DOCKETED	
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Docketed Date:	9/25/2025

Workshop on Informational Proceeding – Petroleum Supply Stabilization

September 24, 2025

9:00 a.m.

Housekeeping

- Meeting is being recorded.
- Attendees may participate today by:
  - Making comments during the hearing.
  - Submitting written comments to docket **25-OIIP-02**, due by **5:00 p.m., October 8, 2025**.

Agenda

Opening Comments from the Dais

Siva Gunda, Vice Chair, California Energy Commission (CEC)

Tai Milder, Director, Division of Petroleum Market Oversight (DPMO)

Overview of the Informational Proceeding – Petroleum Supply Stabilization

Max Solanki, Program Manager, CEC

Economic Perspective on Industry Trends and AB X2-1 Tools

Dr. Gigi Moreno, Chief Economist, DPMO

Agenda

Panel Discussion

Moderator: Max Solanki, CEC

Panelists: Tom O'Connor, ICF International
Julia May, Communities for Better Environment
Jodie Muller, Western States Petroleum Association
Ryan Cummings, Standford Institute for Economic Policy Research
Norman Rogers, United Steelworkers Local 675

Public Q&A

Q&A from Dais

Public Comments

Closing Remarks and Adjourn

Opening Comments from the Dais

Petroleum Supply Stabilization Overview

Max Solanki, Program Manager
Fuels Analysis Branch

Purpose of OIIP

Establish a robust public record prior to regulatory actions

Facilitate early and transparent stakeholder engagement

Evaluate both benefits & consequences of strategies

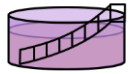
Develop data-driven strategies to stabilize fuel supply and reduce gasoline price volatility

2022 - 2025 Evolution

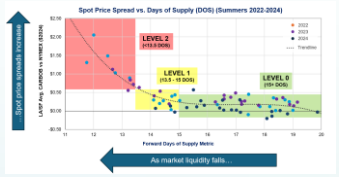
2022 – No Transparency

Senate Bill X1-2 Implementation

The California Gas Price Gouging and Transparer
enhances the state's ability to understand and re
to gasoline price spikes.



2023 – New Tools

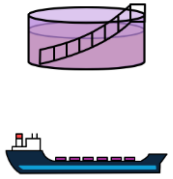


2024-2025 – Deeper Insights

Assessment & Insights

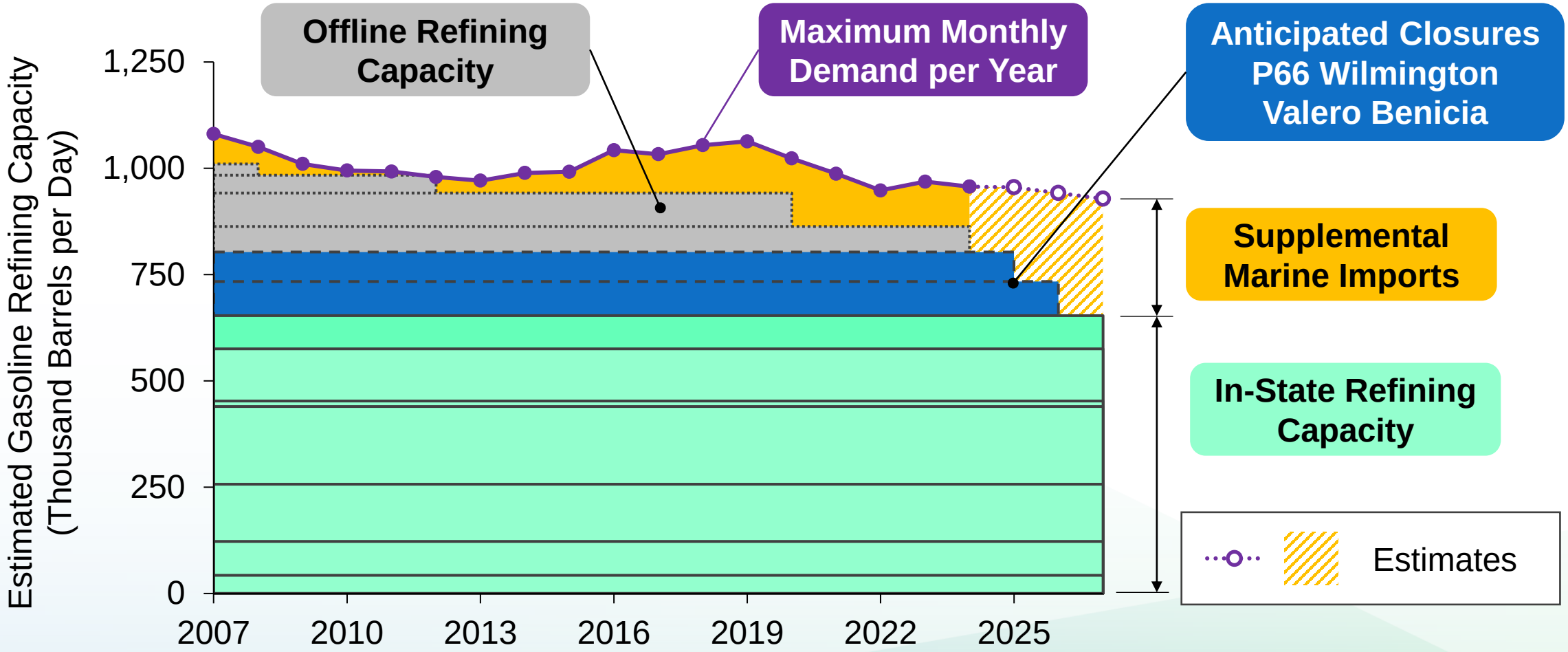
Transparency allowed us to observe and explain

Core Findings – Supply tightness primary driver of price spikes



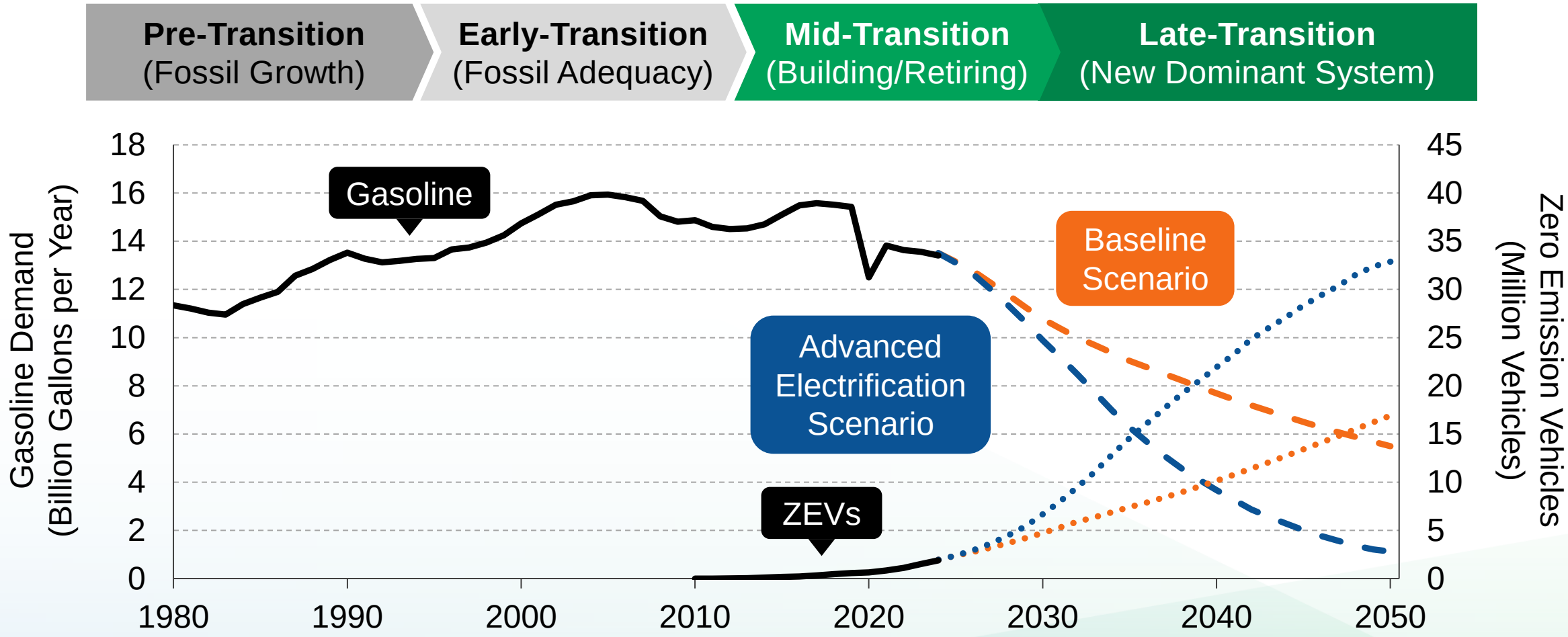
ABX 2-1 Tools – Resupply Planning & Minimum Inventory

Global & State Trends Shaping California



Source: CEC Staff, CDTFA

Mid-Transition Context



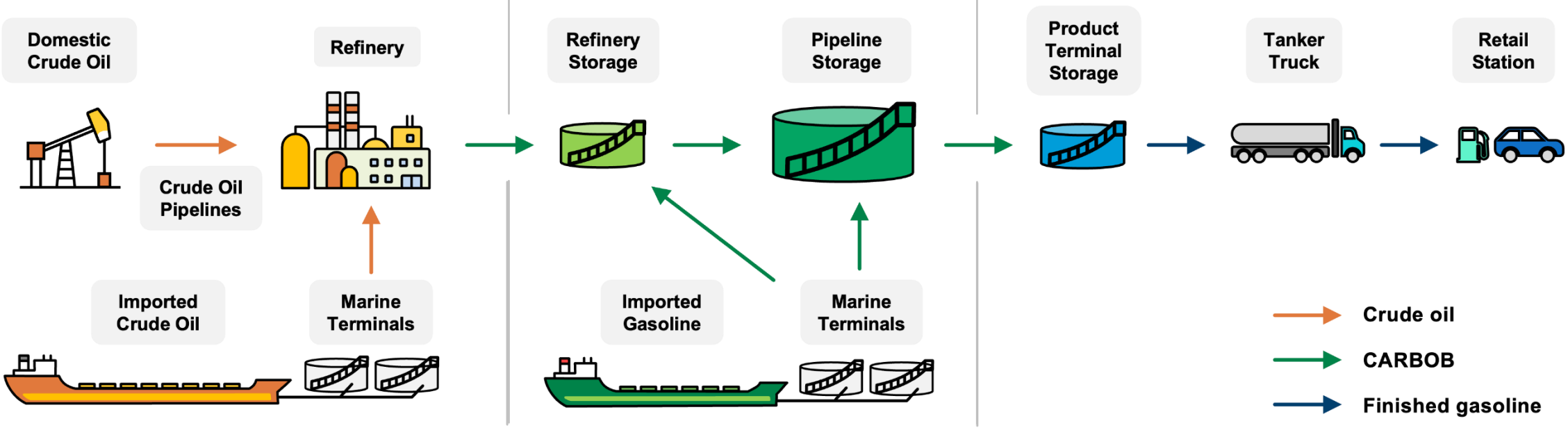
Source: CEC Staff

Consider Value Chain As A Whole

Crude oil is extracted from fields or delivered via marine vessel to refineries, which produce gasoline and other petroleum products.

Gasoline from refineries and additional imports are delivered to pipeline hubs.

Gasoline is blended with ethanol and loaded onto trucks at racks to be delivered to retail stations.



