



California's Petroleum Market & SB X1-2 Implementation Update

Assembly Utilities & Energy Committee

May 15, 2024



California's Petroleum Market

Recent Issues & Challenges

Price Spikes

in California have occurred in 3 of the last 5 years.

Lack of transparency

in the California transportation fuels market.

No market incentive to mitigate price spikes

- Industry agrees future spikes are inevitable
- Industry does not disagree that price spikes yield large profits
- Industry has no strategy to protect consumers

Less Gasoline Supply

as more refineries convert their production to renewable fuels.

Decreasing competition in the refining sector leads to higher prices.

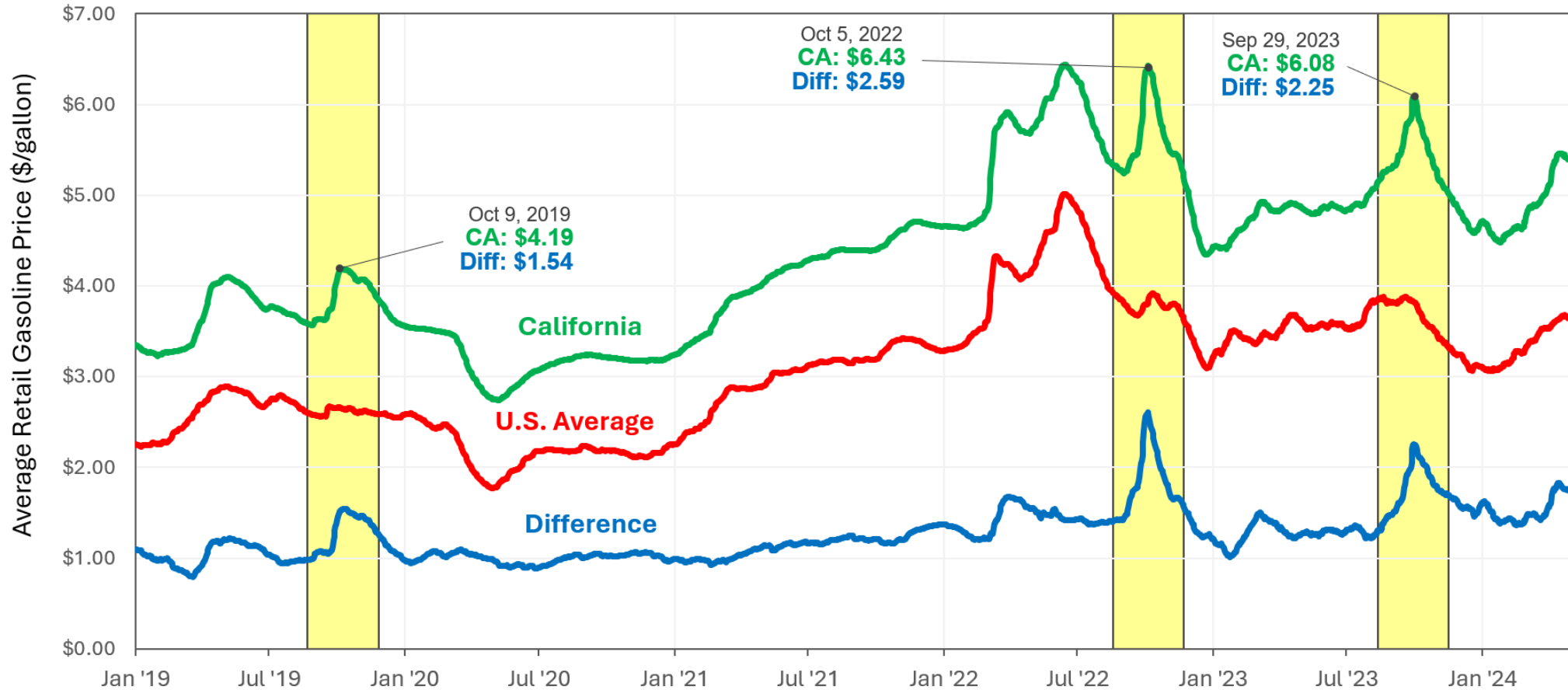
Reduced refinery production

including closures, conversions, and maintenance events create price spike conditions as we transition away from petroleum fuels.



California vs. U.S. Retail Gasoline Prices

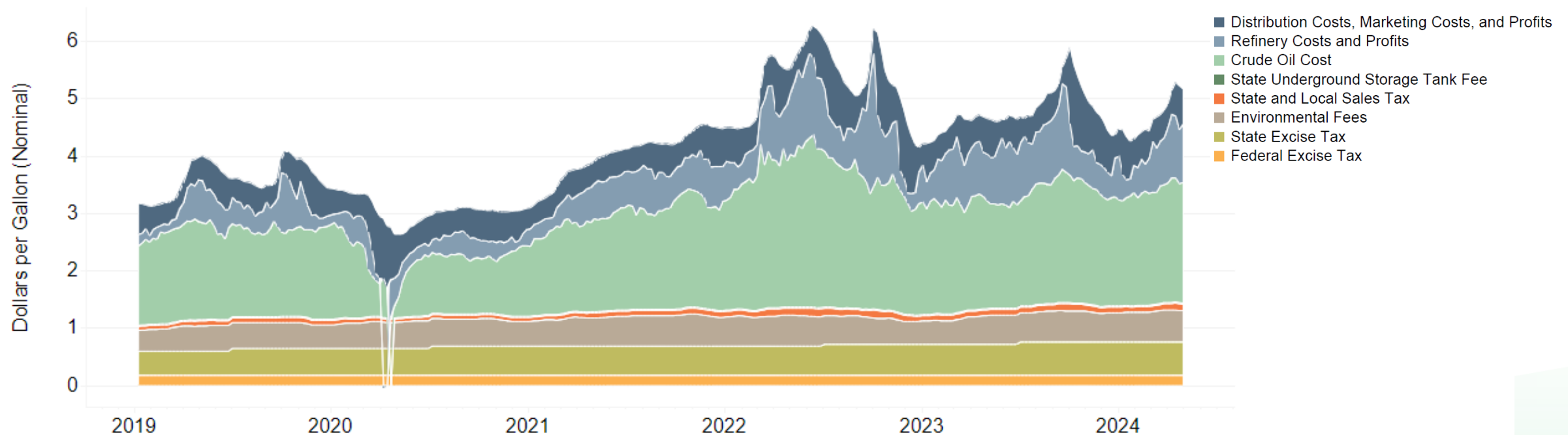
California vs. U.S. Average Retail Gasoline Price (2019-Current)





Breakdown of CA Retail Prices

California Gasoline Price Breakdown and Margins

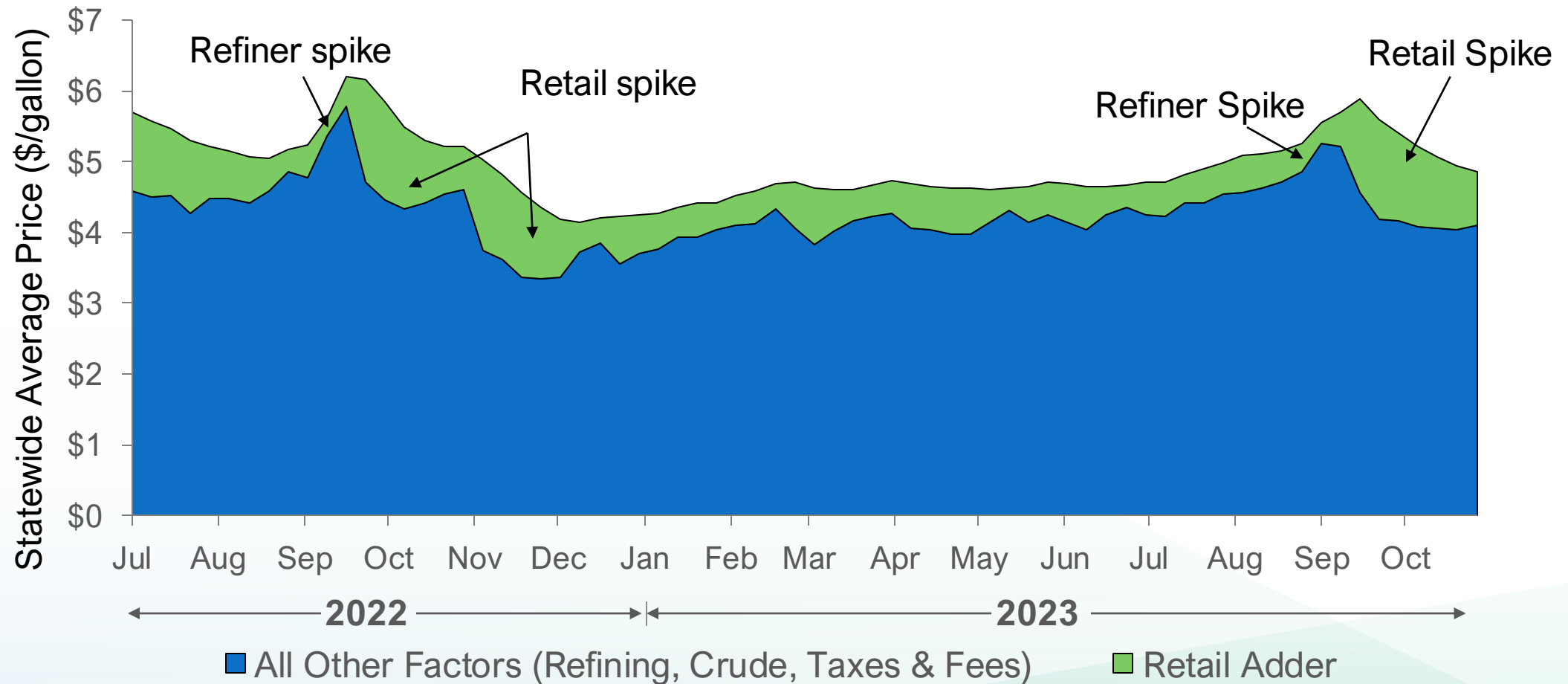


CEC analysis of EIA data.



California's Petroleum Market

Retail Gasoline Dynamics



CEC analysis of EIA data.



Senate Bill (SB) X1-2

Overview & Implementation Status



SB X1-2 – *Requirements Overview*



Data Collection &
Monitoring



Market Oversight
Analysis



Transportation Fuels
Assessment



Refinery Maintenance
Monitoring



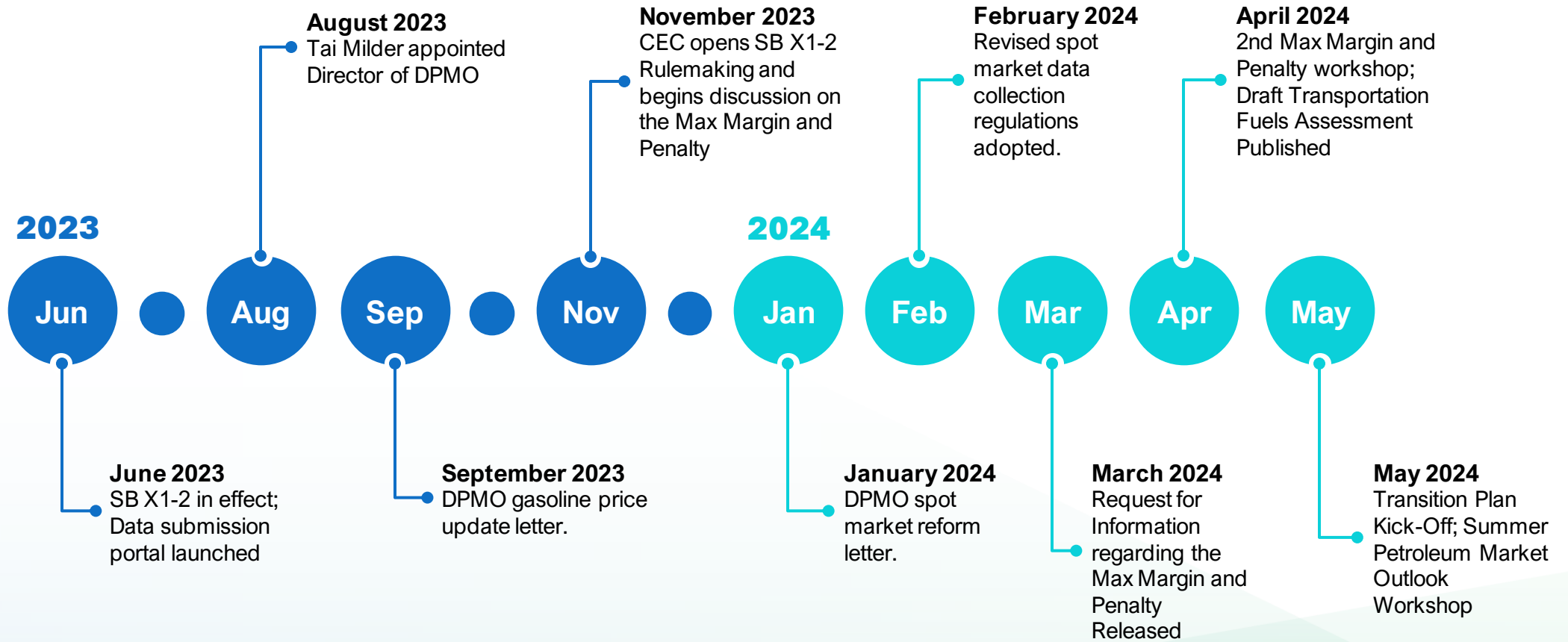
Refining Margin
Establishment and
Penalty Determination



Fuels Transition Plan
(w/ CARB)



SB X1-2 - *Timeline*





Division of Petroleum Market Oversight

Introduction

The Mandate: *Protect Consumers*



DIVISION OF PETROLEUM
MARKET OVERSIGHT

Our mission flows from the California Gas Price Gouging and Transparency Law of 2023 (SBX 1-2):

“Provide independent oversight and analysis of the transportation fuels markets for the protection of consumers by identifying[:]

