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Transportation Fuels Assessment: Overview and Presentation of Policies

Quentin Gee, Ph.D.
Energy Assessments Division
May 3, 2024

Acronyms, Initialisms, and Notes

AATE 3 – Additional Achievable Transportation Electrification Scenario 3

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

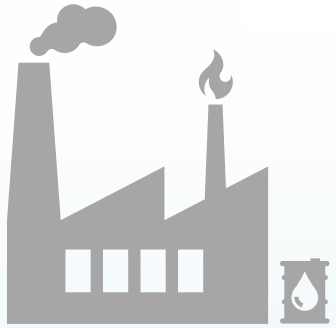
ZEV – Zero-Emission Vehicle

Note: Unless otherwise indicated, CEC staff developed all charts, data, and tables.

SB X1-2 Implementation Activities

Data Collection & Monitoring (started on June 26)

Market Manipulation Analysis (to be developed under DPMO)



Refinery Maintenance Monitoring (started on June 26)

Refining Margin Establishment and Penalty Determination (in progress)

Transportation Fuels Assessment

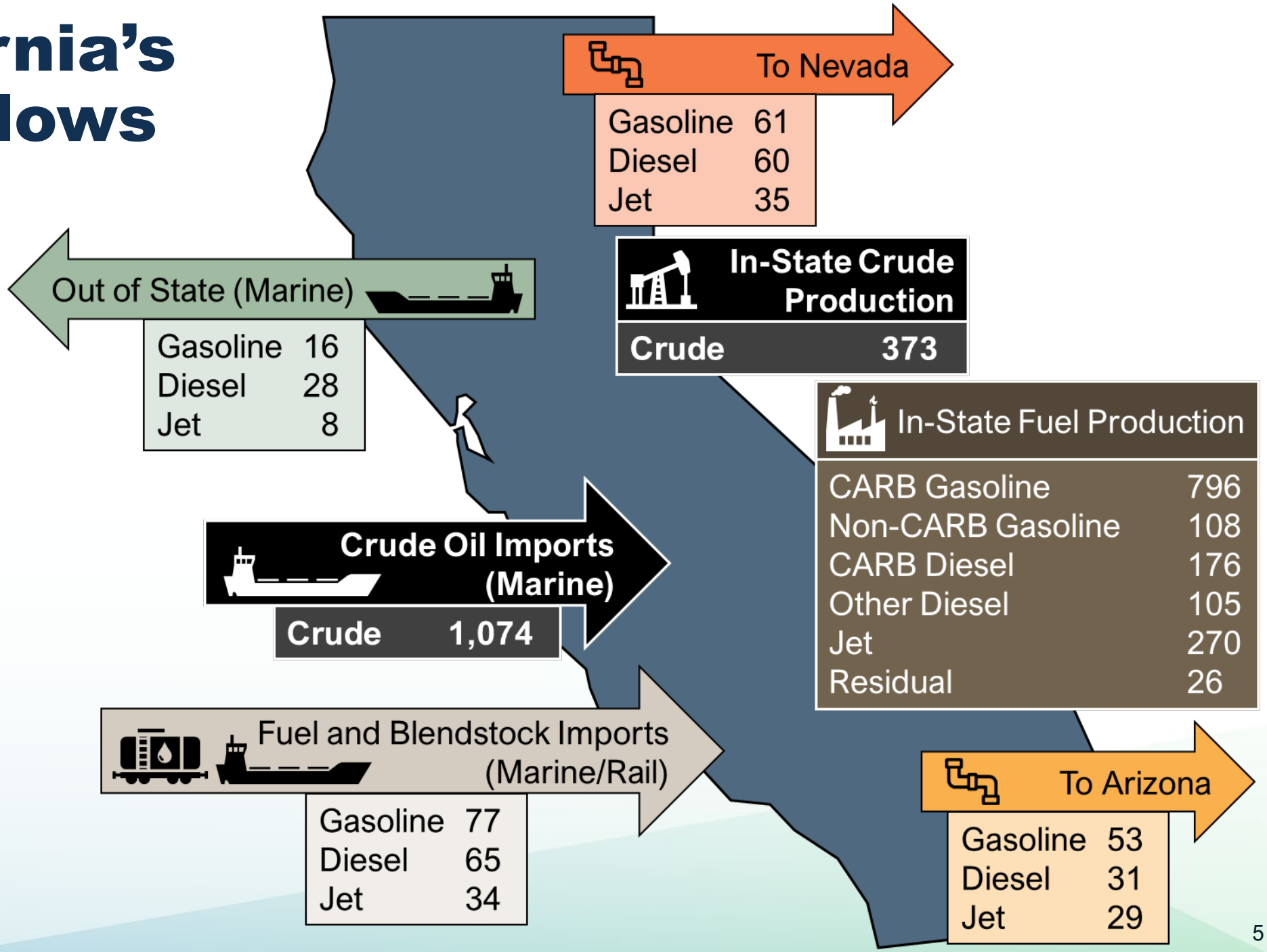
Today's Topics

Fuels Transition Plan (in development with CARB)

The Transportation Fuels Assessment

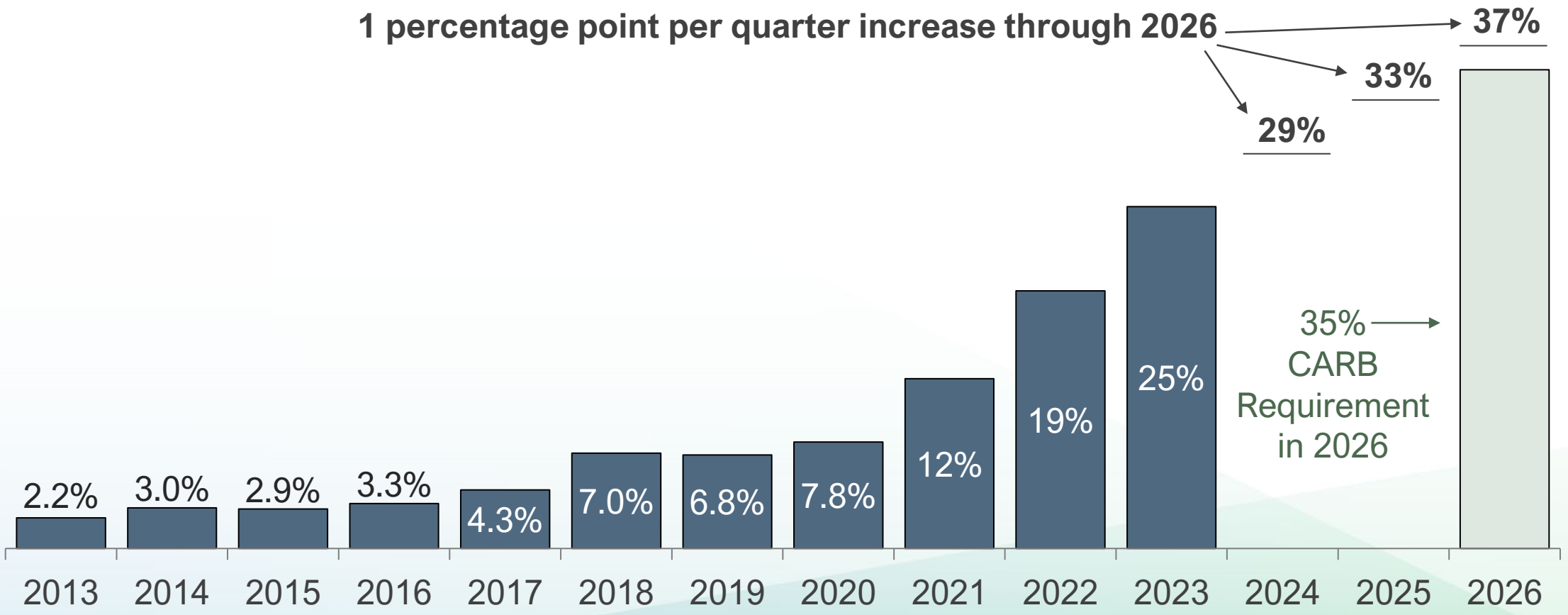
California's Fuel Flows

California has a complicated and dynamic fuel market of inflows and outflows of crude oil and refined petroleum products. An average TBD is used in the assessment and represented here.