Landscape: Demand Supply Equilibrium

SUPPLY

Gasoline Inventories

Refinery Production

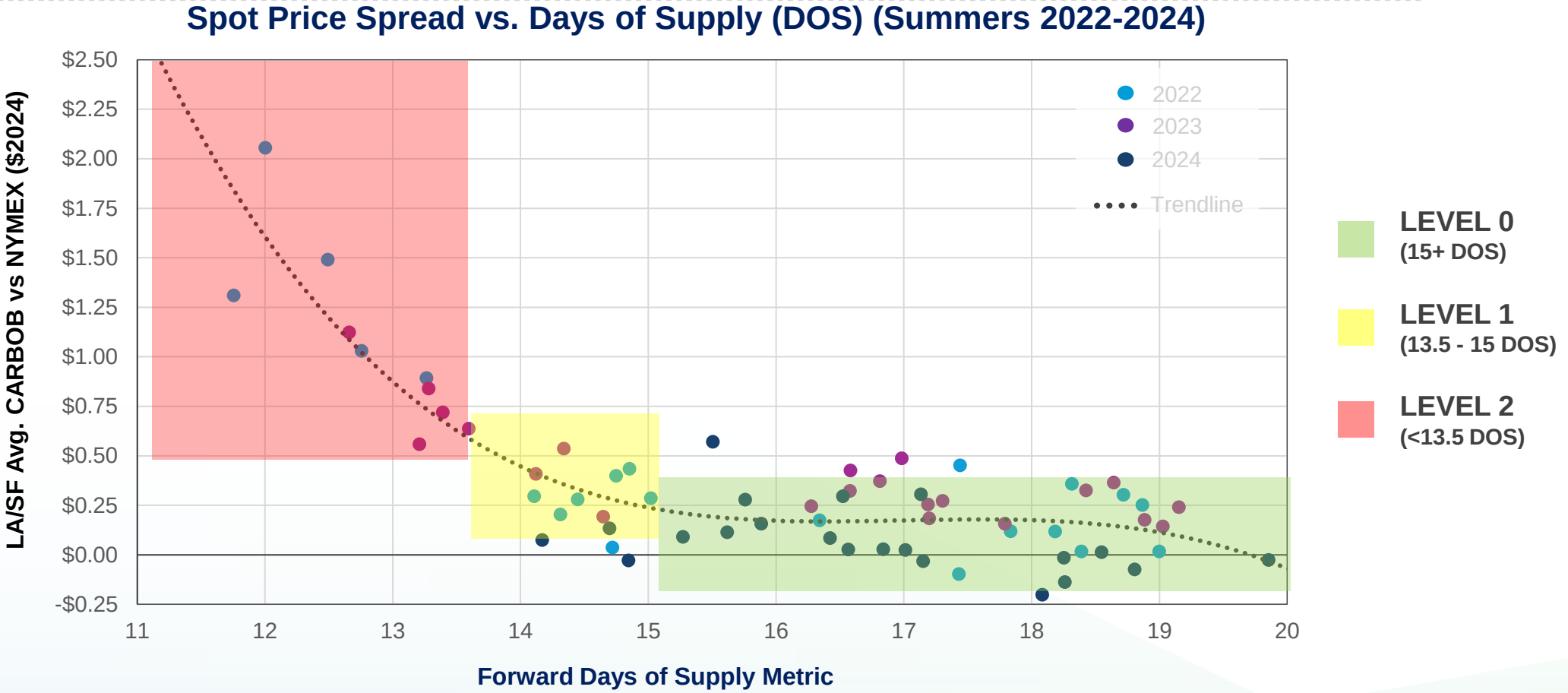
Marine Imports

DEMAND

Gasoline Demand

Balancing Demand and Supply

California Gasoline Days of Supply



…Price spreads increase

Note: Days of Supply is an estimate using production and inventory metrics for week ending 9/12/2025 and projected marine imports and refinery production based on currently available refinery maintenance information.

As Days of Supply fall…

Where are we now?

SB X1-2

AB X2-1

OFFICE OF THE GOVERNOR

April 21, 2025

Mr. Siva Gunda
Vice Chair
California Energy Commission
715 P Street
Sacramento, CA 95814

Dear Vice Chair Gunda,

Thank you for your leadership in protecting consumers and ensuring that California has a safe, affordable and reliable supply of transportation fuels during our energy transition over the next two decades, including through implementation of Senate Bill X1-2 (Skinner, 2023) and Assembly Bill X2-1 (Hart, 2024).

CALIFORNIA ENERGY COMMISSION

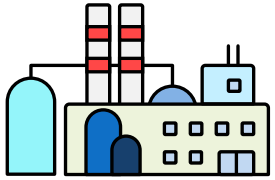
CALIFORNIA NATURAL RESOURCES AGENCY

June 27, 2025

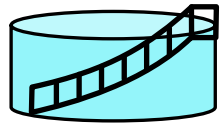
Dear Governor Newsom,

Thank you for the opportunity to respond to your April 21, 2025, letter soliciting recommendations from our office on changes to state policy to ensure adequate transportation fuels supply during this pivotal time in our state's clean energy transition. In the months since receiving your letter, your energy team has engaged with the Petroleum Strategy Task Force, continued deep research into global petroleum market trends, convened roundtables and discussions with diverse stakeholders representing varied interests, and utilized new data afforded to us by legislation enacted over the last several years to better understand the petroleum industry.

This letter offers our strategies and recommendations to address your request for actions to ensure that Californians have access to safe, affordable, and reliable transportation fuels and that petroleum refiners continue to see value in serving the California market, even as in-state demand for petroleum-based fuels declines over the coming decades. These recommendations reflect the complexity of the issue, input from a multitude of stakeholders, and a faithful synthesis of robust data and discussions. We believe that these actions are necessary as the State considers its next steps to further our clean energy transition.



Refinery



Fuel Storage

Resupply

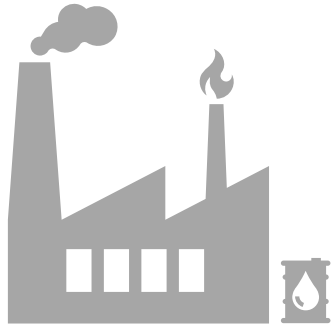
Legislative Background

- AB X2-1 (2024) authorizes the CEC to adopt:
  - Minimum inventory requirements for refined transportation fuels
  - Resupply planning before maintenance/turnaround events
- Action only if benefits to consumers outweighs costs
- Must protect health and safety of workers, communities, and the public

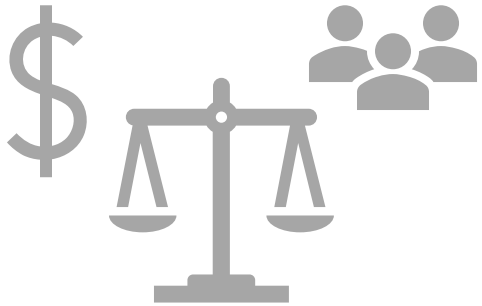
Today's Workshop Focus

Data Collection & Monitoring (started on June 26, 2024)

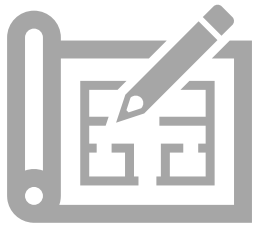
Spot Market Monitoring



Refinery Maintenance Monitoring



Refining Margin and Penalty Determination (Deferred)



Fuels Transition Plan (in development with CARB)

Supply Stabilization

Today's Workshop

Thank you

Max Solanki, Program Manager
Fuels Analysis Branch

Comments / Questions from the Dais

DIVISION OF PETROLEUM MARKET OVERSIGHT

Economics Perspective: Industry Trends and AB X2-1 Tools

Dr. Gigi Moreno, Chief Economist

September 24, 2025

Outline

1. **Economics for Resupply and Minimum Inventories**
   - Gasoline Refining Industry Structure
   - Market Concentration and Misaligned Incentives
2. **AB X2-1 Policy Tools**
   - Refinery Storage Utilization Trends
   - Principles for Implementation

DIVISION OF PETROLEUM MARKET OVERSIGHT

CA's Refining Sector: Key Characteristics

Concentration: A few large firms dominate the market

Price Setting: Firms are not "price takers" and have influence over price

Barriers to Entry: High fixed costs limit new entrants

Shrinking Demand: Gasoline and fossil diesel demand is declining

Interdependence: Firms buy and sell from one another

Concentration in CA's Refining Sector

Crude Refining Capacity Among California Refiners with Gasoline Production (January 2025)

Rank	Refiner with Gasoline Production Capacity	Total CA Crude Refining Capacity (BPD)	Share of Total CA Crude Refining Capacity	Cum. Share of CA Crude Refining Capacity
1	Chevron Corp	530,271	33%	33%
2	Marathon Petroleum Corp	365,000	23%	56%
3	PBF Energy Co LLC	316,400	20%	75%
4	Valero Energy Corp	230,000	14%	90%
5	Phillips 66 Company	138,700	9%	98%
6	Kern Oil & Refining Co	26,000	2%	100%
	Four-Firm Concentration Ratio in Rest of U.S.			48%

Notes and Sources: Based on DPMO analysis of data from U.S. Energy Information Administration. Table includes refineries with gasoline capacity, excludes refineries that do not produce gasoline and the Phillips 66 Rodeo facility, which converted to renewable fuel in March 2024. Rank is based on total crude refining capacity, which includes a company's refining capacity across refineries and products. Shares are rounded.

Price Spikes as Market Failure

Firms as Profit-Maximizing Actors

- All firms are profit-maximizers
- Public companies obligated first to investors
- Price and supply reliability are secondary

Price Spikes as Market Failure (Cont'd)

Firms as Profit-Maximizing Actors

- All firms are profit-maximizers
- Public companies obligated first to investors
- Price and supply reliability are secondary

Market Power & Misaligned Incentives

- Market power creates incentives to decrease supplies
- Decreasing supplies increases prices and profits
- Creates disincentive to buffer the market from supply disruptions

Price Spikes as Market Failure (Cont'd 2)

Firms as Profit-Maximizing Actors

- All firms are profit-maximizers
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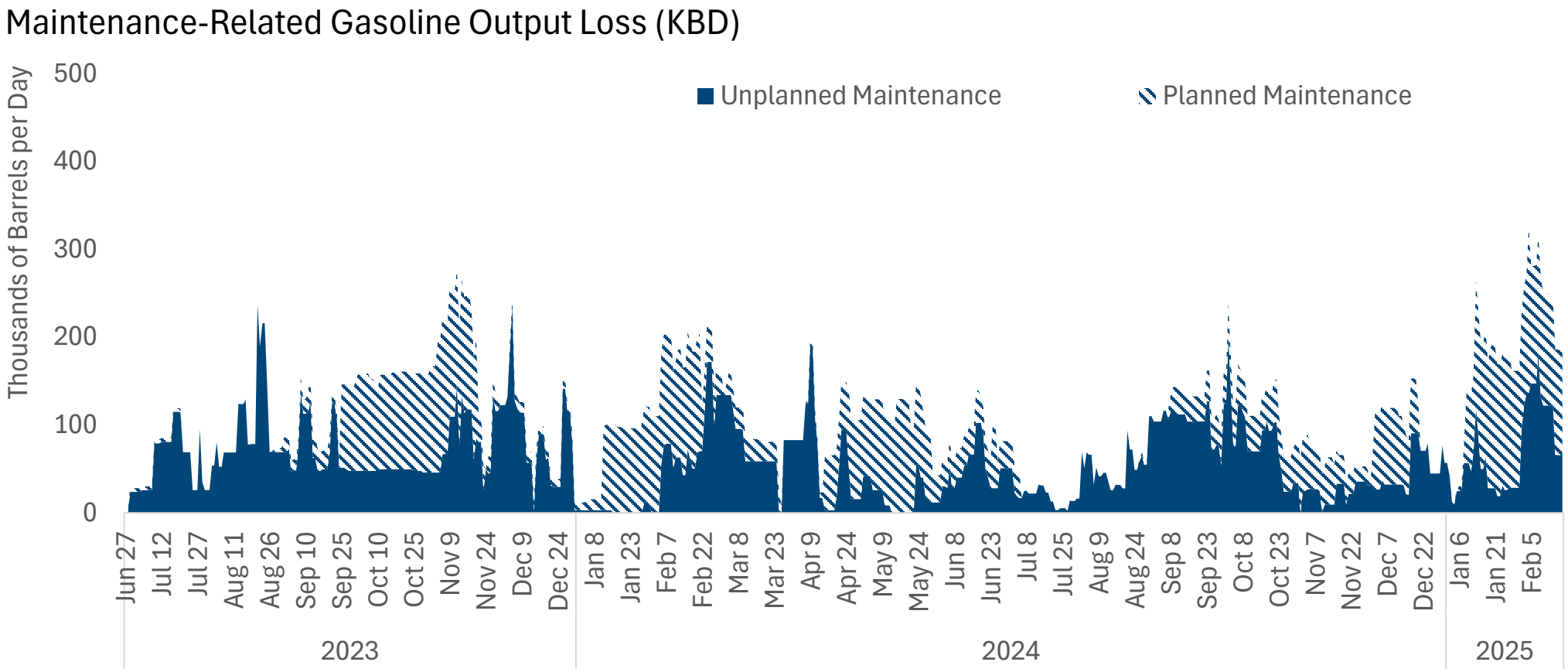
Market Power & Misaligned Incentives