[1] market design flaws,

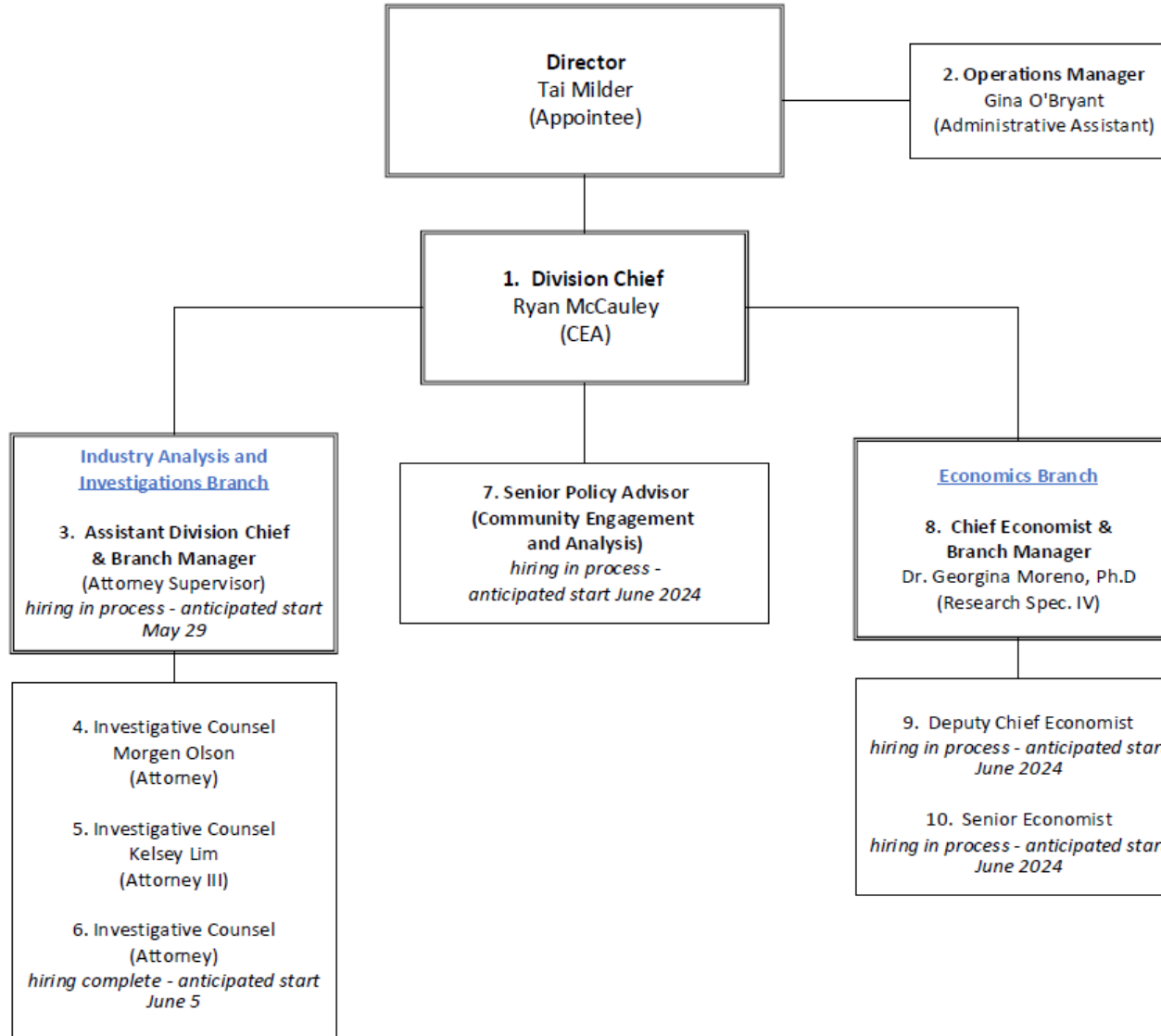
[2] market power abuses, and

[3] any other manner by which market participants act to harm competition or act contrary to the best interests of consumers in the state.”

DPMO's Structure: Investigations & Economics



**DIVISION OF PETROLEUM
MARKET OVERSIGHT**



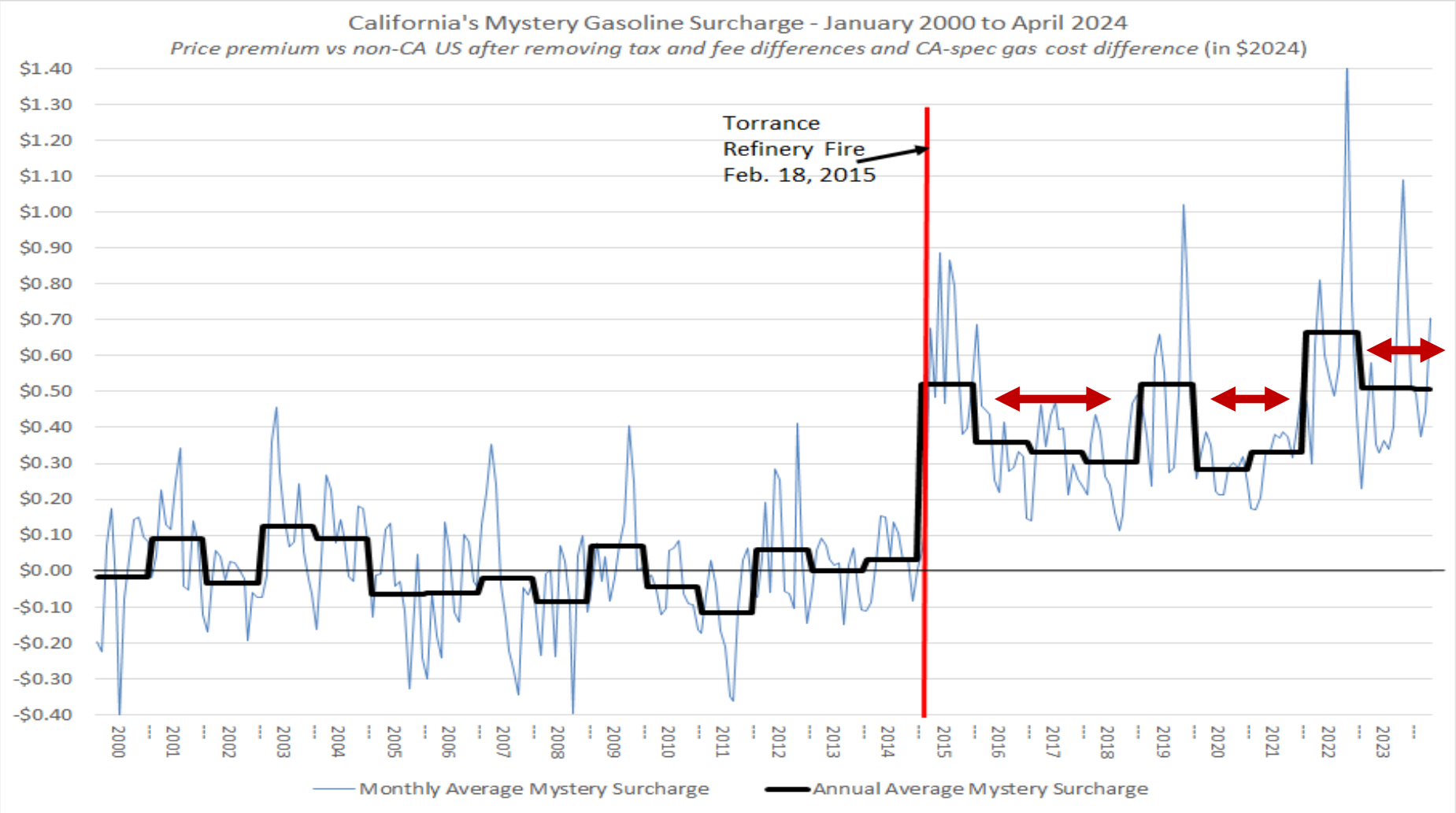


Observations, Findings & Takeaways

Professor Borenstein Identifies “Mystery Gasoline Surcharge”



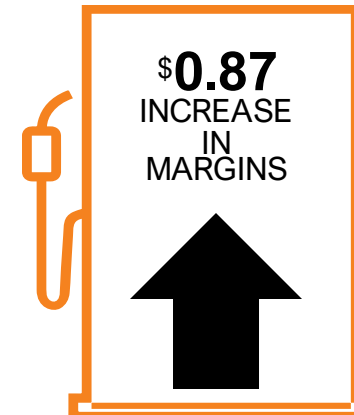
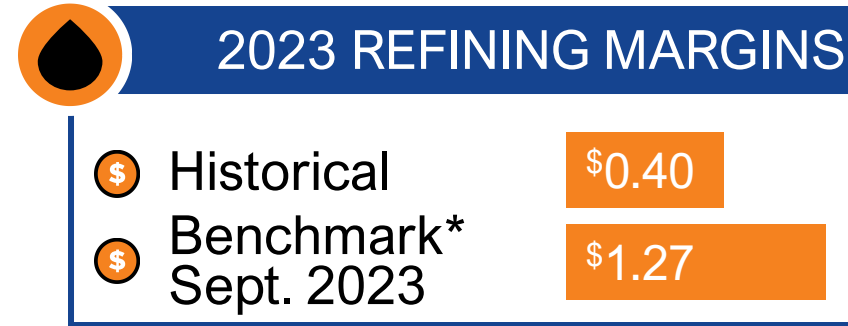
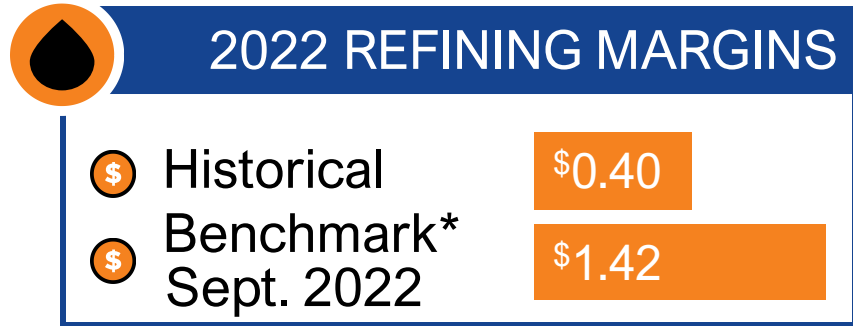
DIVISION OF PETROLEUM MARKET OVERSIGHT



Sources: Chart available from California Energy Commission :Docket Log, <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-SB-02>, 8/18/2023.

