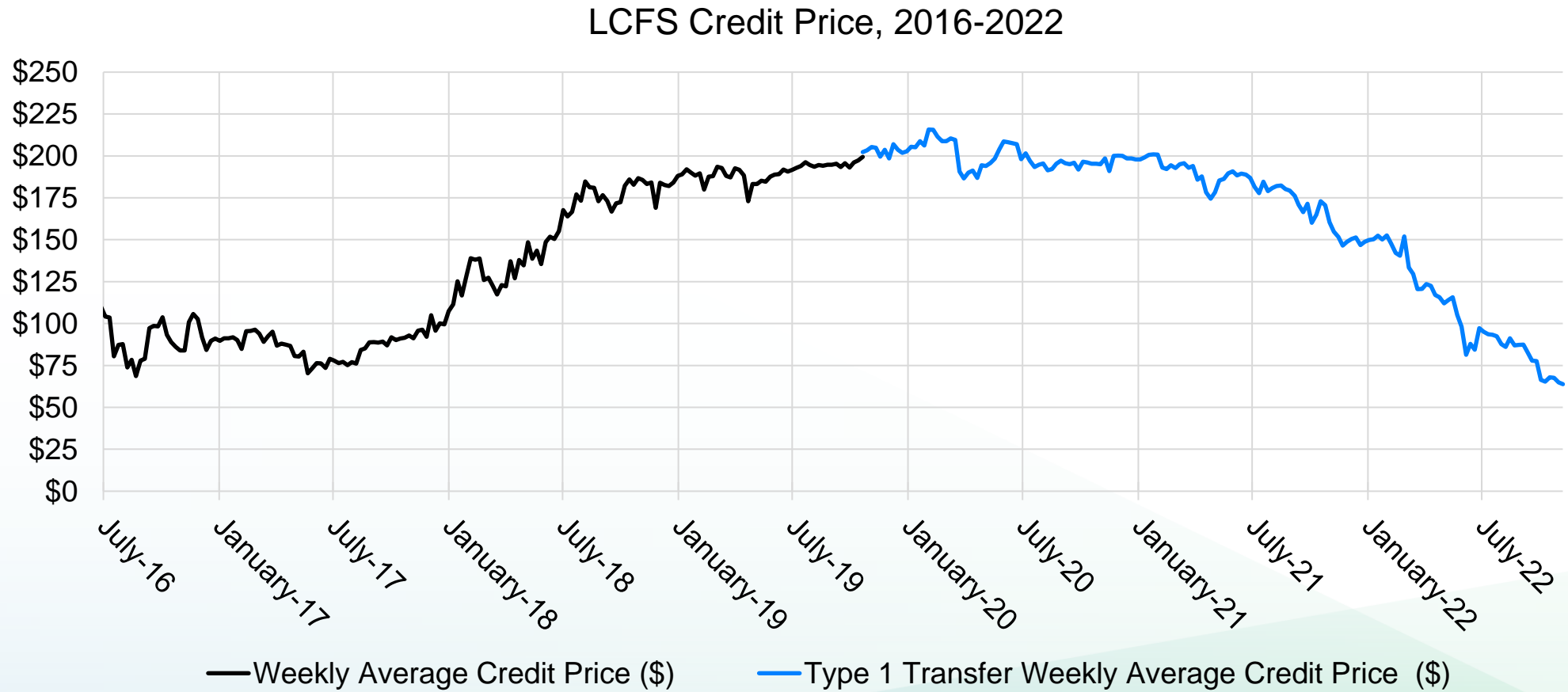
- The decline in LCFS credit value has mitigated the recent increase in gasoline price
- Blenders tax credit is only for standalone facilities—set to expire in 2022
- LCFS will be revised in 2023

Federal and California Subsidies for Renewable Diesel
\$ per gallon





Renewable Diesel Is Pushing the LCFS Credit Price Down The Credit Market Is in Surplus





Changes in Global Refinery Capacity

- Closures worldwide, especially in Europe
- Some refineries are being effectively removed from the global market
- Tanker shortage—due to sanctions on Russian exports and longer voyages

Refinery Capacity, million barrels/day

	2014	2019	2022	2024e	Notes
California	2.0	2.0	1.8	1.7	
US & Canada	19.9	21.0	19.9	19.9	
Others in global market	50.1	51.5	51.4	53	Most growth in Middle East; closures in Asia Pacific, Europe
Russia	7.9	8.3	8.5	8.5	Future exports to China, India, and Latin America
China	14.5	16.2	17	18.2	Export licenses down by 0.5, from 1.1
India	4.3	5	5	5.3	Export duties for gasoline and diesel



Major Takeaways

1. Renewable diesel is successfully competing with petro-diesel due to subsidies, causing problems for refineries
2. Production is falling faster than consumption—one refinery has closed—the gap between California production and consumption has grown—another refinery will soon close
3. Gasoline imports have been increasing and are slow to respond to market conditions—e.g., refinery outages
4. Gasoline price spikes are distinct from the everyday California Premium
5. The future of two subsidy programs is currently unclear
6. Reduced availability of global refinery capacity; imports will be more expensive



Thank You!