- Market power creates incentives to decrease supplies
- Decreasing supplies increases prices and profits
- Creates disincentive to buffer the market from supply disruptions

Result: Supply Volatility & Price Spikes

- Price volatility becomes market feature
- Market has disincentive to buffer supply disruptions
- State intervention (including AB X2-1 tools) realigns incentives

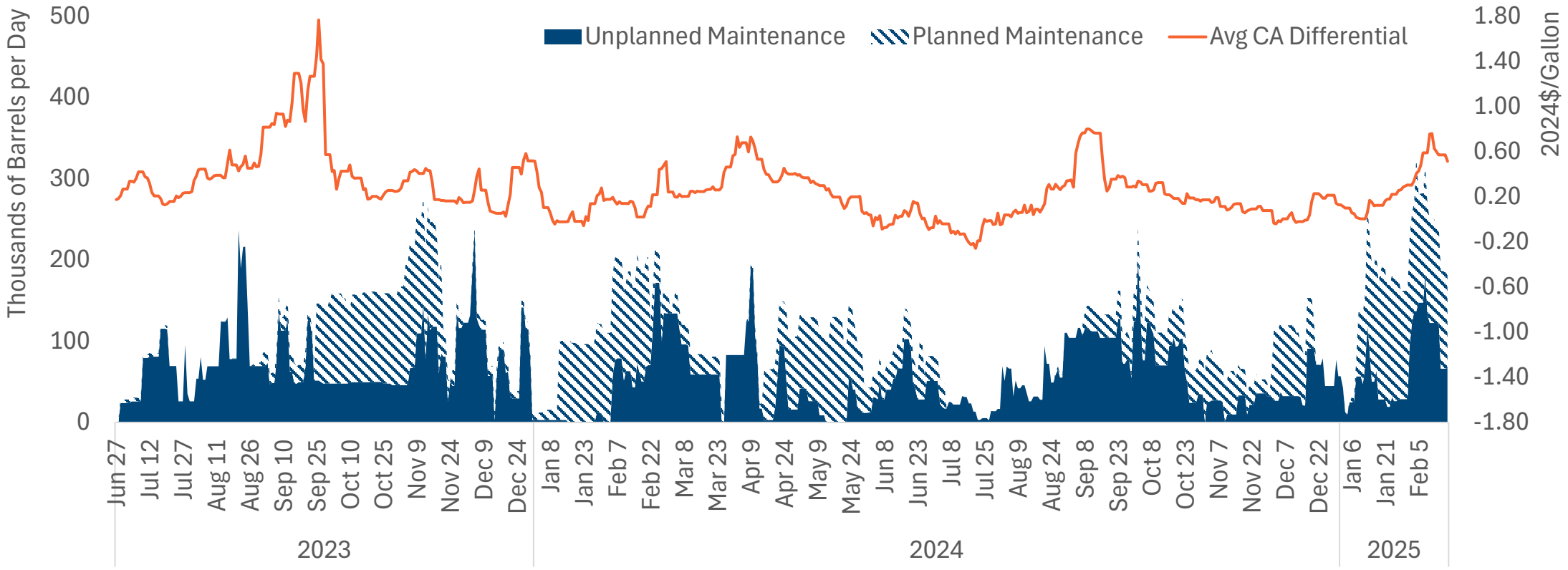
Gasoline Output Loss and Prices



Based on DPMO analysis. Maintenance data from CEC, spot price data from OPIS. Discount factor based on CPI less Energy (U.S. Bureau of Labor Statistics).

Gasoline Output Loss and Prices (Cont'd)

Maintenance-Related Gasoline Output Loss (KBD) and Average California Spot Price Differential (2024$/gal)



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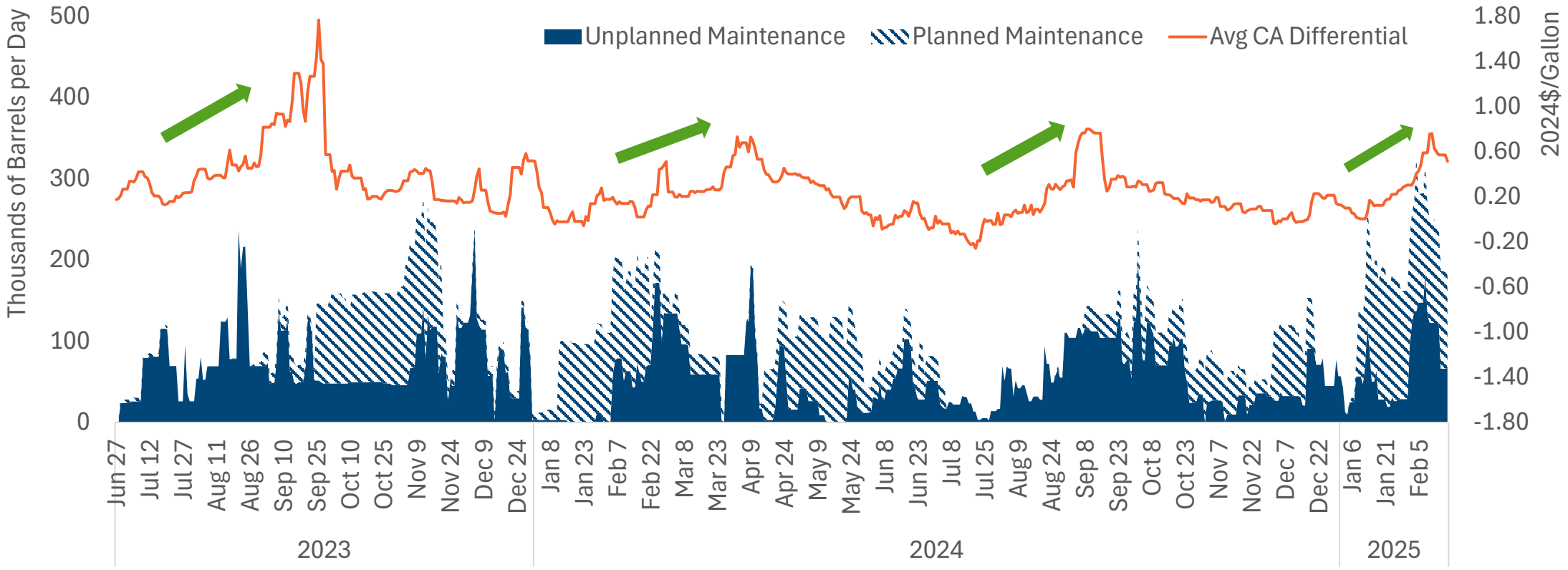

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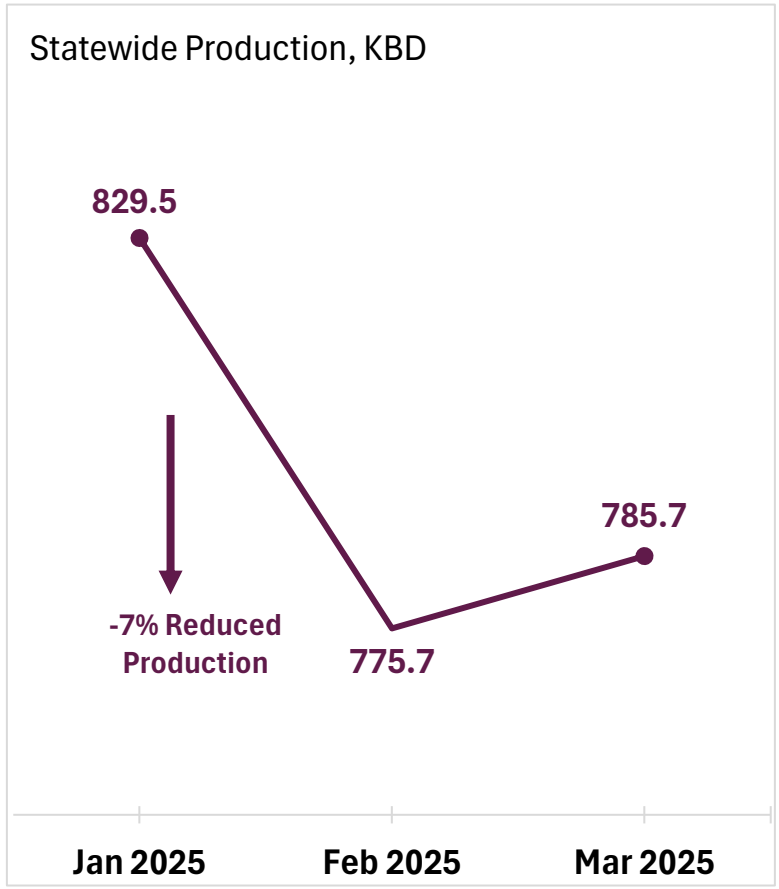
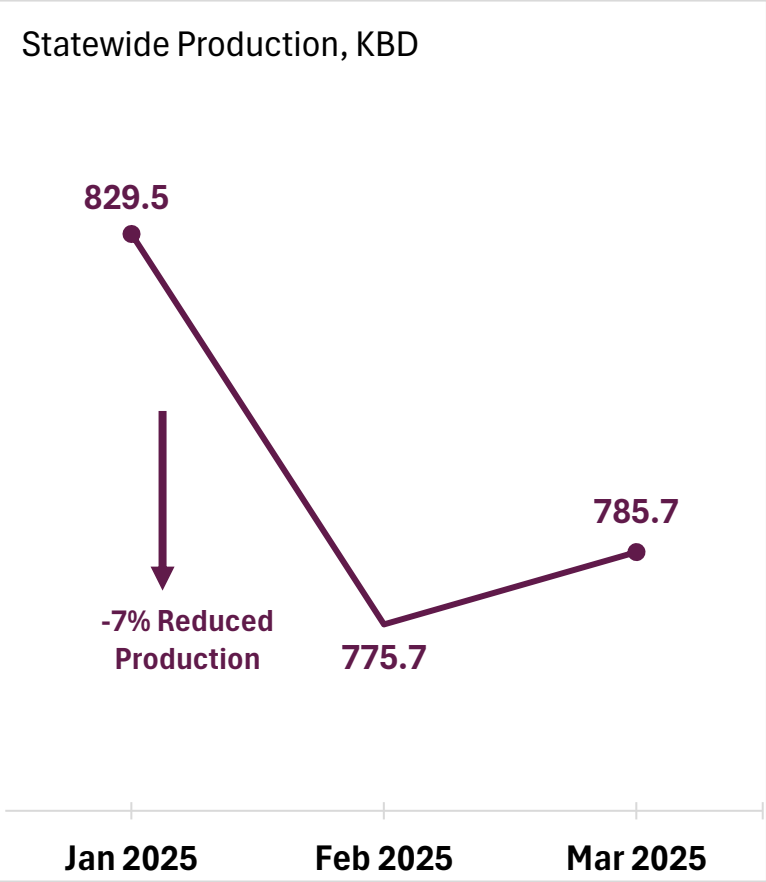
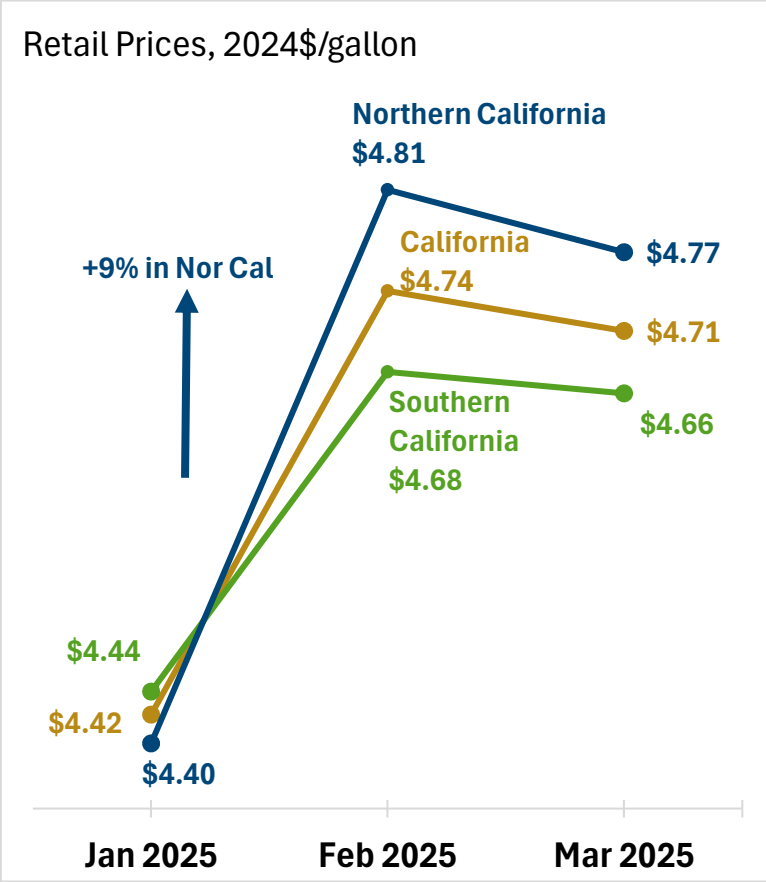
2025 Winter Supply Disruption