Oil Industry Profits Spike During Price Spikes

*All dollar figures in 2023 dollars per gallon

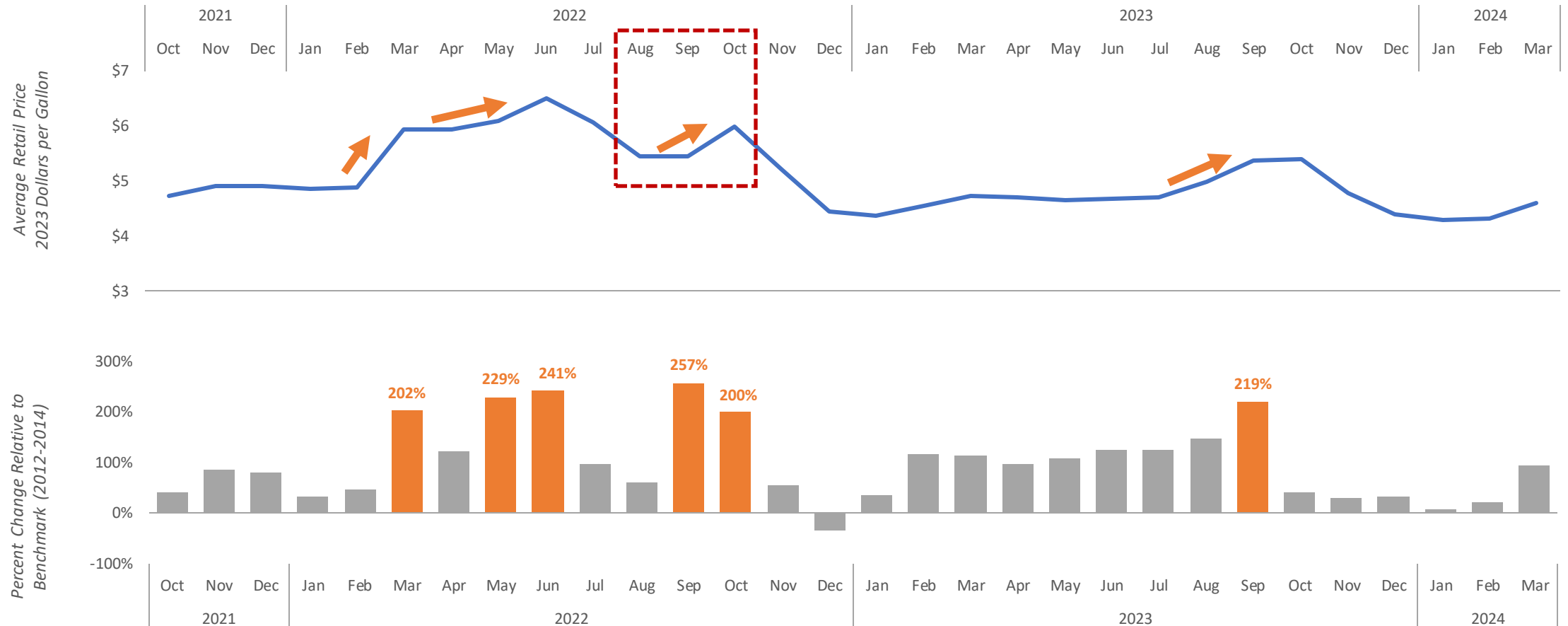


*2012-2014



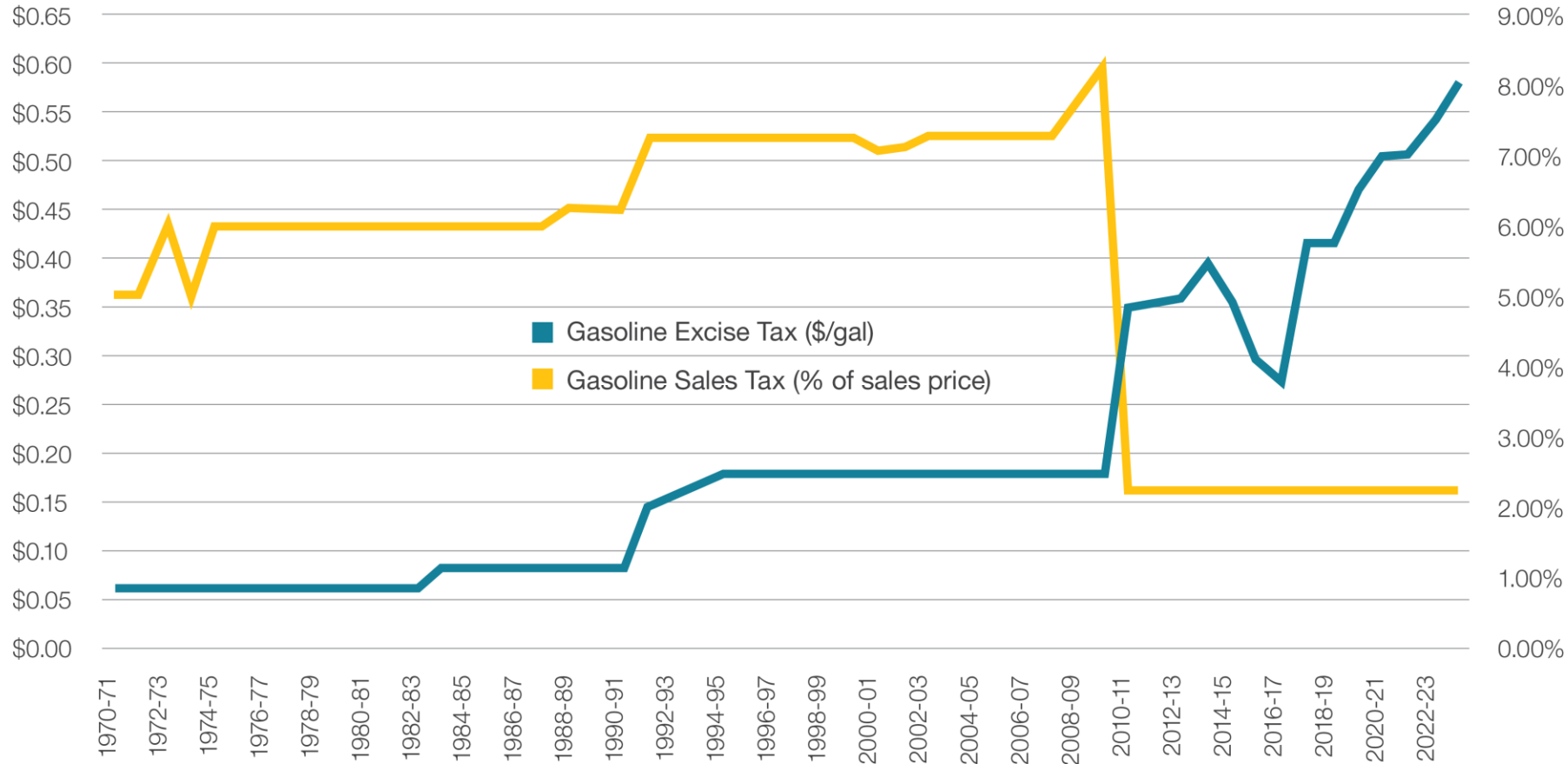
Margin Spikes Coincide with Price Spikes

Recent Price Spikes and Refining Margin Spikes (Jan 2021 - Mar 2024)





California Gasoline Excise and Sales Tax (1971-2023)



Gasoline Tax Revenue (FY 2022-23)



Source: CDTFA



Retail Gasoline Price & Margin

Year	BRANDED												UNBRANDED			HYPERMART		
	CHEVRON			SHELL			76			ARCO			Retail Price	Retail Margin	Retail Margin as % of Price	Retail Price	Retail Margin	Retail Margin as % of Price
	Retail Price	Retail Margin	Retail Margin as % of Price	Retail Price	Retail Margin	Retail Margin as % of Price	Retail Price	Retail Margin	Retail Margin as % of Price	Retail Price	Retail Margin	Retail Margin as % of Price						
2013	\$4.06	\$0.30	7.4%	\$4.04	\$0.28	7%	\$4.04	\$0.27	6.7%	\$3.87	\$0.11	3%	\$3.92	\$0.23	6%	\$3.84	\$0.13	3%
2014	\$3.93	\$0.37	9.4%	\$3.91	\$0.35	9%	\$3.90	\$0.33	8.5%	\$3.69	\$0.14	4%	\$3.77	\$0.32	8%	\$3.68	\$0.21	6%
2015	\$3.40	\$0.48	14.1%	\$3.38	\$0.46	14%	\$3.38	\$0.47	13.9%	\$3.15	\$0.23	7%	\$3.19	\$0.42	13%	\$3.11	\$0.27	9%
2016	\$2.98	\$0.54	18.1%	\$2.95	\$0.51	17%	\$2.93	\$0.50	17.1%	\$2.67	\$0.23	9%	\$2.74	\$0.41	15%	\$2.61	\$0.27	10%
2017	\$3.26	\$0.55	16.9%	\$3.25	\$0.52	16%	\$3.21	\$0.49	15.3%	\$2.94	\$0.21	7%	\$3.03	\$0.41	14%	\$2.89	\$0.26	9%
2018	\$3.82	\$0.60	15.7%	\$3.81	\$0.56	15%	\$3.76	\$0.53	14.1%	\$3.50	\$0.25	7%	\$3.57	\$0.45	13%	\$3.45	\$0.29	8%
2019	\$4.00	\$0.70	17.5%	\$3.98	\$0.67	17%	\$3.91	\$0.62	15.9%	\$3.67	\$0.35	10%	\$3.75	\$0.53	14%	\$3.60	\$0.37	10%
2020	\$3.50	\$0.81	23.1%	\$3.48	\$0.76	22%	\$3.38	\$0.70	20.7%	\$3.11	\$0.43	14%	\$3.17	\$0.61	19%	\$3.02	\$0.43	14%
2021	\$4.51	\$0.76	16.8%	\$4.48	\$0.69	15%	\$4.39	\$0.63	14.4%	\$4.12	\$0.38	9%	\$4.10	\$0.52	13%	\$4.04	\$0.33	8%
2022	\$5.87	\$1.07	18.2%	\$5.84	\$1.00	17%	\$5.71	\$0.90	15.8%	\$5.48	\$0.67	12%	\$5.45	\$0.70	13%	\$5.28	\$0.45	9%
2023	\$5.13	\$0.96	18.7%	\$5.10	\$0.91	18%	\$4.95	\$0.81	16.4%	\$4.68	\$0.58	12%	\$4.65	\$0.66	14%	\$4.52	\$0.42	9%

Source: Analysis of OPIS data done by CEC's Transportation Fuels Data and Analysis Unit, CDTFA calculated retail margins as percent of price.



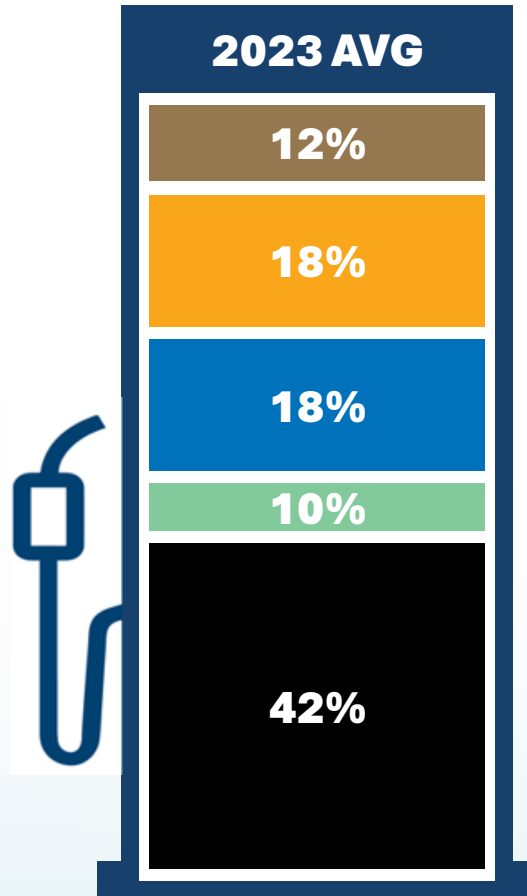
Areas For Further Study

- The interplay between volatility, driven largely by the spot market, and high retail margins.
- How shifts in pricing strategies for brands may be impacting the broader market.
- The impact of additional local stations on consumer prices.
- The widespread use of new pricing software systems and their impact on prices.
- Retail outlet ownership concentration statewide and in local markets.



Spot Prices Influence Prices at the Pump

California Gas Price



RETAIL MARGIN

Retail prices rise and fall with the **wholesale price of gasoline** (up like a rocket, down like a feather).

REFINER MARGIN

Refiner margins are linked to the **spot market price**, which as we've seen is based on **California supply conditions**.

TAXES AND FEES

Percentage-wise, taxes and fees have **remained the same**.

ENVIRONMENTAL PROGRAMS

Percentage-wise, environmental programs costs have **remained the same**.

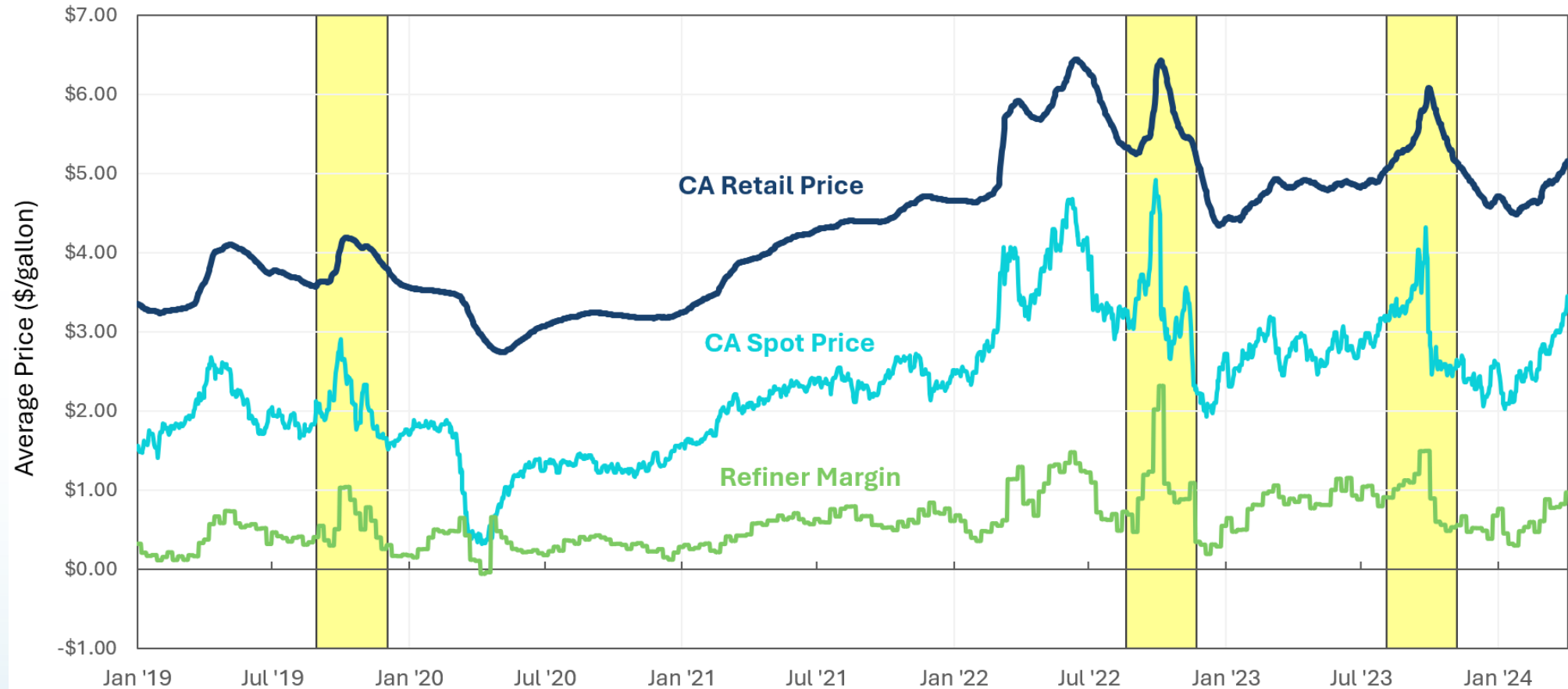
CRUDE OIL

Crude oil price is **indexed internationally** and is set outside of conditions in California.



Spot Prices of Refined Gasoline, Refinery Margins & Retail Prices

California Retail, Spot Price, and Refiner Margin (2019-Current)

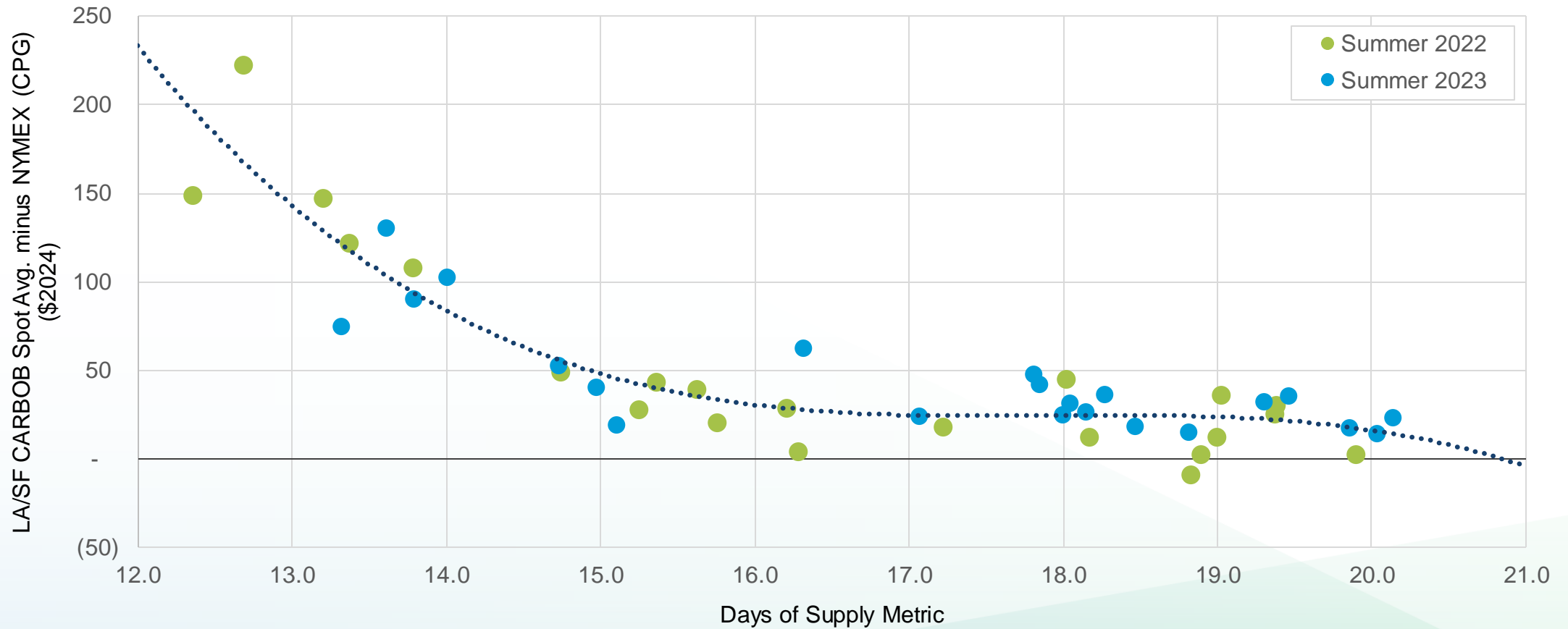




Supply & Spot Market Price



SUMMERS 2022 AND 2023



Preliminary results using PADD 5 historical inventories



Immediate Actions for Summer 2024

Increasing Transparency

- Data collection and new regulations
- CEC-styled spot market report

Collaborating with industry on solutions

- Voluntarily increase supplies
- Voluntarily offset planned maintenance supply reductions



Transportation Fuels Assessment



Policy Options



Storage

- State-supported storage
- Storage requirements



Fuel Blends

- Fuel Blends: 15% Ethanol
- Regional Blends
- Non-CARBOB Blends



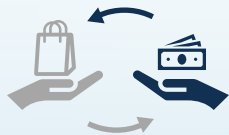
Highly Complex

- Gas Price Stabilization Fund
- Public utility model
- State ownership



Imports

- Resupply Compensation
- Railcar Replenishment
- State-managed imports



Demand Strategies

- Enhanced ZEV Access
- VMT Reduction Strategies
- Fuel Conservation

Progress



Workshop May 16

Fuel demand scenarios and assessment framework



Workshop August 17

Confirm demand scenarios, price spike policy and mitigation options



Draft report published

Public workshop on May 3



Next Steps and Timing



Data Collection & Monitoring

CEC will continue to publish monthly updates.