Appendix: More about Diesel





California Diesel Surplus Has Disappeared

Diesel is a much smaller market than gasoline

In-state production used to exceed the sum of in-state and out-of-state consumption

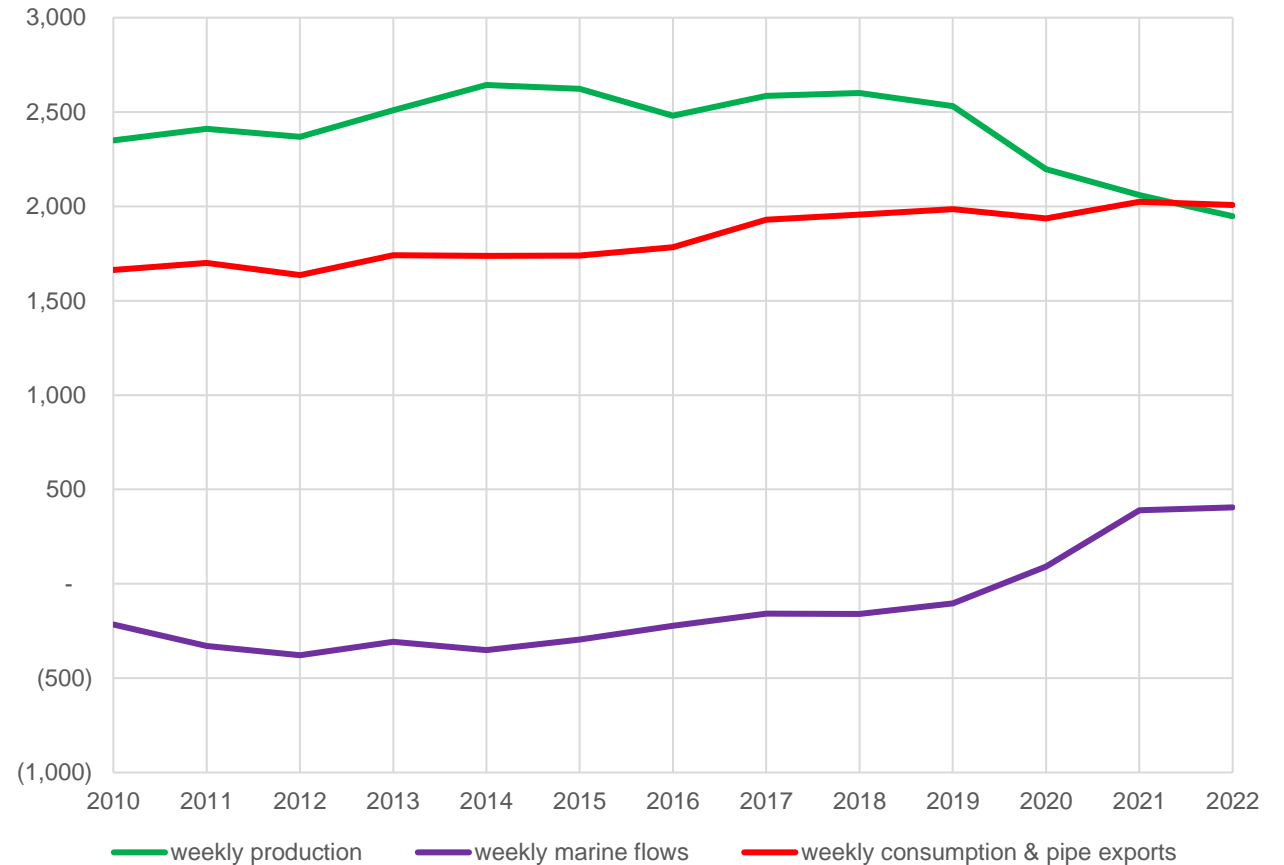
This includes all diesel fuels—petro-diesel, renewable diesel, and biodiesel

Beginning in 2020 production fell—consumption did not—and Marathon Martinez refinery closed

An exporting market has turned to imports—the decline in California exports is exacerbating the global shortage of diesel

NOTE: This does not include off-road diesel consumption

An Average Week, thousand barrels of diesel
(petro-diesel, biodiesel, and renewable diesel)





Diesel Exports Have Declined As a Result

Diesel Imports & Exports, Interstate and International (thousand bbls/day)