Based on DPMO analysis of EIA refinery production data.

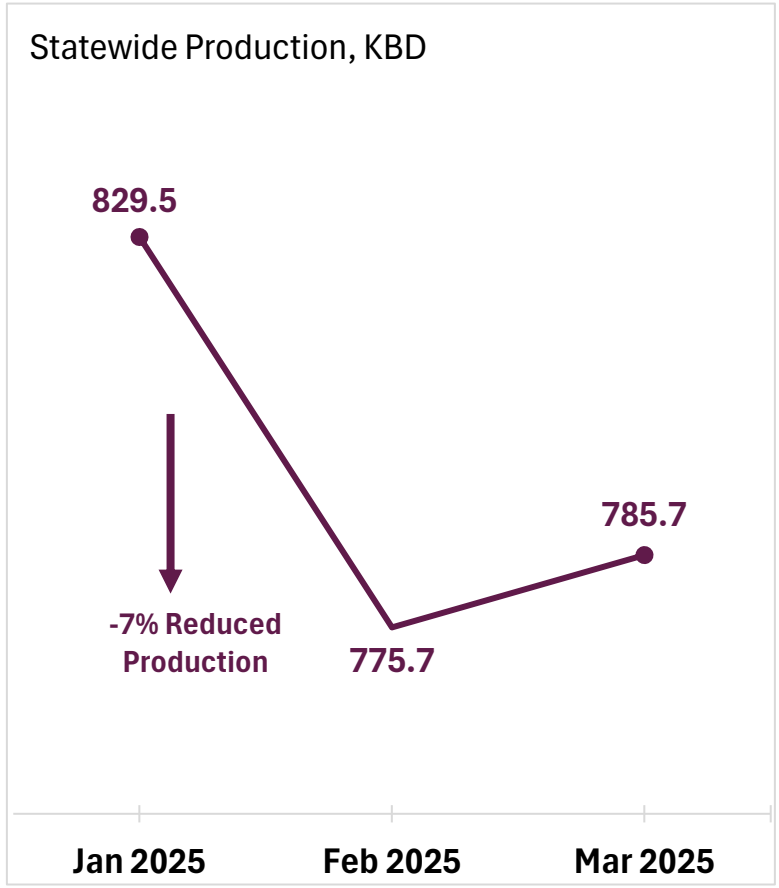
2025 Winter Supply Disruption (Cont'd)

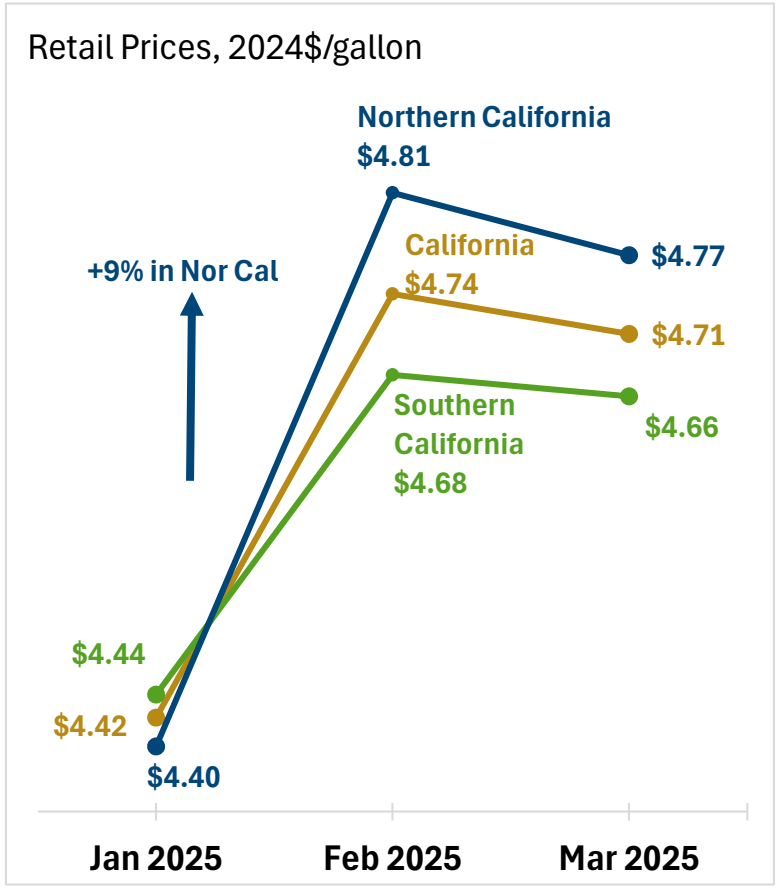


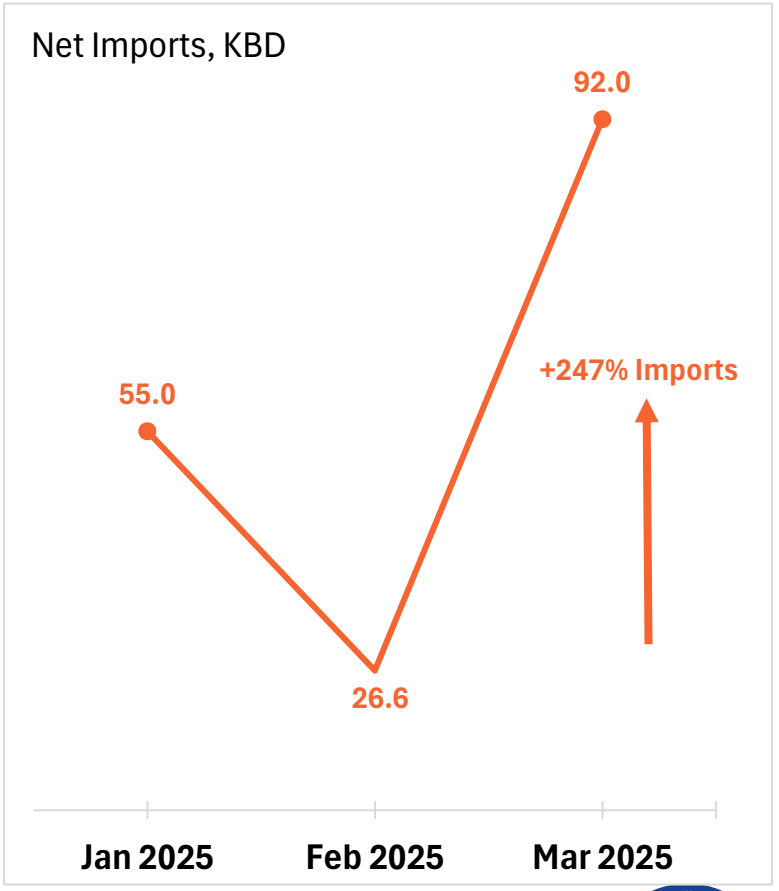


Based on DPMO analysis of EIA refinery production data. Retail prices computed from OPIS data and discounting using CPI less Energy from the U.S. Bureau of Labor Statistics.

2025 Winter Supply Disruption (Cont'd 2)





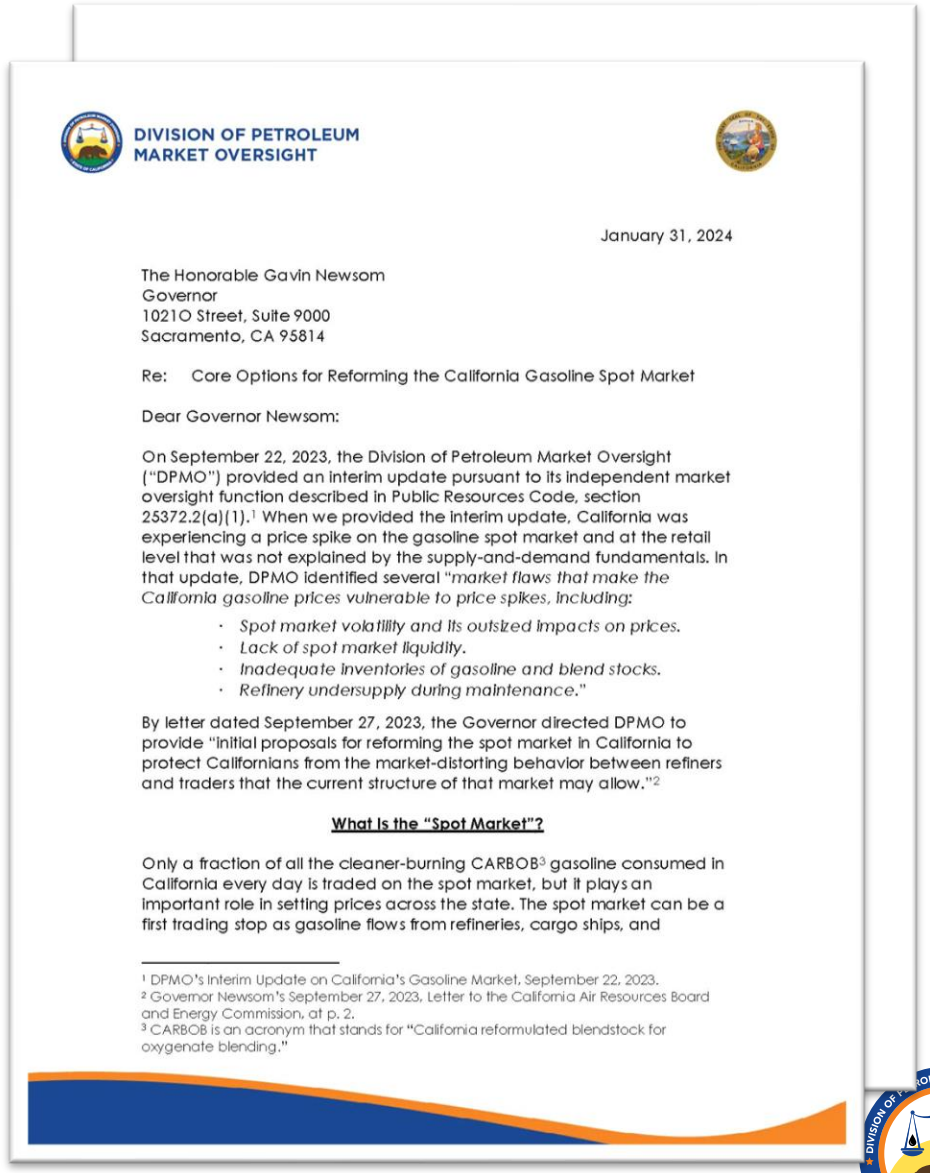


Based on DPMO analysis of EIA refinery production data. Retail prices computed from OPIS data and discounting using CPI less Energy from the U.S. Bureau of Labor Statistics.