Market Oversight Analysis

CEC plans to release a daily report detailing spot market trades to bring more transparency to the market.



Transportation Fuels Assessment

Publish final assessment in Q2 2024.
Submit to legislature Q3 2024.



Refinery Maintenance Monitoring

Flag periods of significant drops in production due to maintenance.
Pursue guidelines to recommend deferrals.



Refining Margin Establishment and Penalty Determination

Analyze historical data to inform establishment of a margin.
Solicit thought leadership on margin/penalty analysis and frameworks.



Fuels Transition Plan (w/ CARB)

Work with CARB to hold several working group meetings with a broad range of stakeholder to discuss the transition away from petroleum-based transportation fuels.



Siva Gunda

Vice Chair
California Energy Commission



Tai Milder

Director
Division of Petroleum Market Oversight



Nicolas Maduros

Director
California Department of Tax and
Fee Administration

Thank You



Acronyms, Initialisms, and Notes

BOB - Blendstock for Oxygenate Blending

CARB – California Air Resources Board

CARBOB – California Reformulated Blendstock for Oxygenate Blending

CDTFA – California Department of Tax and Fee Administration

CEC – California Energy Commission

DMV – Department of Motor Vehicles

DPMO – Division of Petroleum Market Oversight

EAD – Energy Assessments Division

ICE – Internal Combustion Engine

IEPR – Integrated Energy Policy Report

TBD – Thousand Barrels per Day

TDM – Transportation Demand Management

VMT – Vehicle Miles Traveled

ZEV – Zero-Emission Vehicle

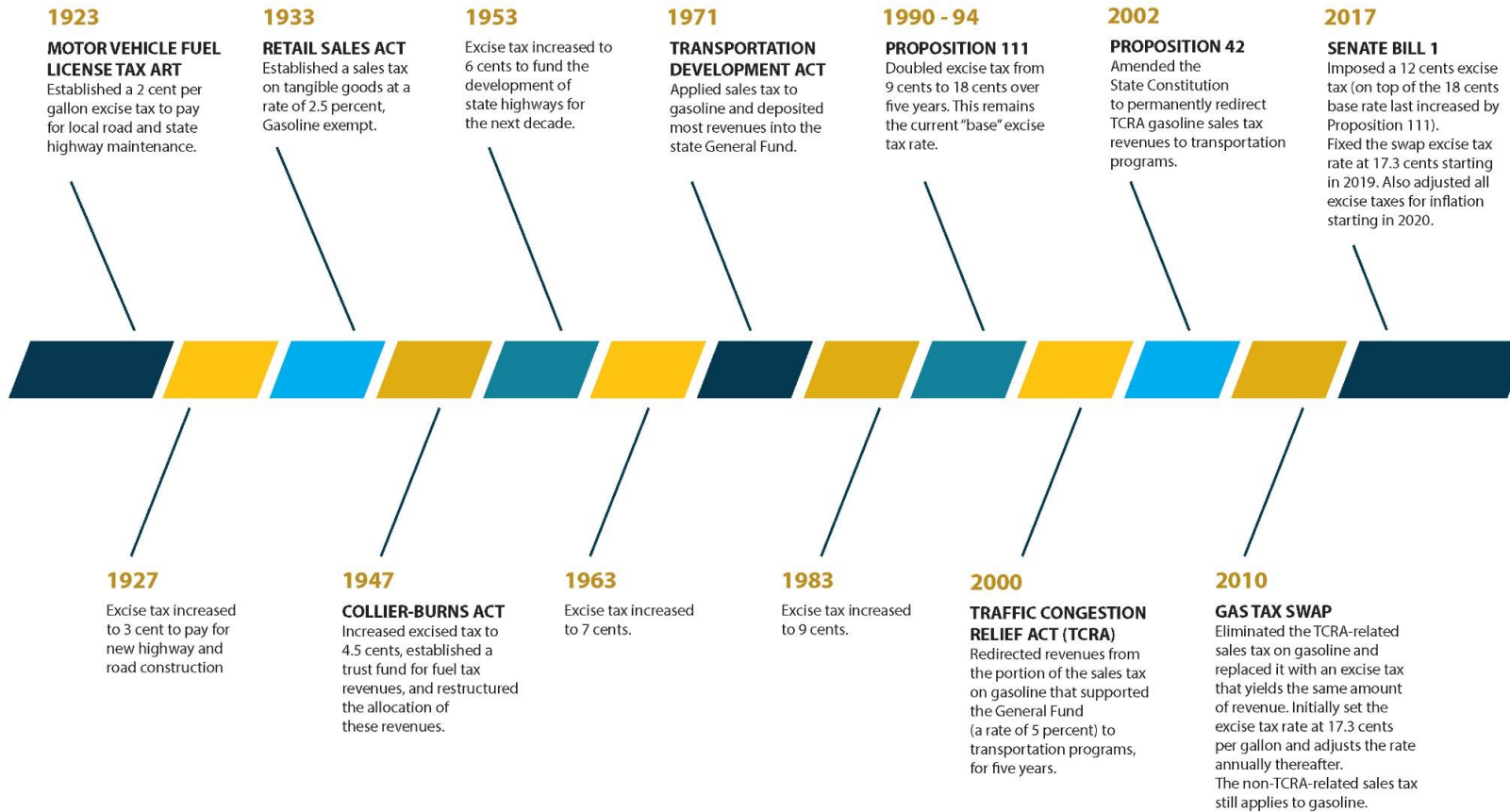


Extra Slides



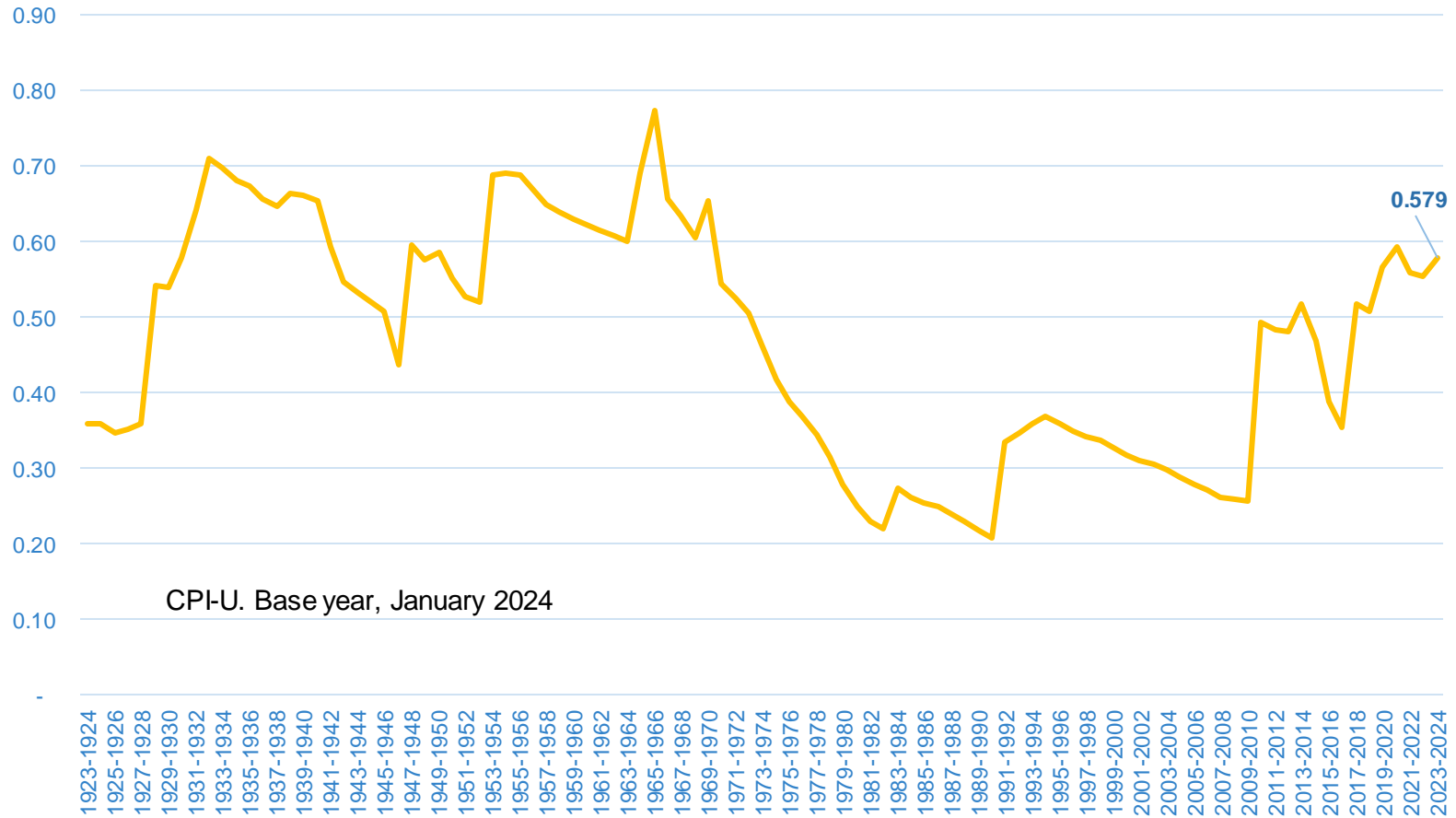


Major Changes to State Excise and Sales Taxes on Gasoline



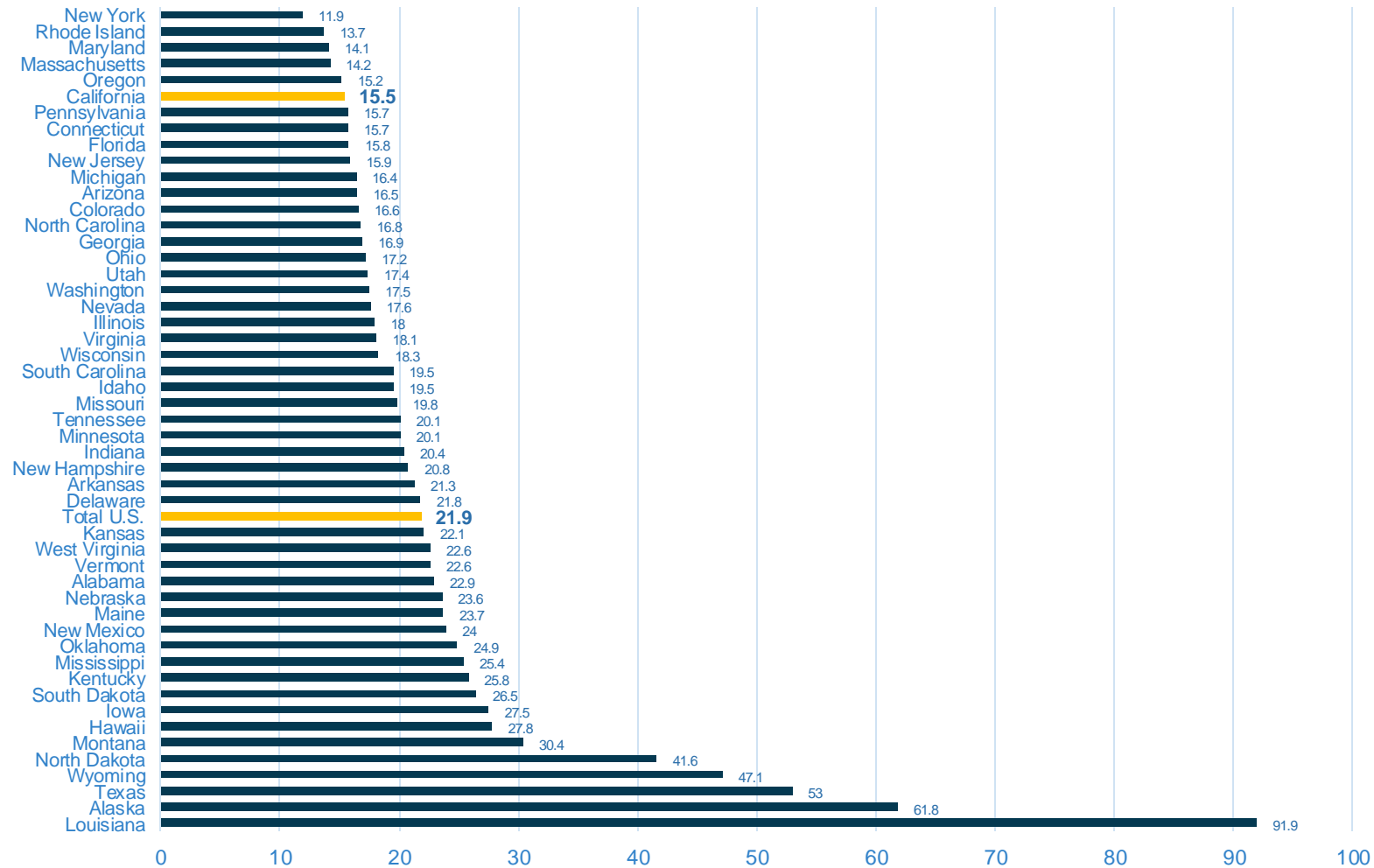


California Gasoline Excise Tax Adjusted for Inflation (1923-2023)