AB X2-1 Tools

Under AB X2-1 (Hart, Aguiar-Curry), the CEC may consider:

- Refinery planning to resupply the market during planned maintenance events
- Maintain minimum inventories to buffer against unplanned maintenance or other disruptions



DIVISION OF PETROLEUM MARKET OVERSIGHT

January 31, 2024

The Honorable Gavin Newsom
Governor
1021O Street, Suite 9000
Sacramento, CA 95814

Re: Core Options for Reforming the California Gasoline Spot Market

Dear Governor Newsom:

On September 22, 2023, the Division of Petroleum Market Oversight ("DPMO") provided an interim update pursuant to its independent market oversight function described in Public Resources Code, section 25372.2(a)(1).[1] When we provided the interim update, California was experiencing a price spike on the gasoline spot market and at the retail level that was not explained by the supply-and-demand fundamentals. In that update, DPMO identified several "*market flaws that make the California gasoline prices vulnerable to price spikes, including:*

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

By letter dated September 27, 2023, the Governor directed DPMO to provide "initial proposals for reforming the spot market in California to protect Californians from the market-distorting behavior between refiners and traders that the current structure of that market may allow."[2]

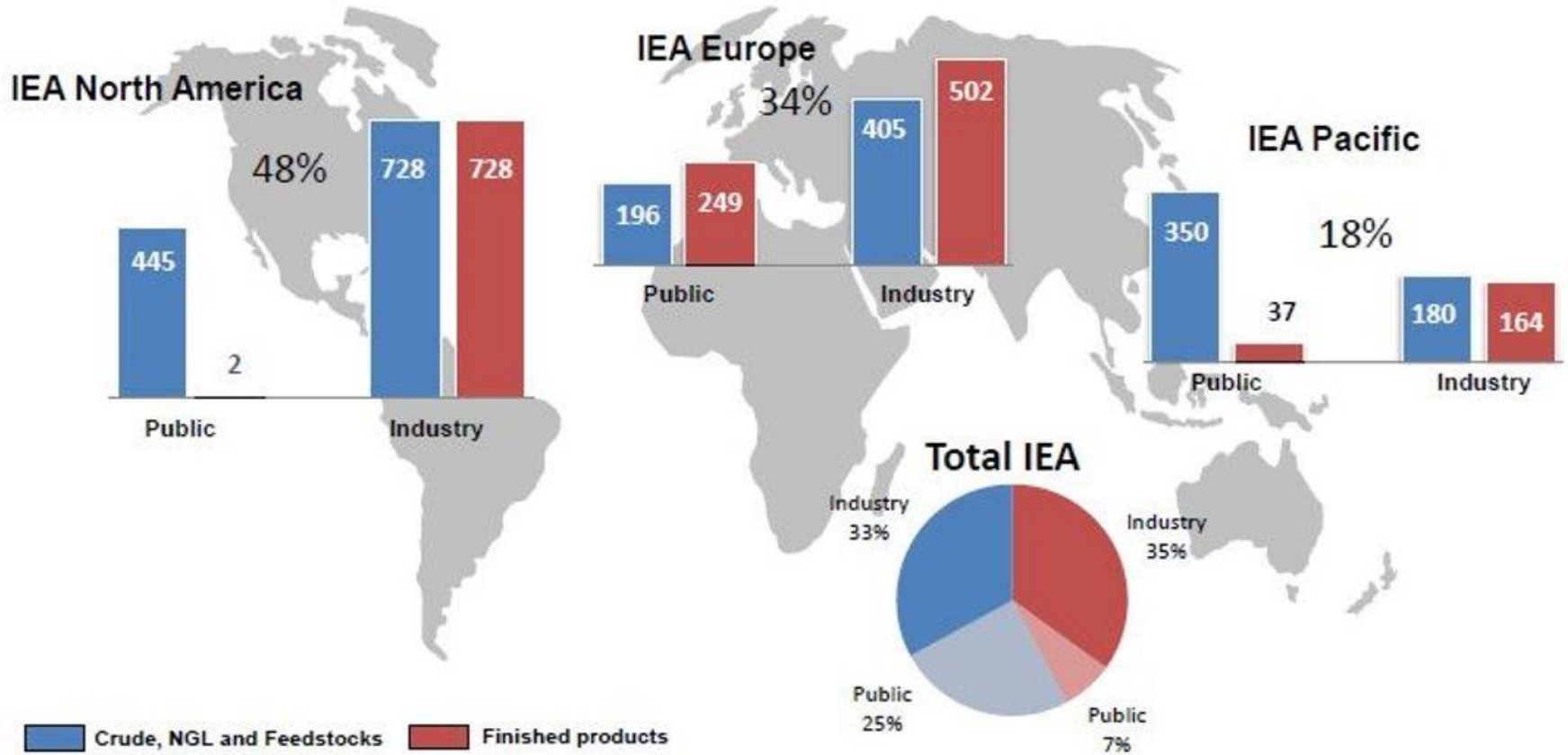
What Is the "Spot Market"?

Only a fraction of all the cleaner-burning CARBOB[3] gasoline consumed in California every day is traded on the spot market, but it plays an important role in setting prices across the state. The spot market can be a first trading stop as gasoline flows from refineries, cargo ships, and

[1] DPMO's Interim Update on California's Gasoline Market, September 22, 2023.
[2] Governor Newsom's September 27, 2023, Letter to the California Air Resources Board and Energy Commission, at p. 2.
[3] CARBOB is an acronym that stands for "California reformulated blendstock for oxygenate blending."

Stocks levels by type in the IEA

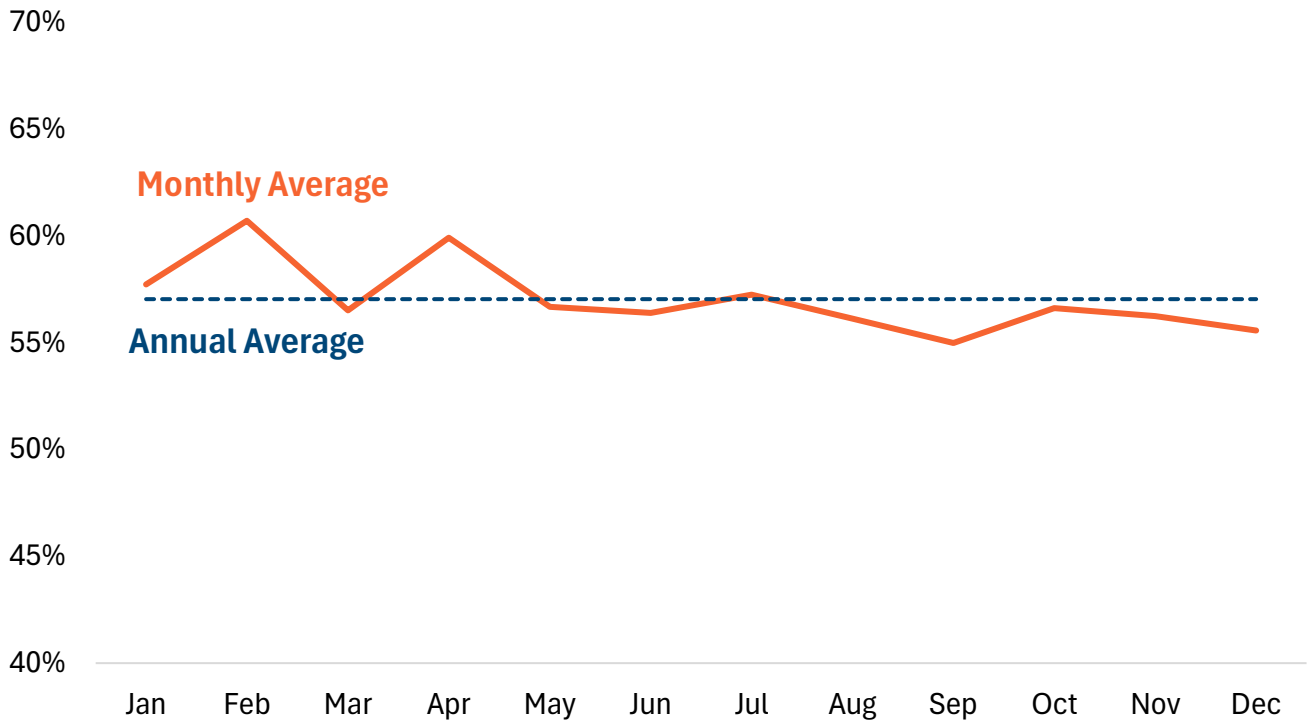
Oil stocks of IEA member countries by region in million barrels, end-August 2022



4 billion barrels of oil stocks in IEA countries, including 1.3 billion barrels of public stocks

Available Gasoline Storage Capacity

Volume-Weighted Average California Refinery On-Site Storage Utilization, 2019-2024



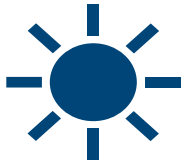
Notes: DPMO calculations based on EIA 810 data for gasoline and gasoline blending components.

- Data shows seasonal variation in refinery on-site storage utilization, suggesting that additional storage is available during the summer months
- Additional merchant terminal storage or other storage assets could be used more efficiently

AB X2-1 Implementation Principles

Worker and community safety is paramount

Accountability through reporting, oversight, and deterrence



Transparency through robust reporting requirements

Flexibility for firms to reach key resupply or inventory criteria

Simplicity and predictability, and iterate to improve


DIVISION OF PETROLEUM MARKET OVERSIGHT
STATE OF CALIFORNIA

Comments / Questions from the Dais

Panel Discussion

Moderator: Max Solanki, CEC

Panelists: Tom O'Connor, ICF International

Julia May, Communities for Better Environment

Jodie Muller, Western States Petroleum Association

Ryan Cummings, Standford Institute for Economic Policy Research

Norman Rogers, United Steelworkers Local 675

Public Q&A

Tom O’Connor

CEC Gasoline Stabilization Workshop

September 24, 2025

Key Issues

- The ZEV transition in California is slowing, and loss of the ZEV tax credit will make achieving gasoline demand reductions more challenging.
- Based on known refinery closures and frequent operational glitches, California will need the flexibility to import large volumes of gasoline routinely. Enabling higher volumes of gasoline, blendstocks and jet fuel at ports is critical to sustaining supply and price stability.
- Steps are being taken to improve California crude oil production supply, but the timing may not be quick enough to keep pipelines running or the refineries that are dependent on that crude.
- Global availability of CARBOB supply and blendstocks should be adequate, but there are risks in the Asian sources from geopolitical actions.
- Supply and price stability is highly dependent on port infrastructure access and less refinery production volatility (i.e. more stable refinery operations)

Stabilization Options

- Enhance Port Import Capacity
  - Enable/Encourage investment in storage/conversions to gasoline or jet fuel (Industry)
  - Examine ability to increase port volume throughput emission constraints
  - Remove logistics bottlenecks (Industry)
- Crude oil production stabilization – Permitting acceleration and higher production levels to an agreed range.
- Implement ReSupply requirements for refinery turnarounds
  - Necessary when state refinery gasoline supply is consistently short of demands
  - Mix of imports, domestic cargos, inventory management that covers 80% of gasoline production
- Assess the efficacy of minimum gasoline inventories or gasoline reserves
  - Minimum inventories can drive market behavior problems & are difficult to measure and manage (who are obligated parties?)
  - Reserves can be state managed, but handling seasonal quality turnovers can have market impacts

Additional Impacts

- A reliance on imported fuels can help stabilize the longer-term transition because it can gradually phase back gasoline imports as ZEV growth increases, and the increased need for jet fuel imports will be able to utilize some of the gasoline storage which may no longer be needed.

- Opportunities for Collaboration = Everyone Bleeds. Trade-offs will have to be there to move forward.

- There are no comparable models for California on how to stabilize prices for a unique grade of fuel.

- The OIIP proceeding should focus on implementing stabilization options and providing more certainty to the market while minimizing environmental impacts.

Julia May

CBE Excerpts & Briefing

California Refinery Impacts, Closures. Why We are Here

Julia May, Senior Scientist, CBE
julia@cbecal.org, 9/24/2025

REFINERIES ARE INHERENTLY DIRTY, EXPENSIVE, DEADLY ENERGY

They regularly explode.

They continuously emit Benzene, NOx, SOx, PM2.5, & much more into communities.

They're responsible for 4 big Fossil fuel subsectors that together cause ~HALF CA's GHGs. (2019)

Although exhibiting many monopolistic market characteristics, their production and cost is not regulated, as electricity is.

Our antiquated gasoline-based transportation infrastructure is expensive, deadly, and keeping people cash-strapped. Electric transportation is cheaper over the life of vehicles. We need to transition economies out of this fossil fuel stranglehold.

Oil Refineries emit hundreds of Chemicals that Harm Health including:

COMMUNITIES FOR A BETTER ENVIRONMENT established 1978

NEUROTOXINS / SMELLS / ASTHMA

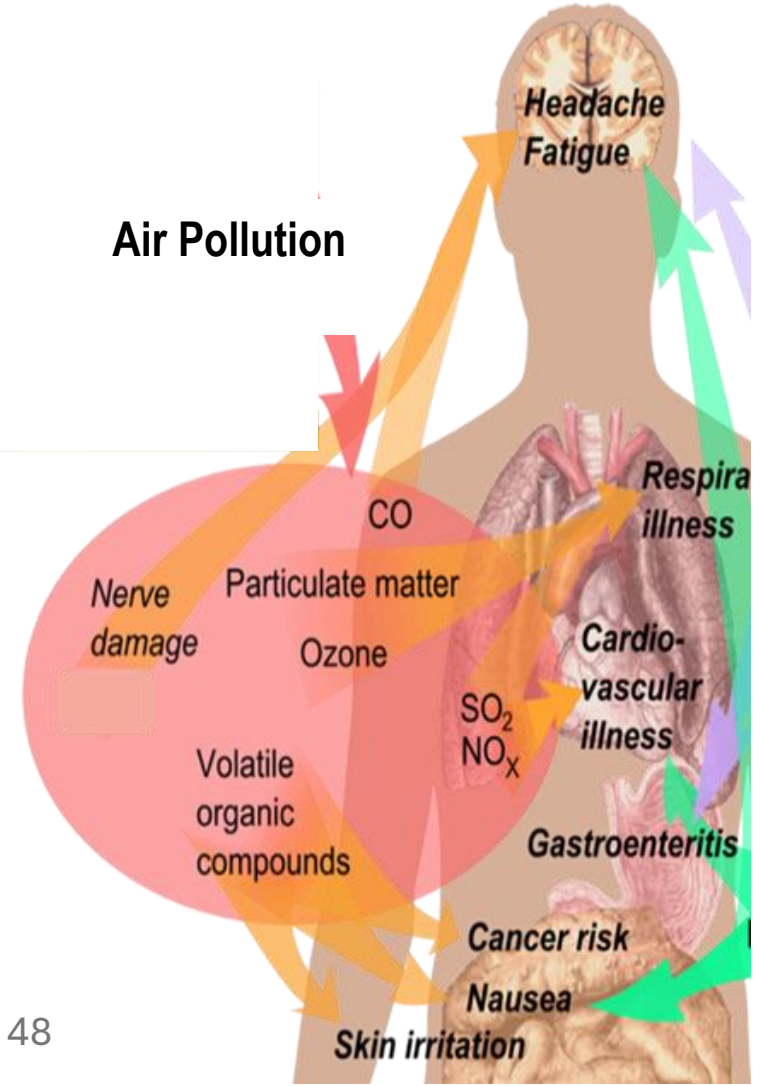
"Individuals living in close proximity to oil refineries may be at risk of chronic exposure to hydrogen sulfide." OEHHA, p. A-17.

SMOG & TOXICS

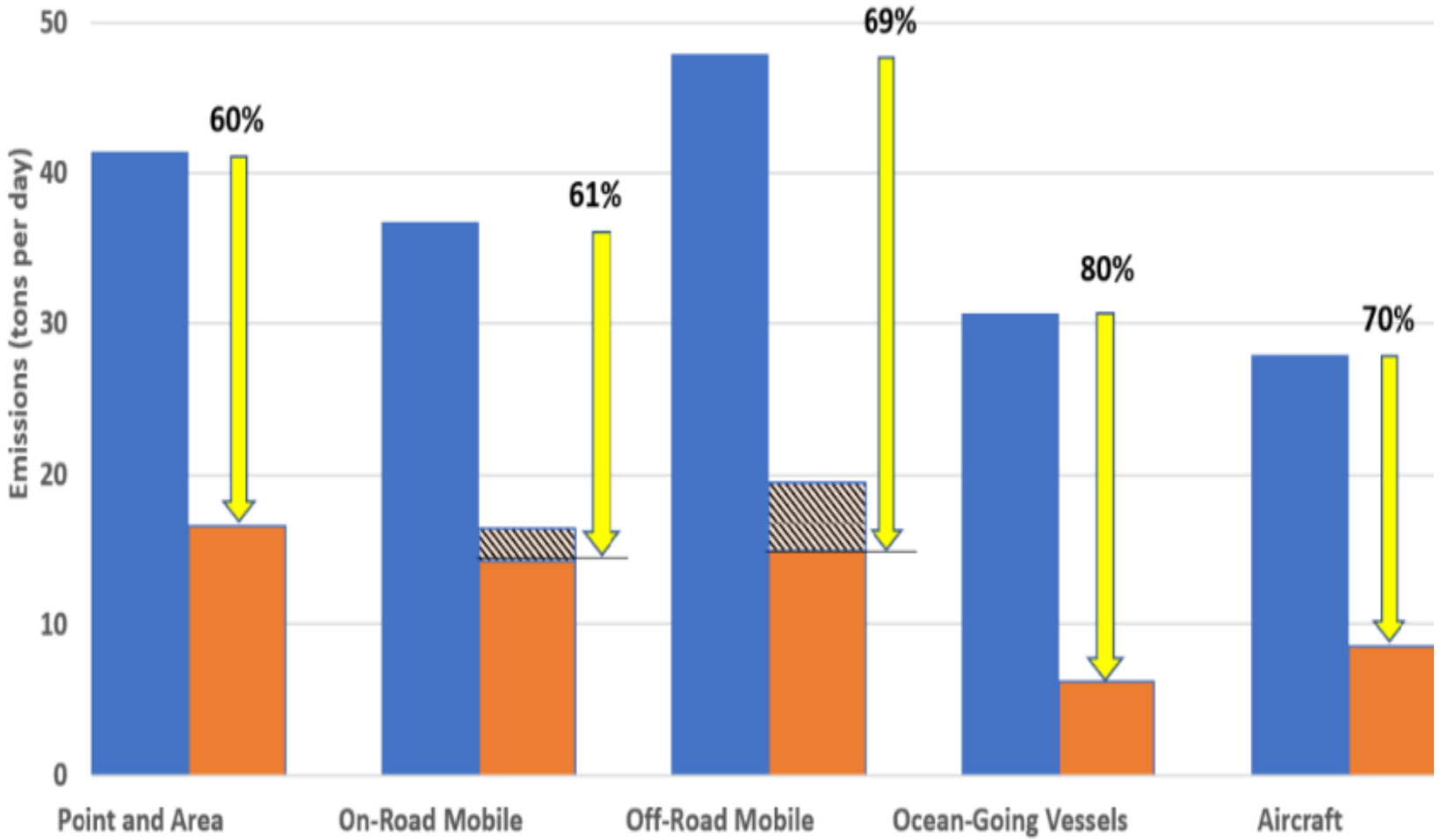
Refineries are the largest sources of VOCs in the Wilmington, Carson, W. Long Beach refinery neighborhood (SCAQMD AB617 plan, p.3b-6).

CARCINOGENS:

Refinery benzene emissions were grossly underestimated at every refinery (34 times higher than reported on average, South Coast Refinery Fluxsense study p. 94, CBE Decoder here, similar results in Texas).



"The only way to achieve the required NOx reductions is through extensive use of zero emission technologies across all stationary and mobile sources." -- 2022 S Coast AQMP Ex. Summ.



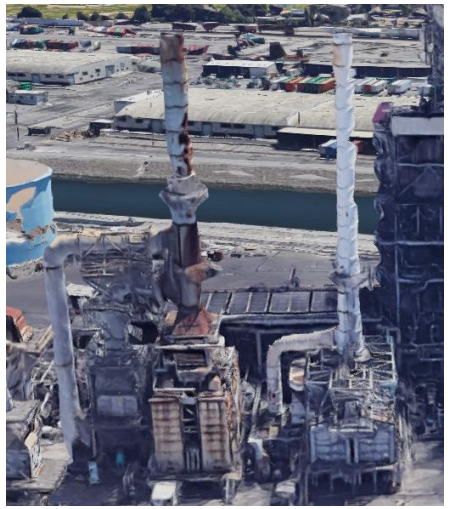
For decades we have worked for and won emission controls, one piece at a time, through Clean Air Act requirements, as well as safety measures

STORAGE TANKS VOCs, Benzene, more (domes, seal & leak standards, vapor recovery, monitoring, more

MARINE LOADING (vapor recovery for tankers)

FUGITIVES (tight leak standards, monitoring)

BOILERS & HEATERS (NOx) - Selective Catalytic Reduction



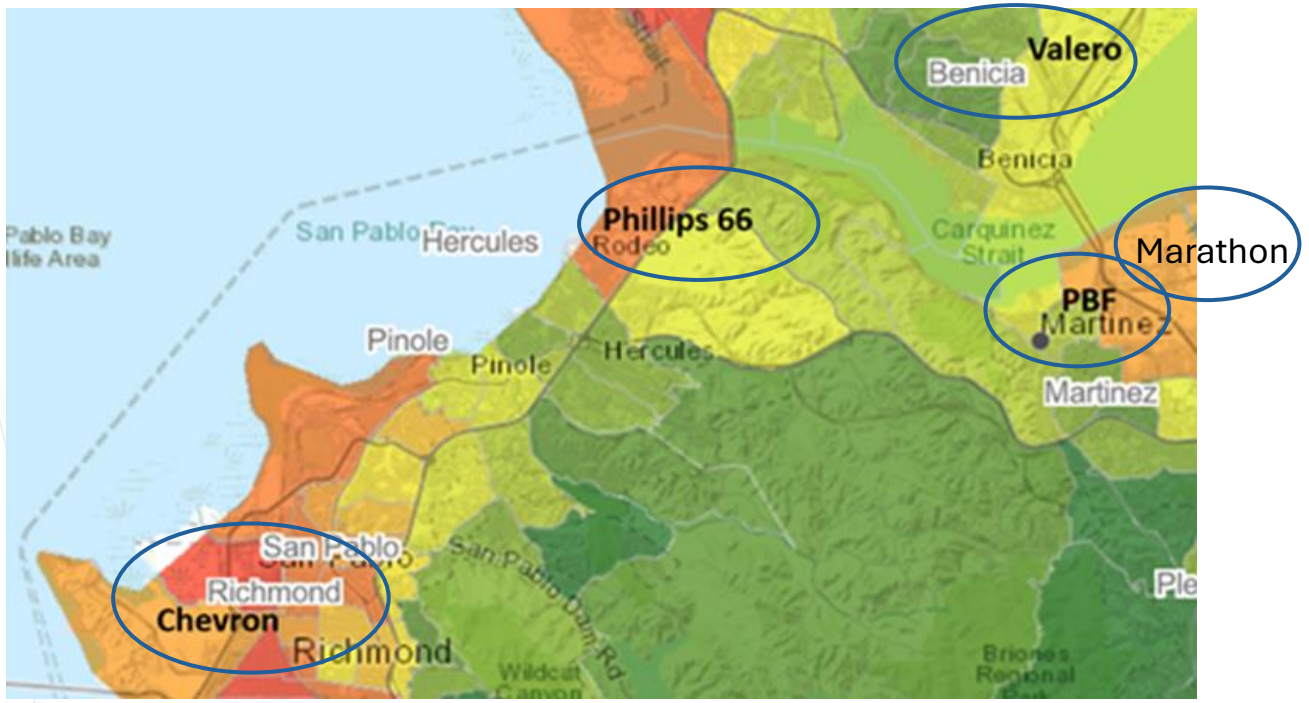
FLARES (SOx & VOCs) compressors, accident prevention, more