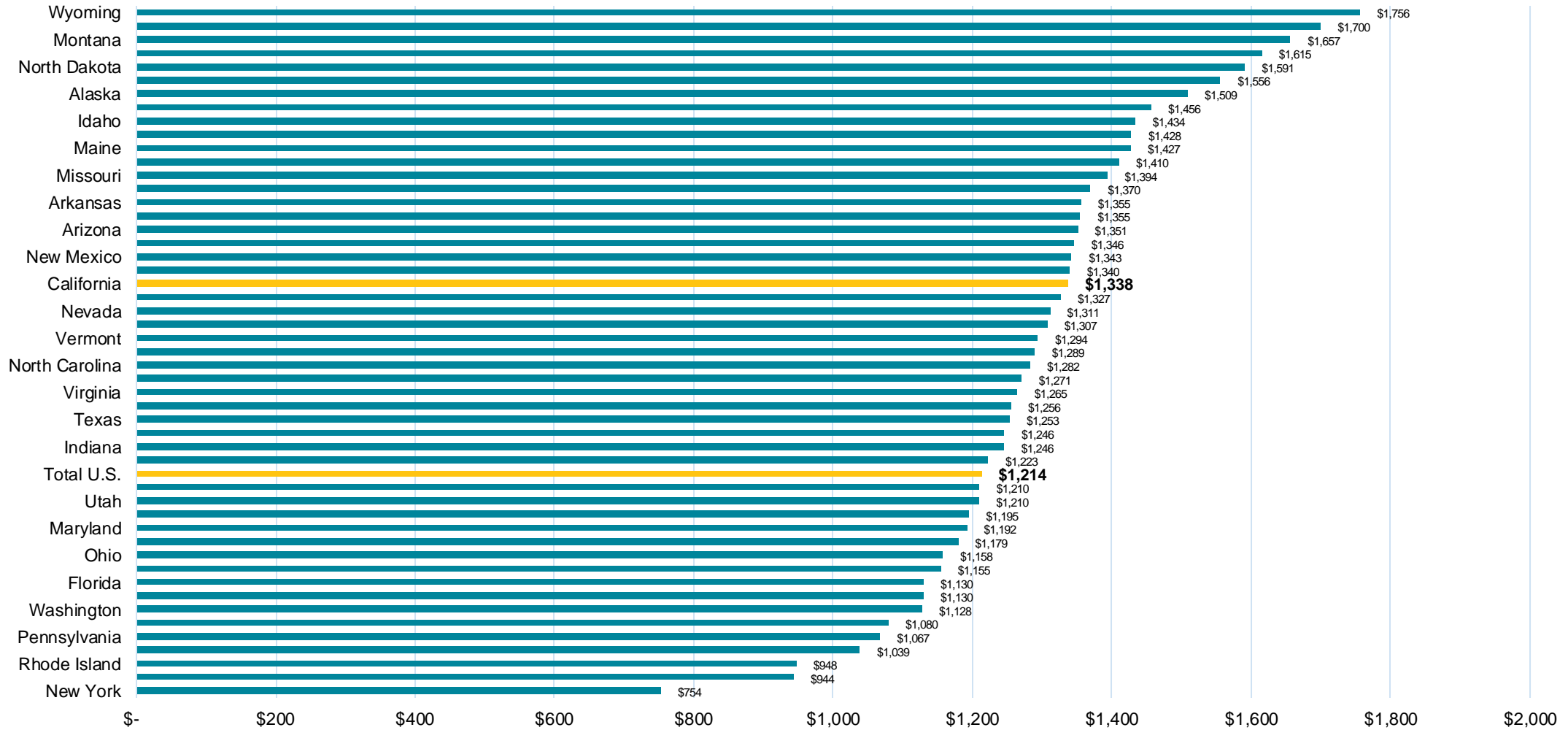


Per Capita Petroleum Consumption by State, Barrels (2021)



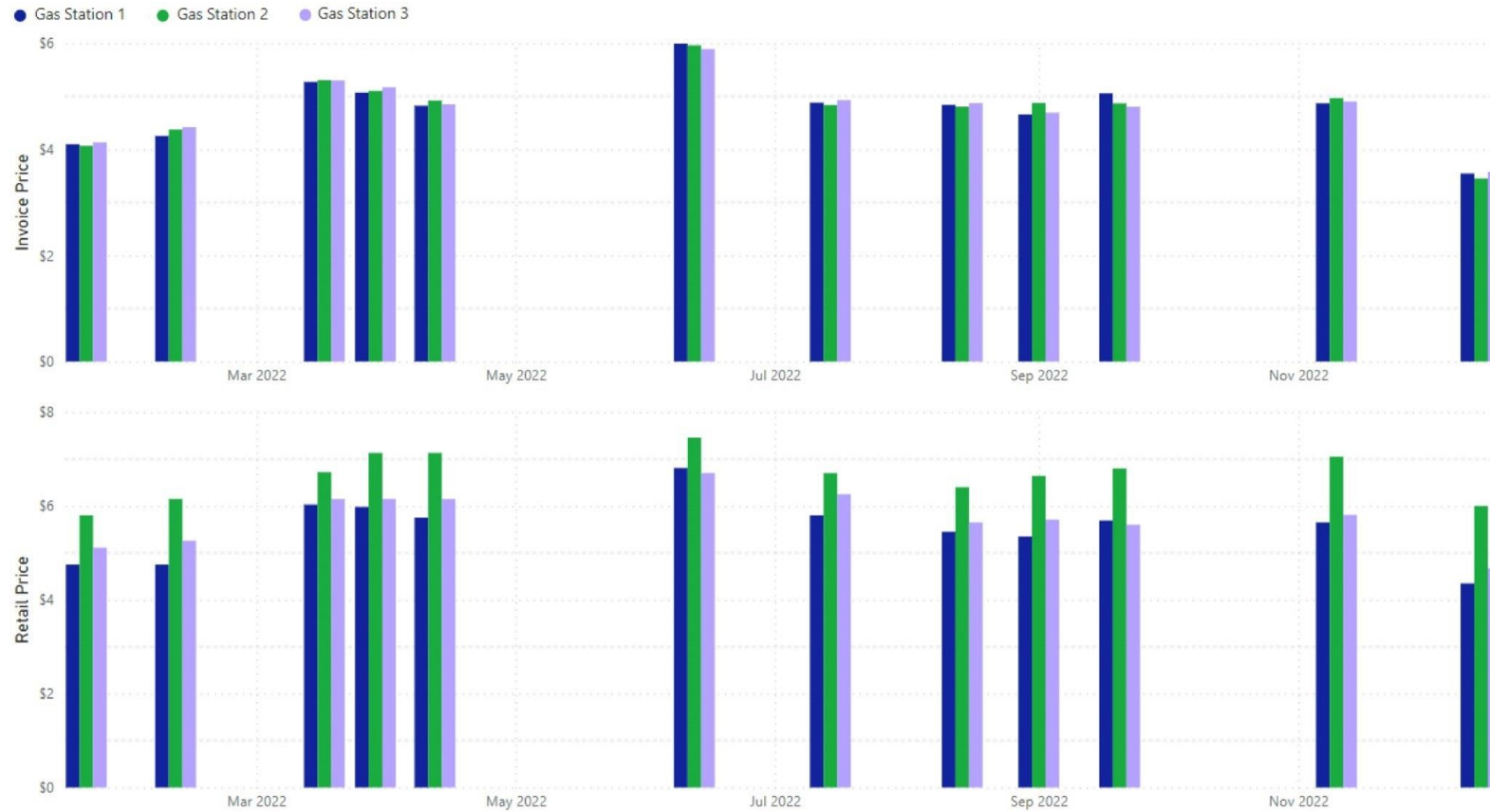


Per Capita Gasoline Expenditure By State (2021)



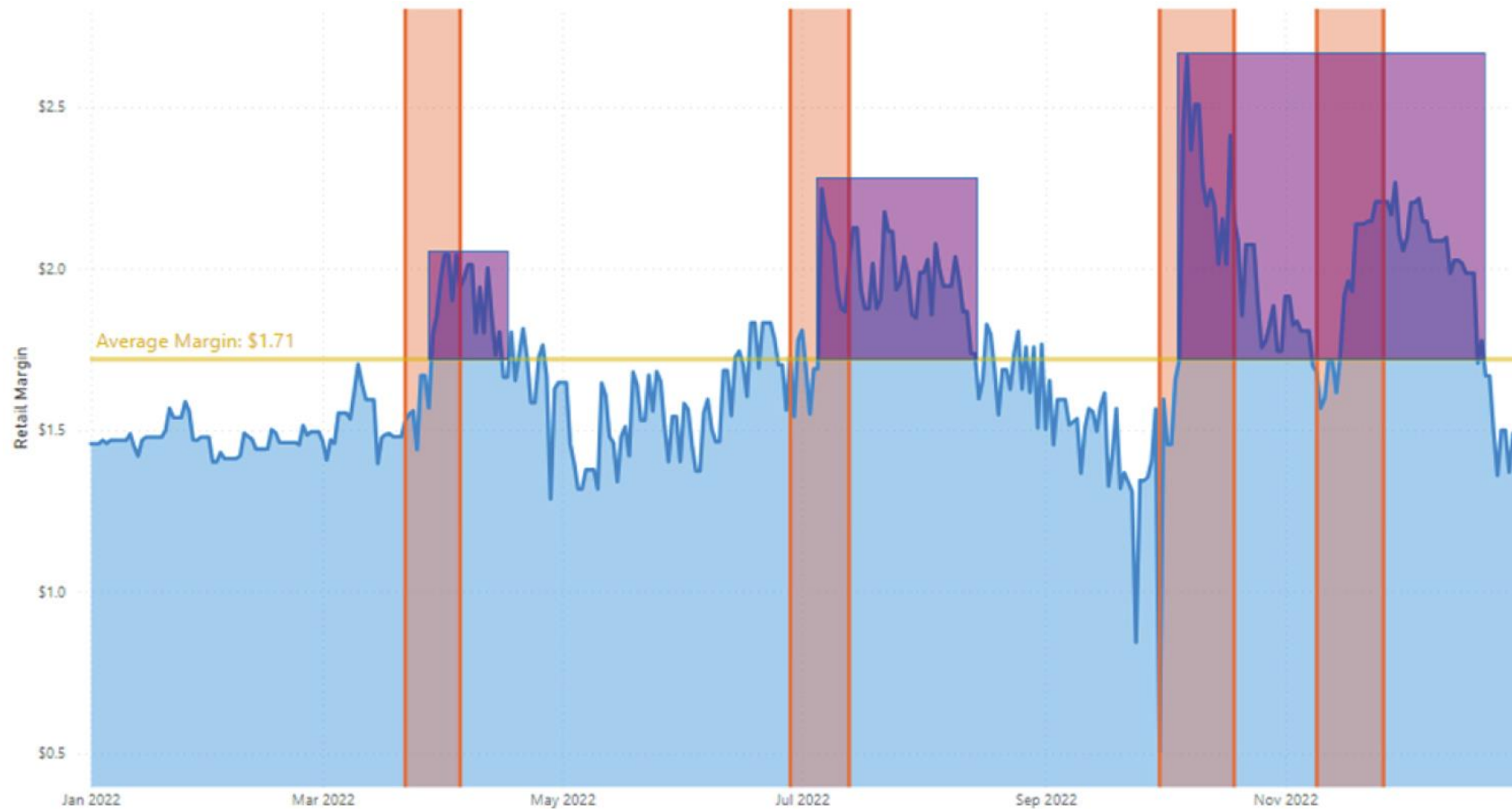
Source: Energy Information Administration

San Francisco Case Study of Retail Pricing





Impacts of Price Volatility





Data Collection & Monitoring

Requirements

Collect new data from petroleum industry.

Analyze data to understand:

- Refiner max margin + penalty
- Market manipulation
- Minimum inventory/resupply

Increase transparency through reporting.

Progress

Nine new data streams

- Spot market, marine imports, refinery maintenance, refiner margins, etc.

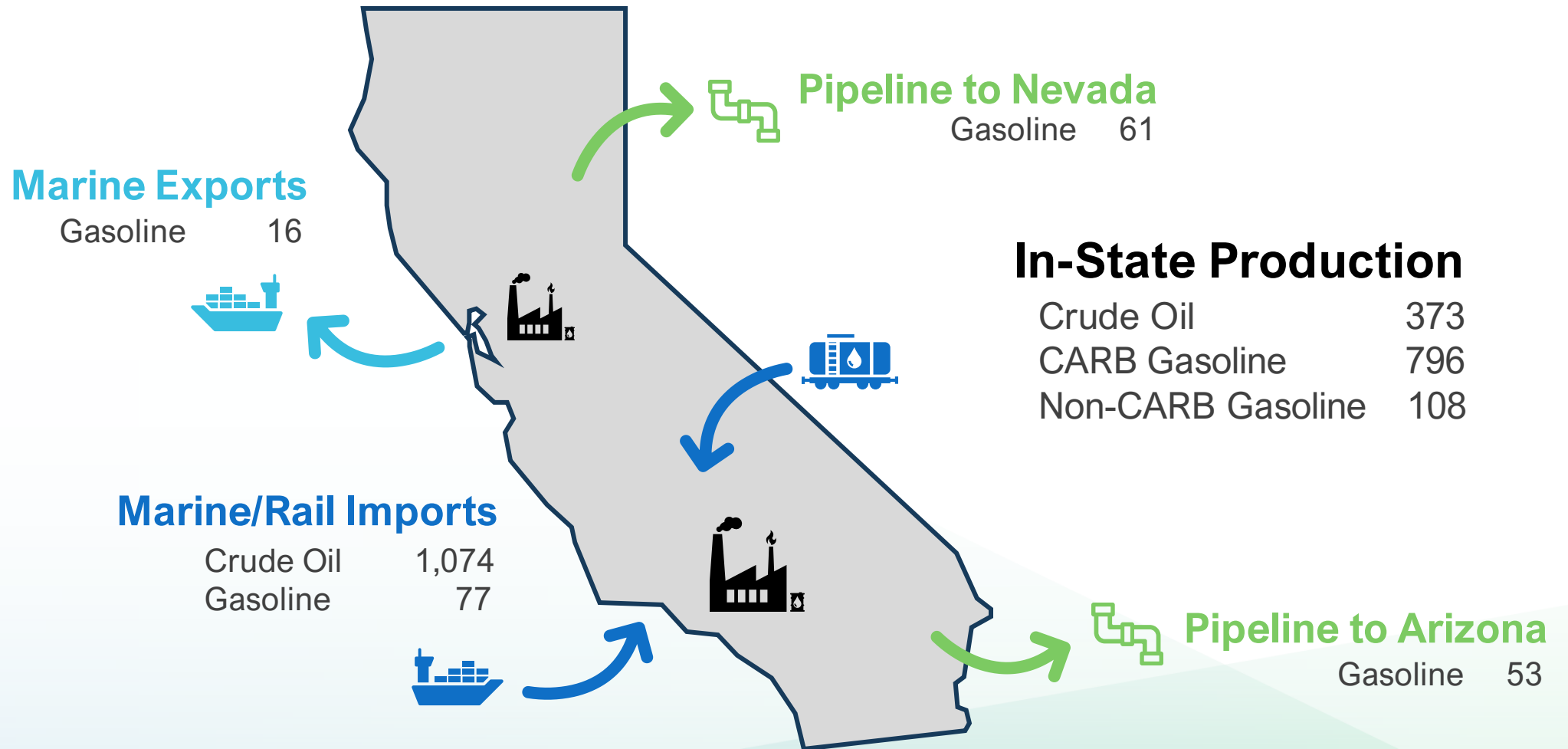
9,600 data submissions processed and analyzed.