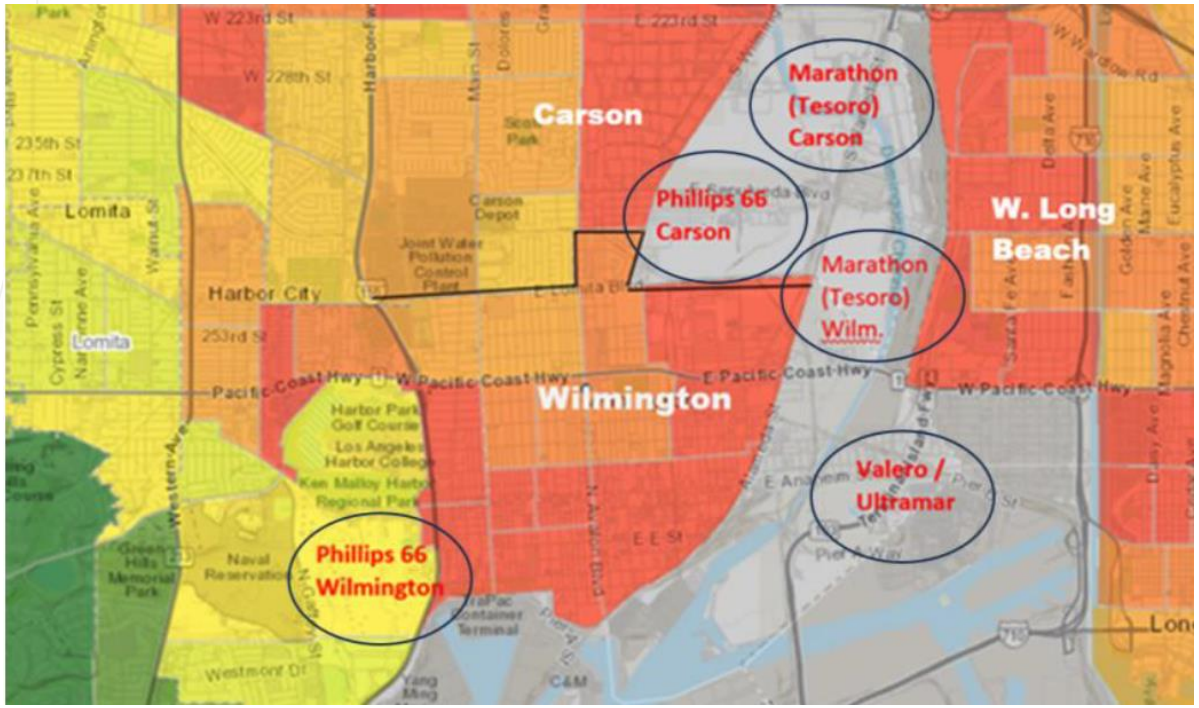
No surprise - Refinery communities endure Environmental Racism

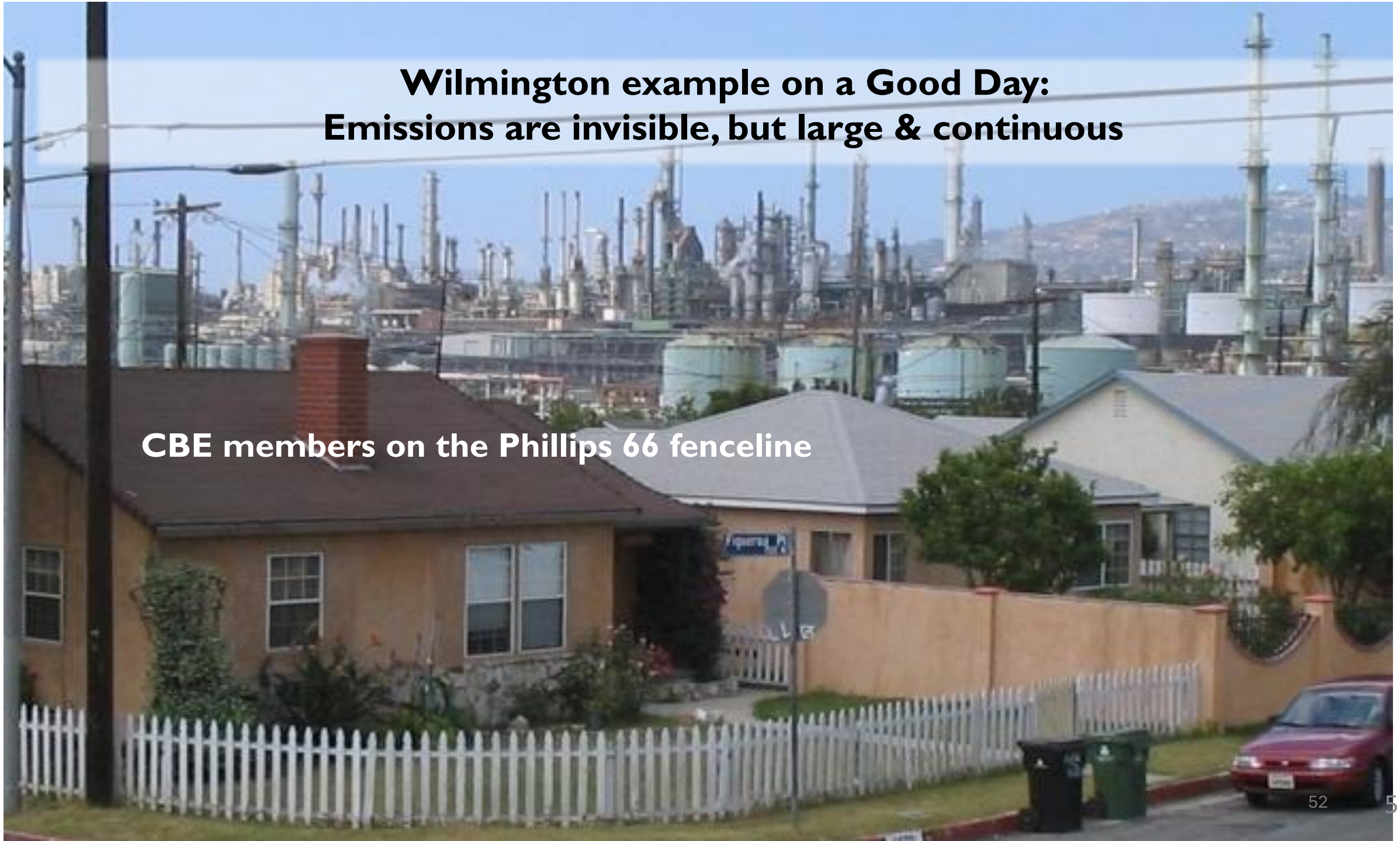
CalEnviroScreen shows:

Most census tracts near refineries are communities of color, low income, and have **highest percentile exposures to Toxic Releases and Overall vulnerability (most over 90th percentile worst in state).**

Black, brown, indigenous communities get the worst impacts.