Refiner Margins (monthly) and **Gasoline Price Breakdown** (weekly) webpages





California's Fuel Flows

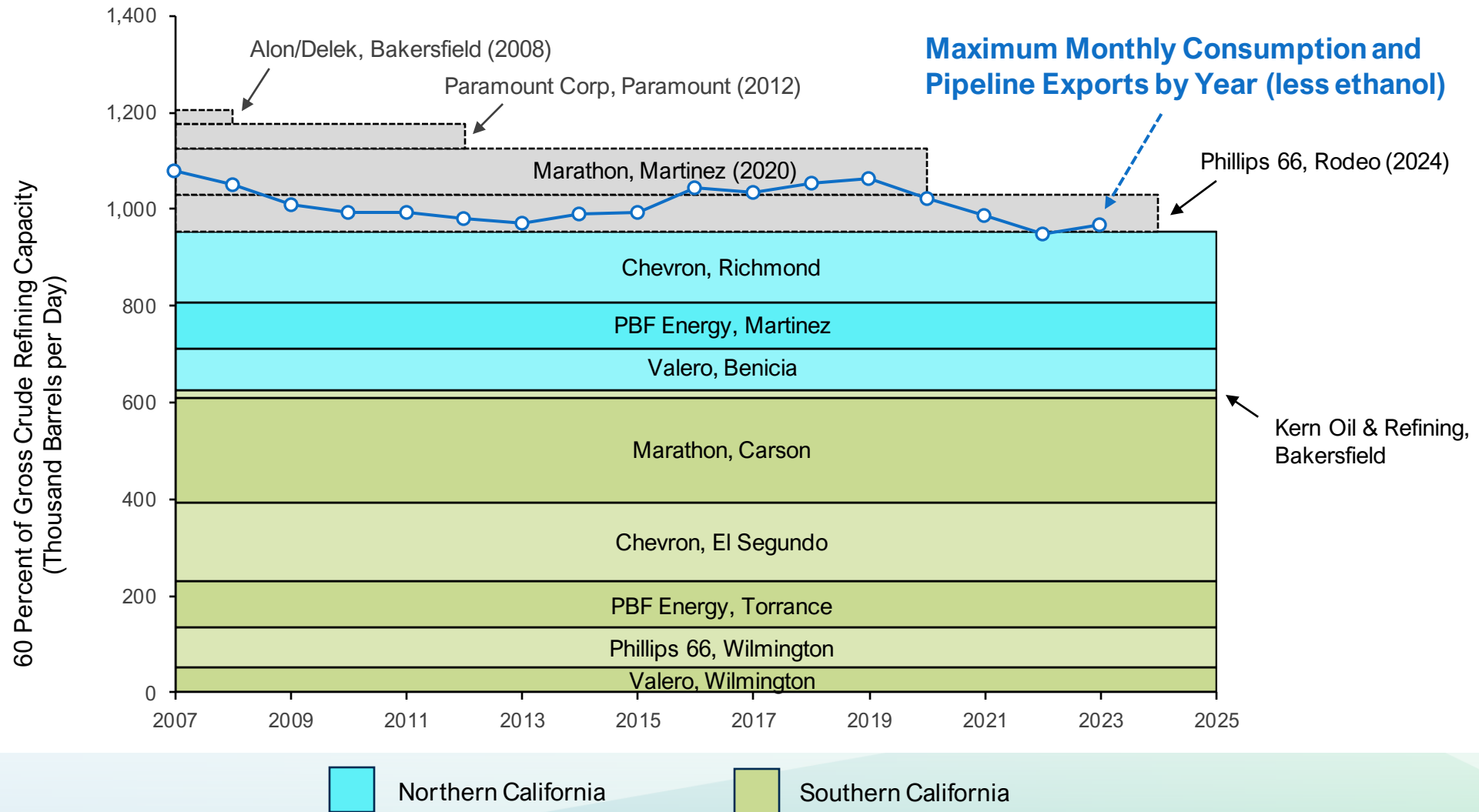


(Amounts shown in thousands of barrels)



California's Petroleum Market

Estimated Gasoline Refinery Capacity





Market Oversight Analysis

Requirements

Progress



Creation of the Division of Petroleum Market Oversight (DPMO)

Completed August 2023 with additional hiring in process



Monitor and analyze spot trading activity for market manipulation.

Daily monitoring ongoing; DPMO letter in response to the Governor released September



Produce joint report with CDTFA on gas prices and impact on state revenues.

Report released May 3, 2024.



Refinery Maintenance Monitoring

Requirements

Collect data on refinery maintenance and turnarounds:

- Timing and output reduction
- Supplemental capacity

Consult with Department of Industrial Relations

Develop process for CEC approval of maintenance

Progress

Ongoing assessment of planned and unplanned maintenance reports to quantify impact on gasoline supply.

Recurring meetings to discuss managing refinery turnarounds and safety.

Next steps: Enhance data collection through rulemaking process.





Refining Margin Establishment and Penalty Determination



Penalty Framing Options

Structural Inefficiencies

- Lead to high prices at the pump
- Penalty as a tool to reduce impact on customers

Exploitation of Structural Inefficiencies

- Deliberate exploitation of structural inefficiencies
- Penalty as a deterrent or incentive to increase supply

Other Issues

- Benefits to consumers?
- Ensuring supply?
- Protecting low-income consumers?

Progress



Analysis of past margins
Fuel demand scenarios and assessment framework



2023 Milestones
OIP and November 28 workshop



2024 Milestones
RFI released and closed May 3;
April 11 workshop



Workshop June 11
Margin & penalty frameworks



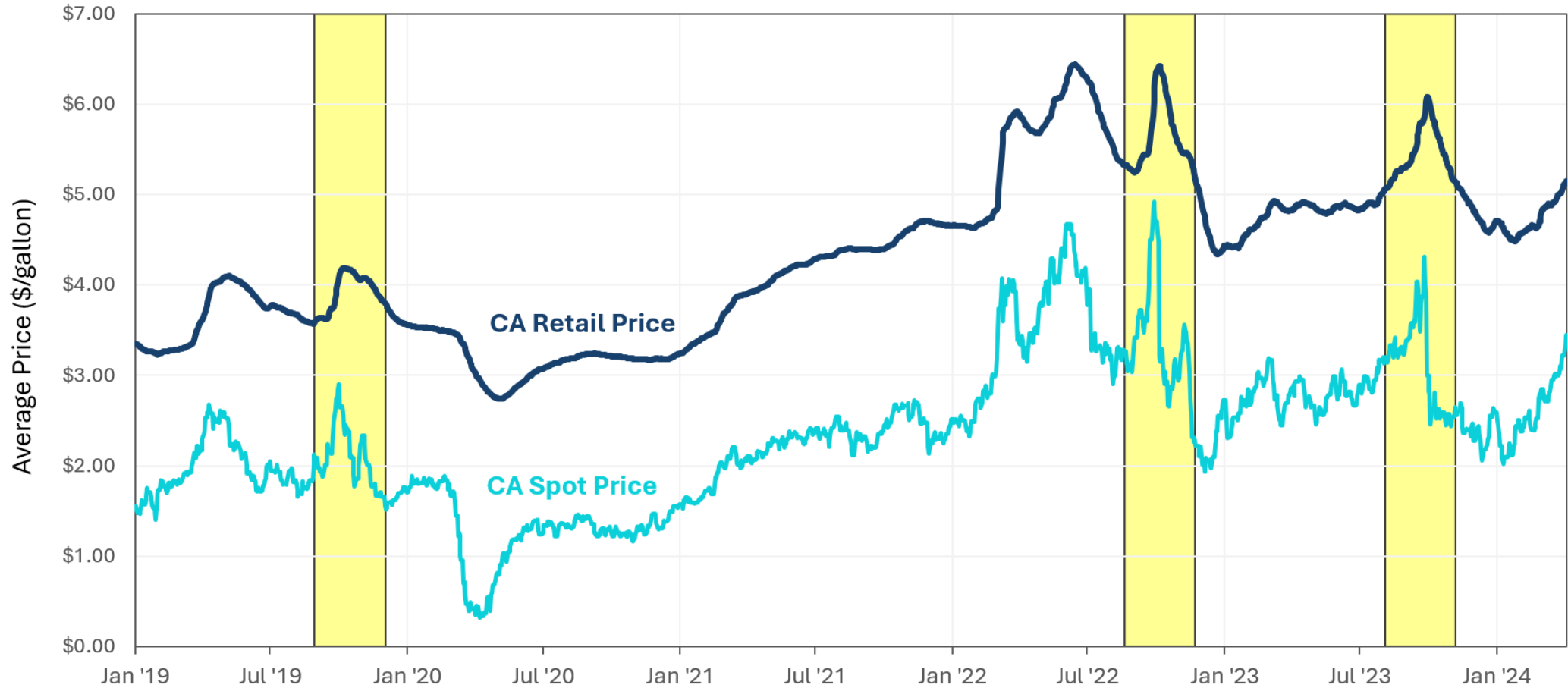
CEC's Early Observations

- CEC has a deeper understanding of refinery maintenance practices.
 - Far clearer picture into maintenance activities than what was originally available to the state.
- CEC has more near-term and future information about imports vs. getting that data after the product had been imported.
- CEC has a clearer picture of spot market participants' trading activity due to new regulatory authority from SB X1-2.



CEC's Early Observations

California Spot Market vs. Retail Gasoline Price (2019-Current)





Fuels Transition Plan (w/ CARB)



Requirements

CEC and CARB must develop and submit a Transportation Fuels Transition Plan by end of 2024.

Progress



Host Joint-Agency Kick-Off Workshop

May 3, 2024



Meet with working group members to discuss the plan

Ongoing throughout 2024



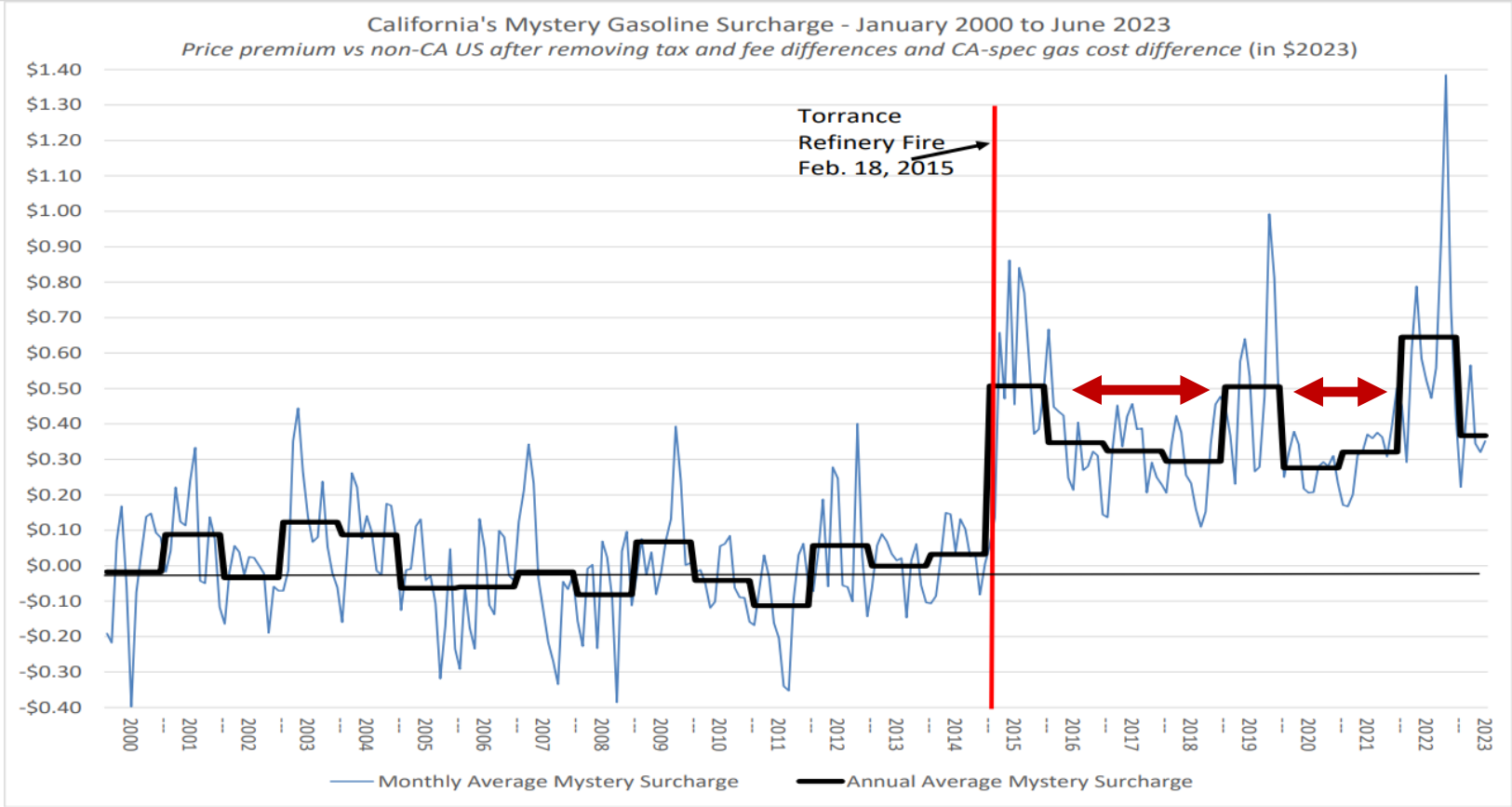
Submit plan (w/ CARB)

Due December 31, 2024

Professor Borenstein Identifies Mystery Gas Surcharge



DIVISION OF PETROLEUM MARKET OVERSIGHT



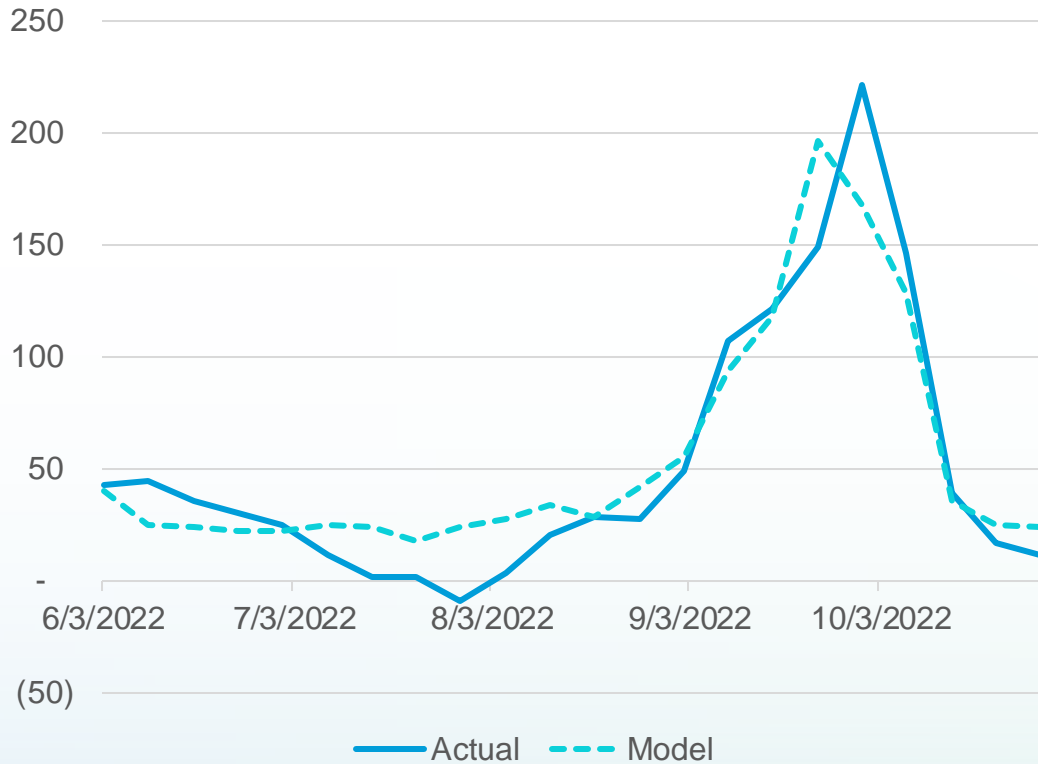
(Source: Author's calculations. For further details see <https://energythaas.wordpress.com/2019/05/20/the-mystery-gasoline-surcharge-gets-some-respect/>)

Sources: Chart available from California Energy Commission : Docket Log, <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-SB-02>, 8/18/2023.

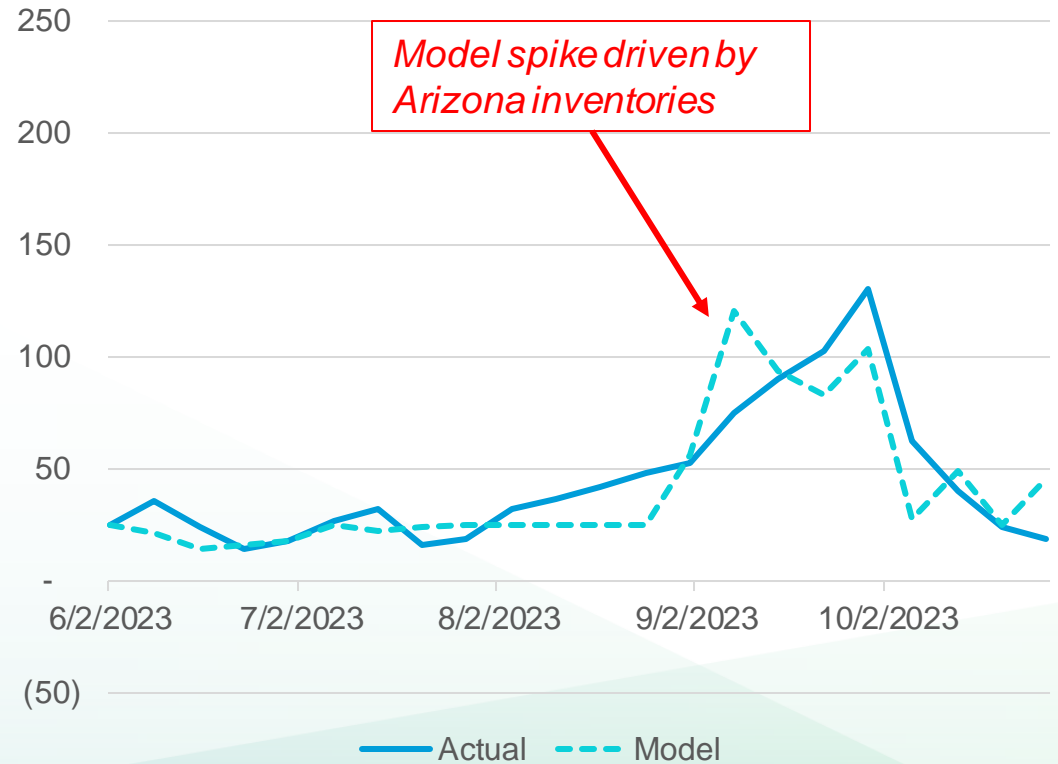


Backcasting Model

Summer 2022 Backcast:
CARBOB vs. NYMEX (CPG, \$2024)



Summer 2023 Backcast:
CARBOB vs. NYMEX (CPG, \$2024)





Increased Transparency through Reporting

CEC is now receiving data on:



Refiner costs and net refiner margin



Refinery maintenance information and events



Spot market transactions



Inventory holdings by type of market participant

California Oil Refinery Cost Disclosure Act Monthly Report

Volume-Weighted Gasoline Refining Margin ✕

Gross gasoline refining margin (\$/gal) = Wholesale price of gasoline (\$/gal) – Crude oil cost (\$/gal)
Net gasoline refining margin (\$/gal) = Gross gasoline refining margin (\$/gal) – Operational costs (\$/gal)

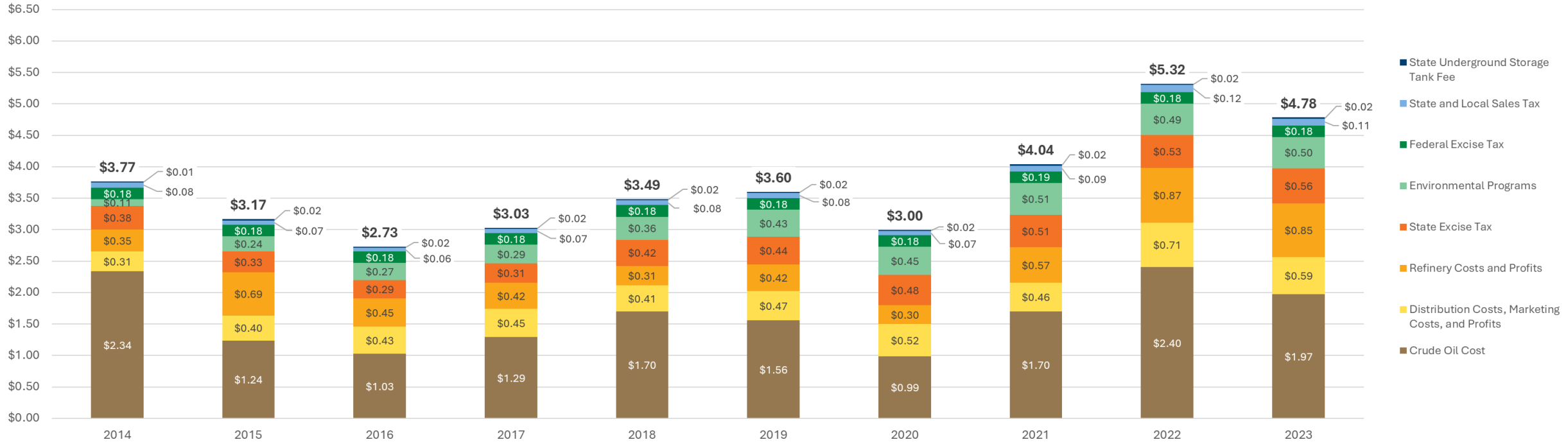
Year	Month	Gross Margin (\$/gallon)	Net Margin (\$/gallon)
2023	Jan	\$0.66	N/A
2023	Feb	\$1.03	N/A
2023	Mar	\$1.03	N/A
2023	Apr	\$1.01	N/A
2023	May	\$1.09	N/A
2023	Jun	\$1.19	\$0.18
2023	Jul	\$1.14	\$0.14
2023	Aug	\$1.29	\$0.24
2023	Sept	\$1.49	\$0.38
2023	Oct	\$0.79	-\$0.10
2023	Nov	\$0.76	-\$0.16

[SB 1322 data \(as reported by refiners\) is available here.](#)



CA Retail Gasoline – Cost Breakdown

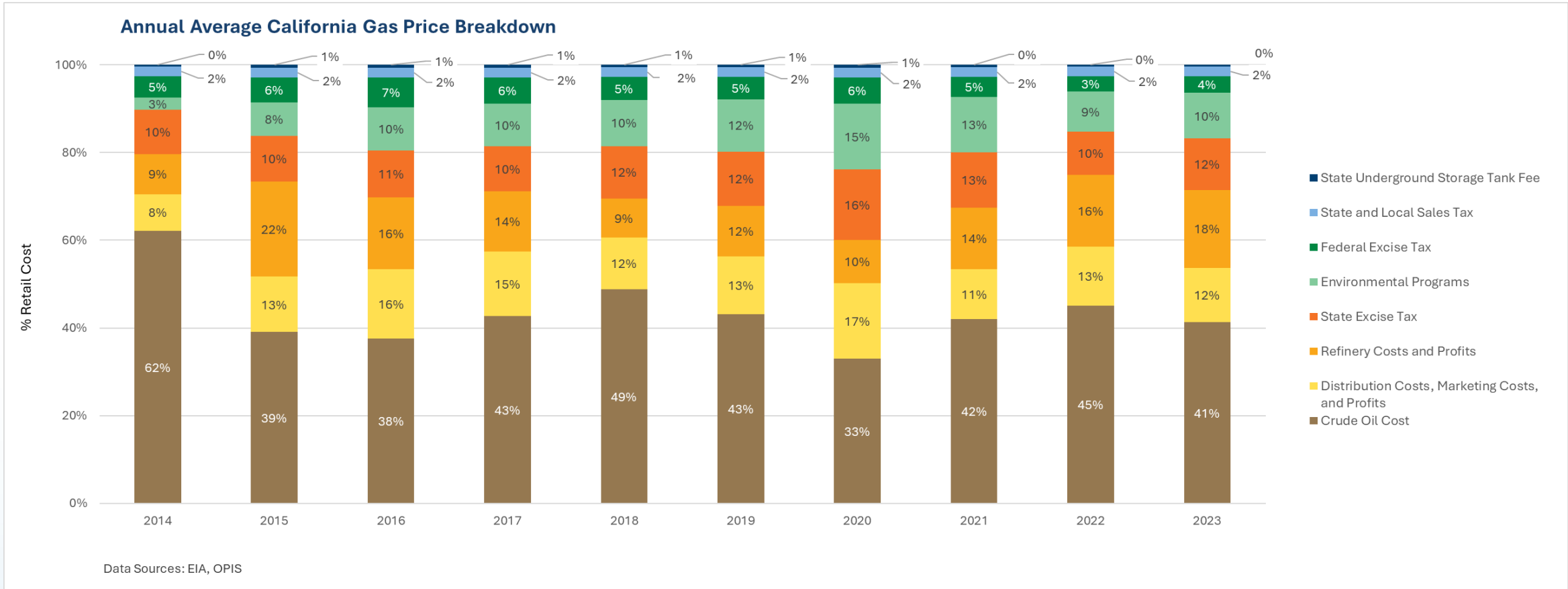
Annual Average California Gas Price Breakdown