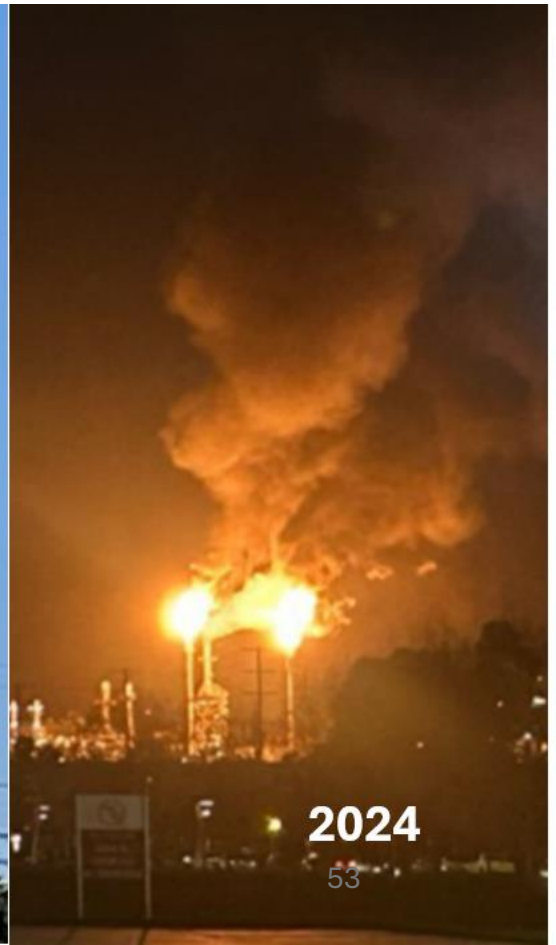




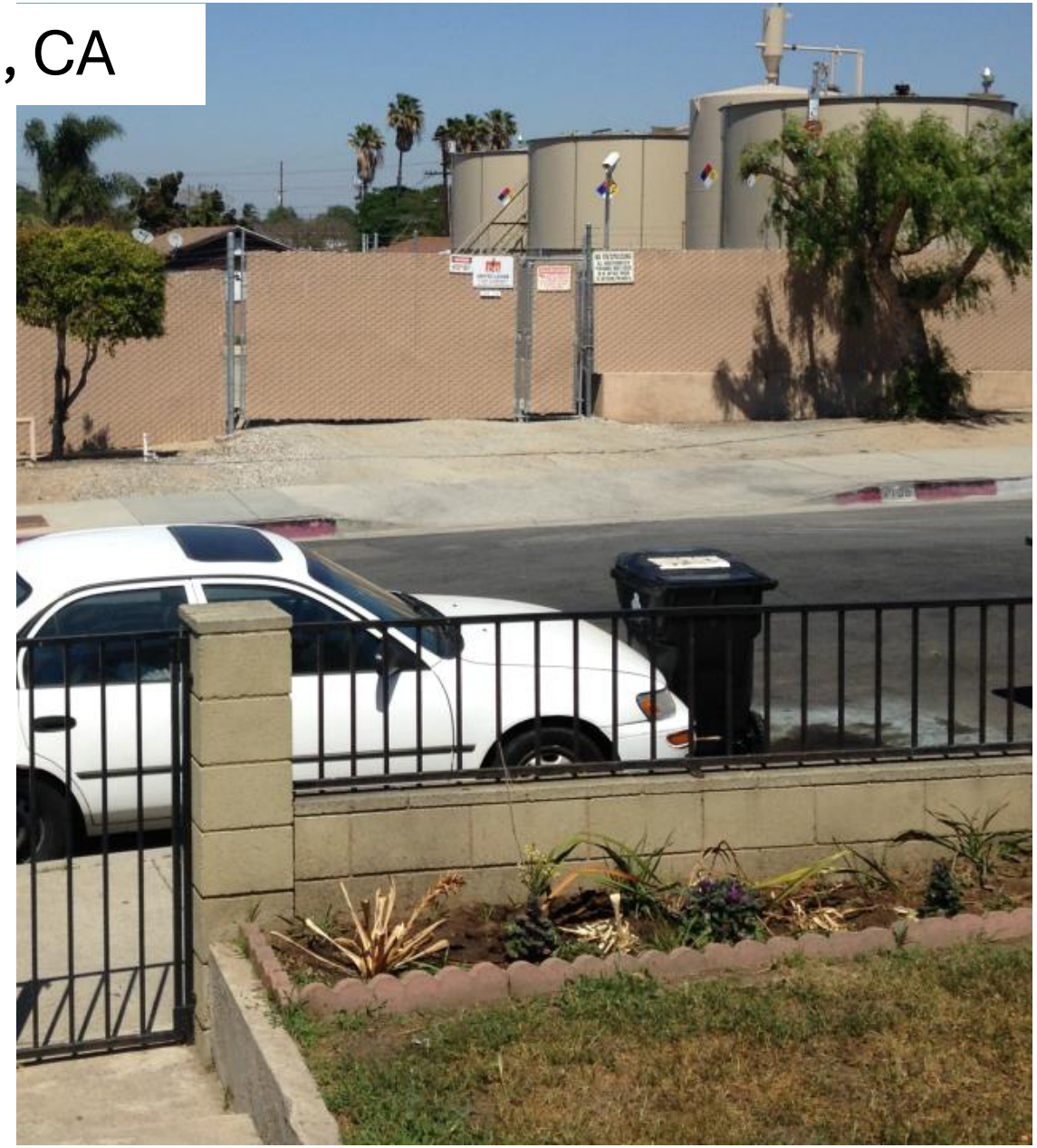

Wilmington example on a Good Day:
Emissions are invisible, but large & continuous
CBE members on the Phillips 66 fenceline

52

Wilmington example on Bad Days: spills, fires, flaring
(photos by CBE & our members).
Phillips LA's neighbors are not sorry to see the Refinery go,
though they want a Just Transition.



Oil Drilling in West Wilmington, CA




Statewide dangers living next to refineries – Dirty, antiquated energy


CSB

Last few years, with APEN & CEJA partners, **we won two steps to start a *gradual* Refinery phaseout PLAN,** before the Oil Industry instigated recent chaotic, disruptive closures.

Scoping Plan

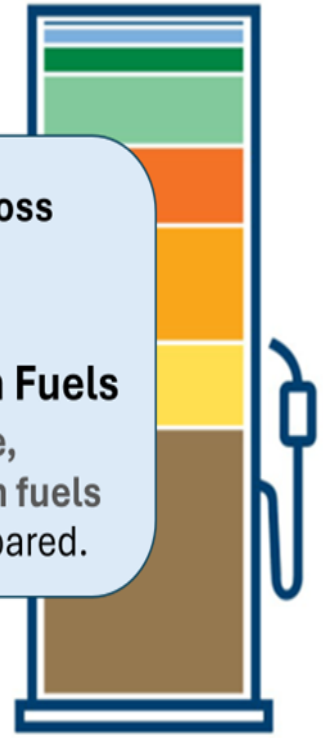
To manage phasedown of petroleum refining and oil extraction toward declining in-state demand . . .

". . . a multi-agency discussion is needed to . . . plan for the transition to ensure that it is equitable." p. 101

SBX1-2

1) **Stop Price Gouging:** **"set a maximum gross gasoline refining margin"** and penalty for excessive profits.

2) **PLAN PHASEOUT:** **a Transportation Fuels Transition Plan -** reliable, safe, equitable, affordable transition away from petroleum fuels in line with declining demand – must be prepared.



1

SAFETY framing – local & global safety requires Fossil Fuel Phaseout (stopping explosions also keeps sufficient supply available when needed)

2

Begin **REGULATION to lower emissions & production gradually**, instead of chaotically

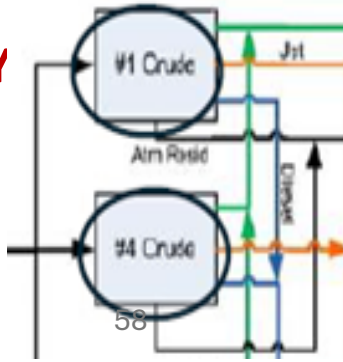
3

Expand programs to **CUT DEMAND for gasoline & diesel**

4 **SMOOTH lowering of refinery production**

- **Balance EXPORTS & IMPORTS**
- **Gasoline RESERVES** ahead of maintenance shutdowns

- **PARTIAL REFINERY SHUTDOWN PATHWAY** shuttering duplicate units first, avoiding premature whole-refinery closures



LOCAL ORDINANCES for transition need to be stronger,

with more Community & Worker input

- **Phase out polluting land uses** (eg re-adopt LA's Oil Drilling phaseout)
- **Land and water cleanup after phaseout**
- **Polluter Pays into transition funds** ahead of time
- **City and County of LA transition ordinances and policies** on closure to support Workers & Community

COMMUNITIES WANT A CLEAN ECONOMY

● Green energy & good jobs, ● Grocery stores, ● Restaurants,

● Green spaces, ● Adequate housing, ● Clean soil, water, and air,

● Walkable communities, ● Inclusion in decision-making for new projects,

● No polluting projects.

COMMUNITIES
FOR A BETTER
ENVIRONMENT
established 1978

Jodie Muller

WSPA

Guiding Principles

- Attempting to micromanage our fuel inventories ***will not solve*** California's structural fuel supply challenges in a complex market
- Inventory mandates could create supply shortages, increase costs, complicate operations, and ***lead to higher* gas prices**
- ***Foster a business-friendly environment*** to invest in refining assets to benefit consumers:
  - avoid mandates – especially if it compromises safety
  - avoid & remove rules that increase costs
  - avoid & remove policies that risks investor confidence
  - reduce permitting thresholds and timelines for system improvements

Ryan Cummings

Economic Perspective of Issues in CA Gasoline Markets

STANFORD INSTITUTE FOR ECONOMIC POLICY (SIEPR)

RYAN CUMMINGS

09/24/2025

Refinery Closures

Three buckets important buckets to analyze

1. Workers

2. Communities

3. Prices (consumers)

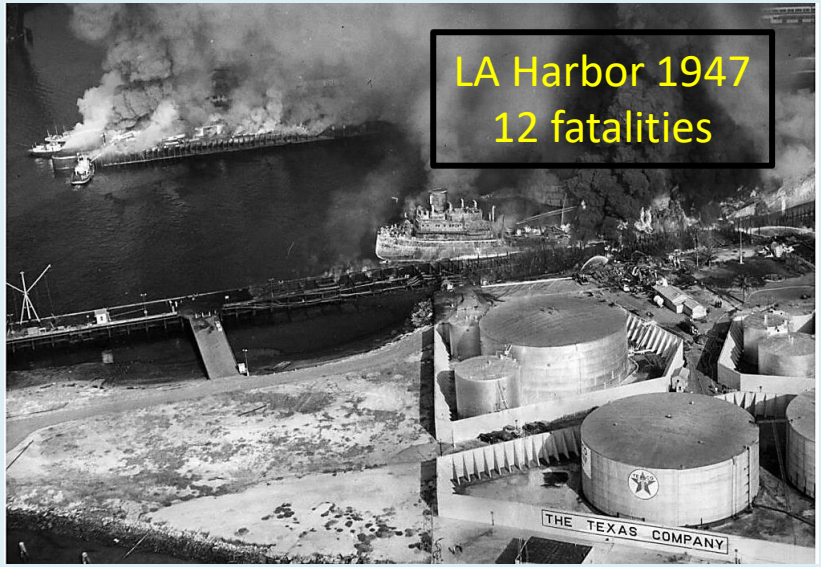
- Analysis by Stanford colleague Neale Mahoney and I focuses on (3)
- Refinery closures, ***during "normal times" and conditional on updating infrastructure***, are likely not meaningful for prices in the long-run
  - Why? Prices are set *at the margin*
  - Right now, marginal barrel of gasoline is already imported
  - If marine import capacity ↑ as in-state capacity ↓, then additional price impact is minimal
- Important to handle buckets (1) and (2) through **buyouts to workers and/or grants to communities, not paying out refinery shareholders**
  - More efficient to go to source of distress, not "trickle-down" through firms

Minimum Inventories

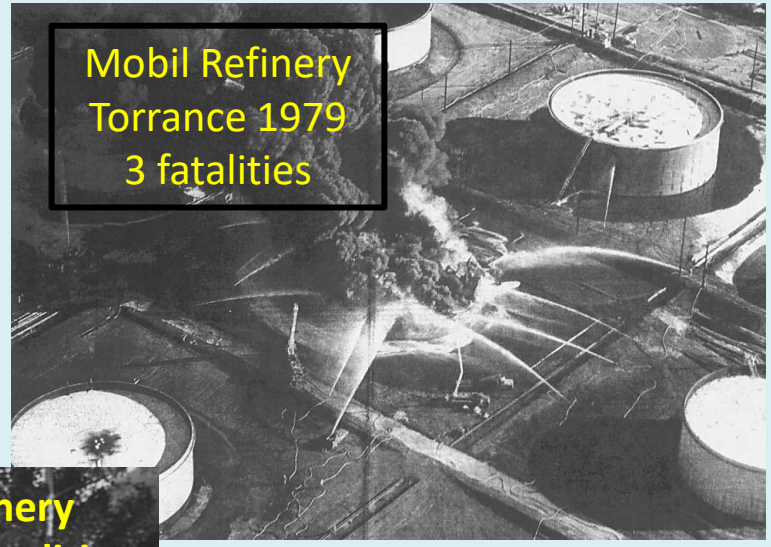
- Refinery closures **do** matter for prices during ***periods of disruptions***
  - W/ less refineries, CA consumers more exposed to shutdowns
- Robust inventories help smooth these spikes, but refiners lack the proper incentives to have them; the economics is clear:
  - When a refinery goes (unexpectedly) offline, prices spike.
  - Unaffected refiners' costs do not increase by as much as retail prices, so result is **higher refiner profits**
  - This leaves refiners with **incentive to hold low inventories** during normal times.
    - Why? Selling into a price spike cannibalizes profits.
  - As a result, a 3rd party (the regulator) must require adequate inventories to be held.
- There is likely a **small, one-time, and depending on design/phase-in, negligible cost** to implementing the requirements
  - Any cost has to be weighed against the costs of spikes; a $0.20/gal↑ in prices for 1 week➔$50-60M in extra costs at the pump for consumers.
- Questions relevant for policymakers: how big should requirement be, how to phase it in, when to release inventories?
- Neale Mahoney, Chris Xue (Stanford), and I are working on paper using CEC data to explore dynamics of such a policy in the setting of CA gasoline markets

Norman Rogers

Image from the California State University Dominguez Hills Archives Digital Collection




Standard Oil
El Segundo 1967


Mobil Refinery
Torrance 1979
3 fatalities


Arco refinery
Carson; 6 fatalities


Chevron Richmond
2012


ExxonMobil
Torrance 2015


PBF Martinez 2025

Public Q&A

Q&A from the Dais

Public Comments

Zoom:

- Use the “raise hand” feature.

Telephone:

- Dial *9 to raise your hand.
- Dial *6 to mute/unmute your phone line. You may also use the mute feature on your phone.

Zoom/phone participants, when called upon:

- Your microphone will be opened.
- Unmute your line.
- State and spell your name for the record, and then begin speaking.

Limited to one representative per organization.

Three-Minute Timer

Written Comments

Submit written comments to:

- Docket No. **25-OIIP-02**
- Due by **5:00 PM** on **Wednesday, October 8, 2025**.

Closing Remarks from the Dais


CALIFORNIA ENERGY COMMISSION
50 YEARS OF ENERGY LEADERSHIP

Thank you