Data Sources: EIA, OPIS, CDTFA, and Alaska Department of Revenue



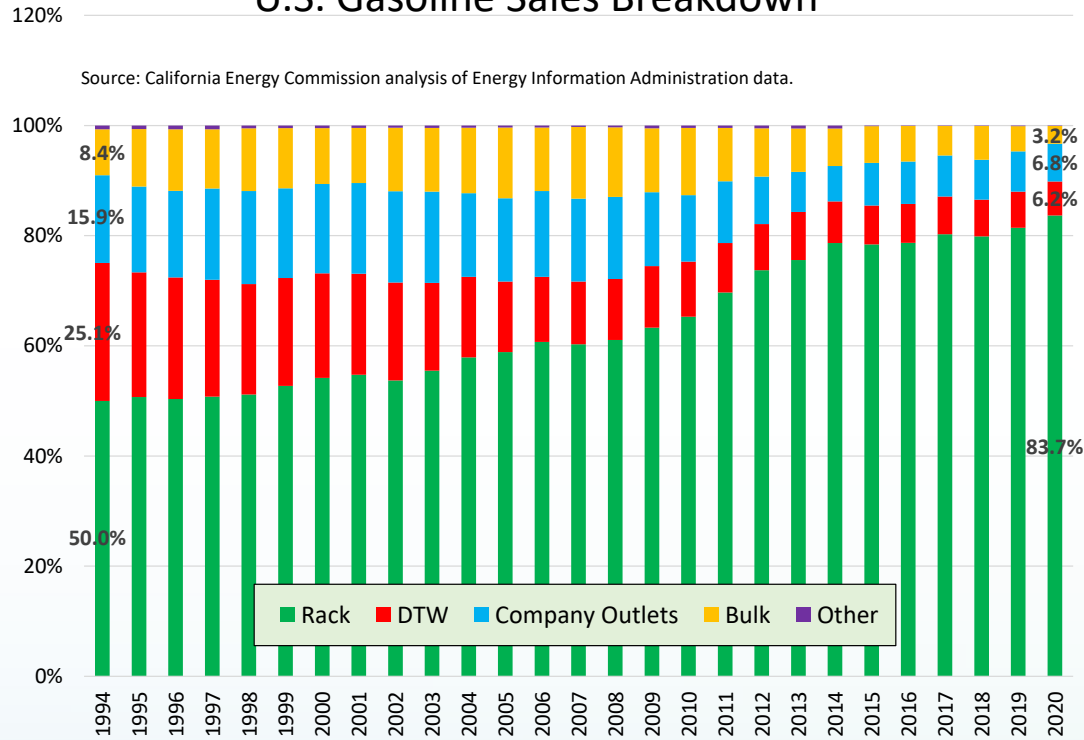
CA Retail Gasoline – Cost Breakdown



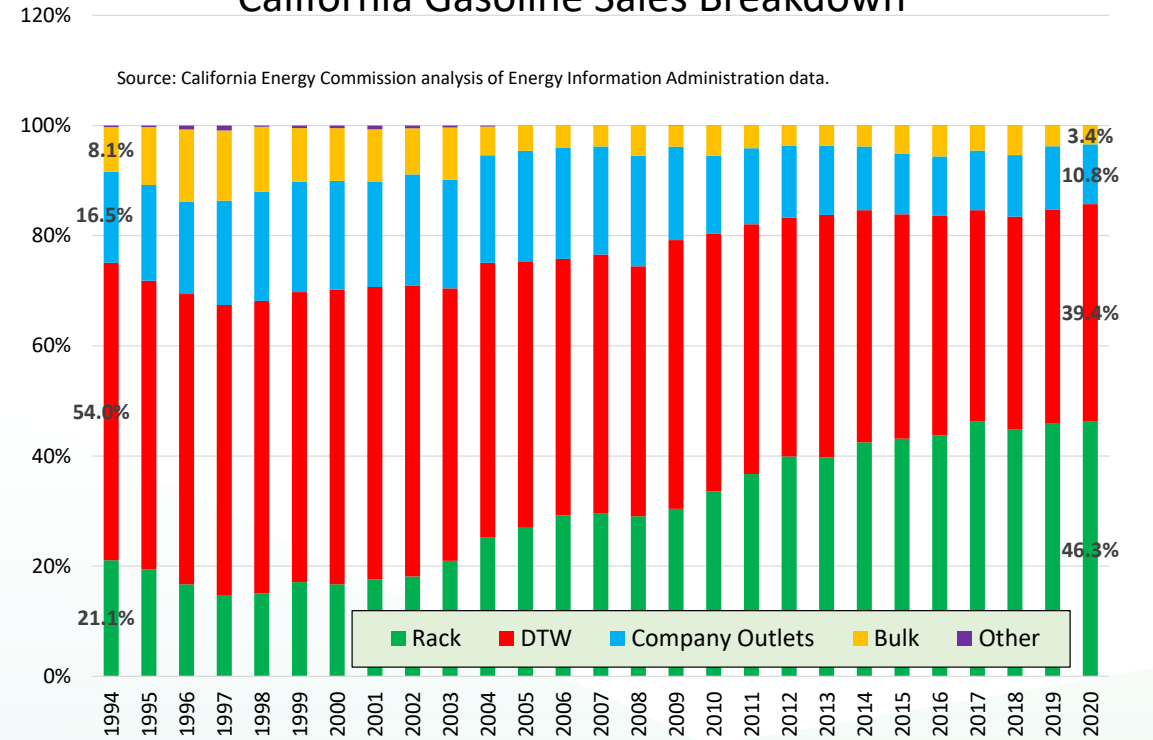


Gasoline Supplier and Retail Pricing

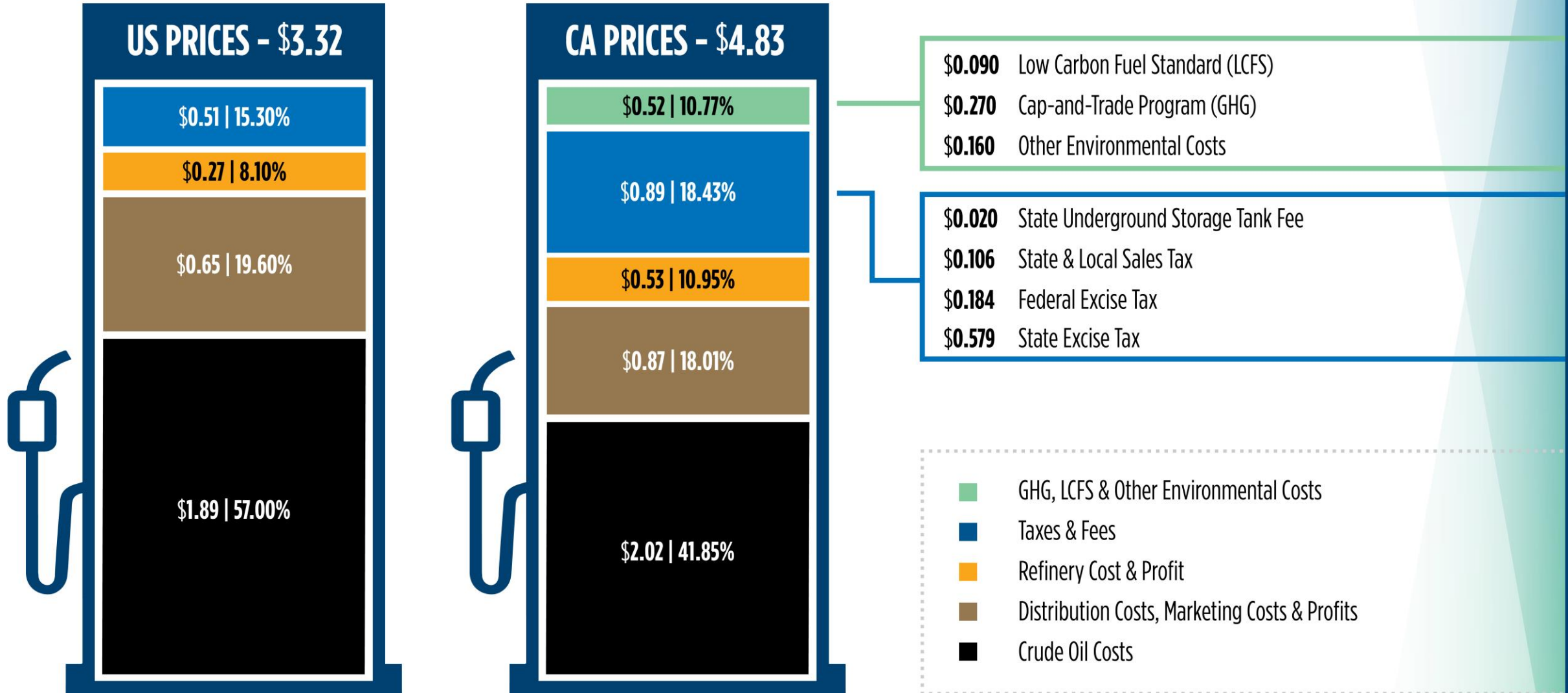
U.S. Gasoline Sales Breakdown



California Gasoline Sales Breakdown



BREAKDOWN OF CALIFORNIA GASOLINE PRICES



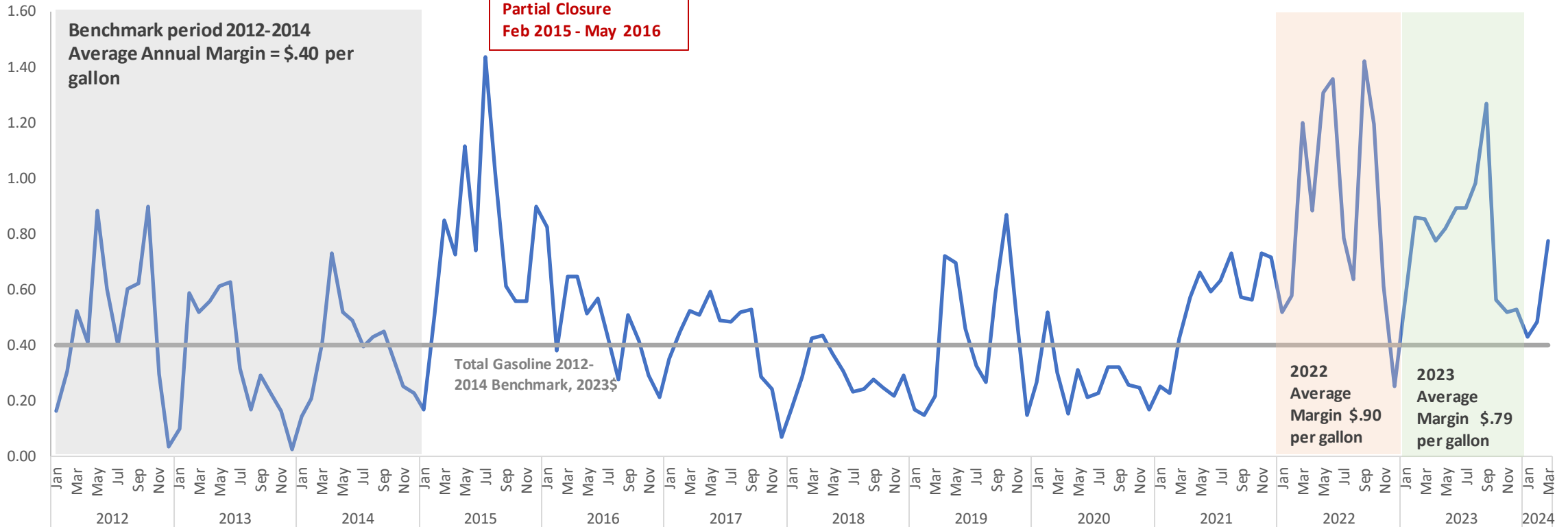
2022 Margins Doubled Relative to Benchmark



DIVISION OF PETROLEUM MARKET OVERSIGHT

Gasoline Refining Margin

2023 Dollars per Gallon

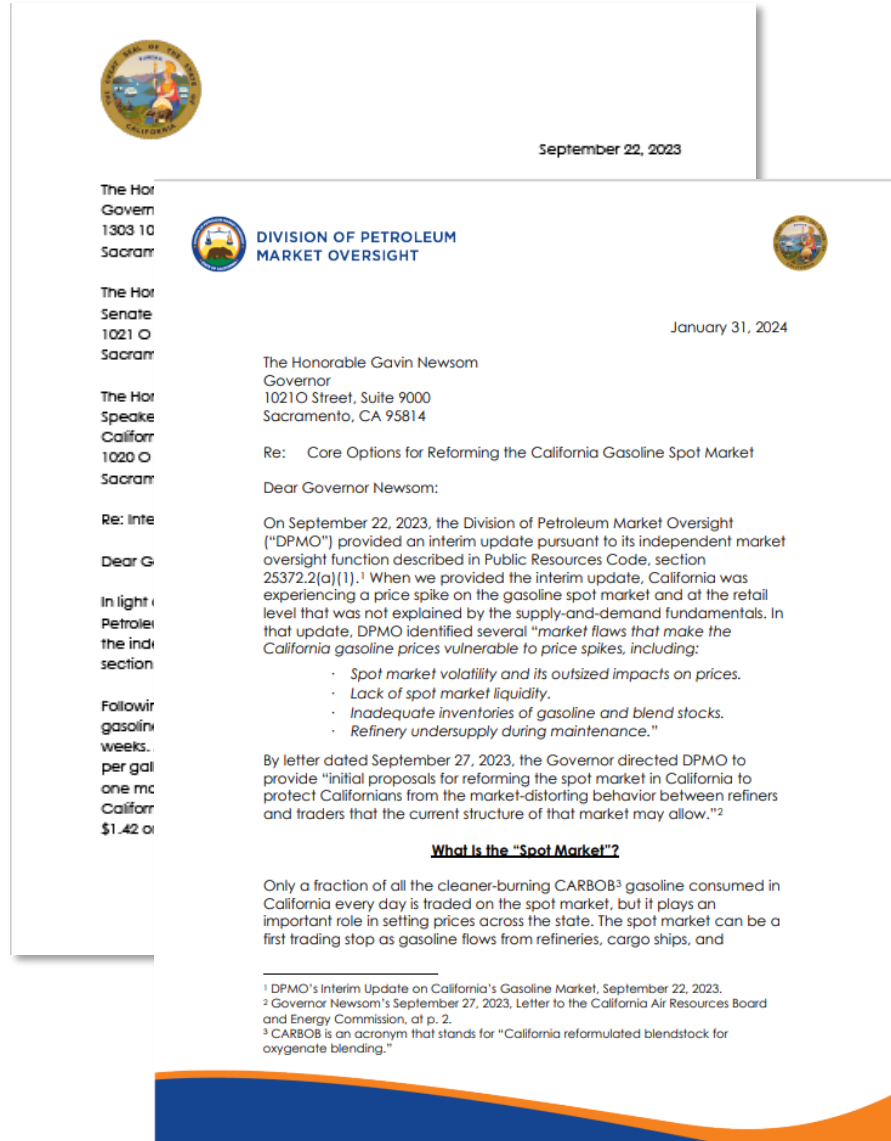


Sources: California Energy Commission, California Gasoline Price Breakdown and Margins (Form 1322), <https://www.energy.ca.gov/estimated-gasoline-price-breakdown-and-margins>. Discount factor from Bureau of Labor Statistics, U.S. Core CPI, <https://data.bls.gov/>.

DPMO's Early Observations & Recommendations



DIVISION OF PETROLEUM
MARKET OVERSIGHT



Sept. 2023 *Interim Update on California's Gasoline Market* to Governor Newsom and the Legislature:

- Spot market volatility and outsized impacts on prices.
- Lack of spot market liquidity.
- Inadequate inventories of gasoline and blend stocks.
- Refinery undersupply during maintenance.

Jan. 2024 *Core Options for Reforming the California Spot Market* Response to Letter from Governor Newsom:

- Publishing a California spot market price report.
- Imposing minimum inventory and resupply requirements for refiners.