ZEV Adoption is Expected to Align With or Surpass Regulations

Percent of New Vehicle Sales that are ZEVs

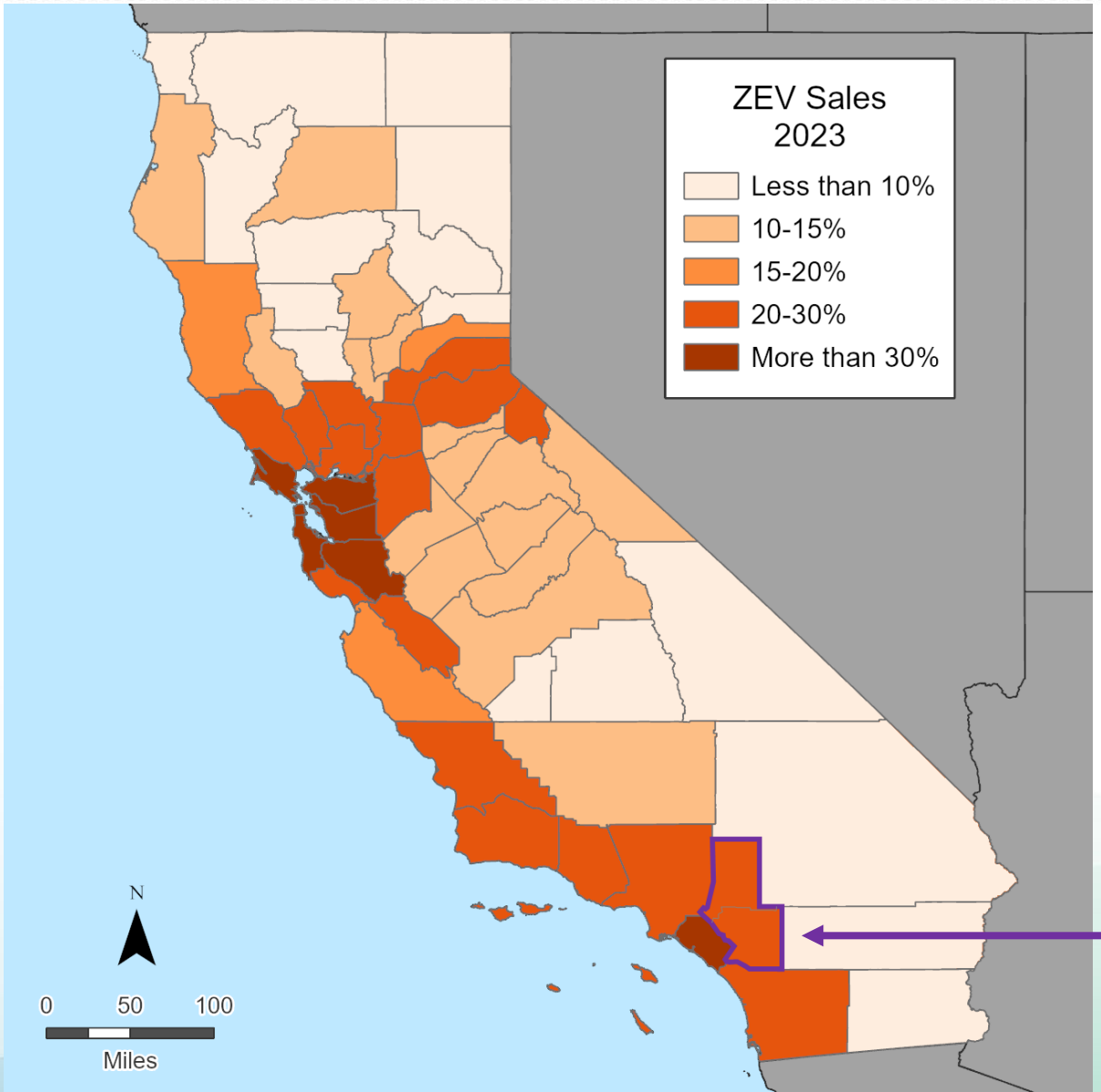


Credit: CEC Staff, DMV

ZEV New Sales Share by County

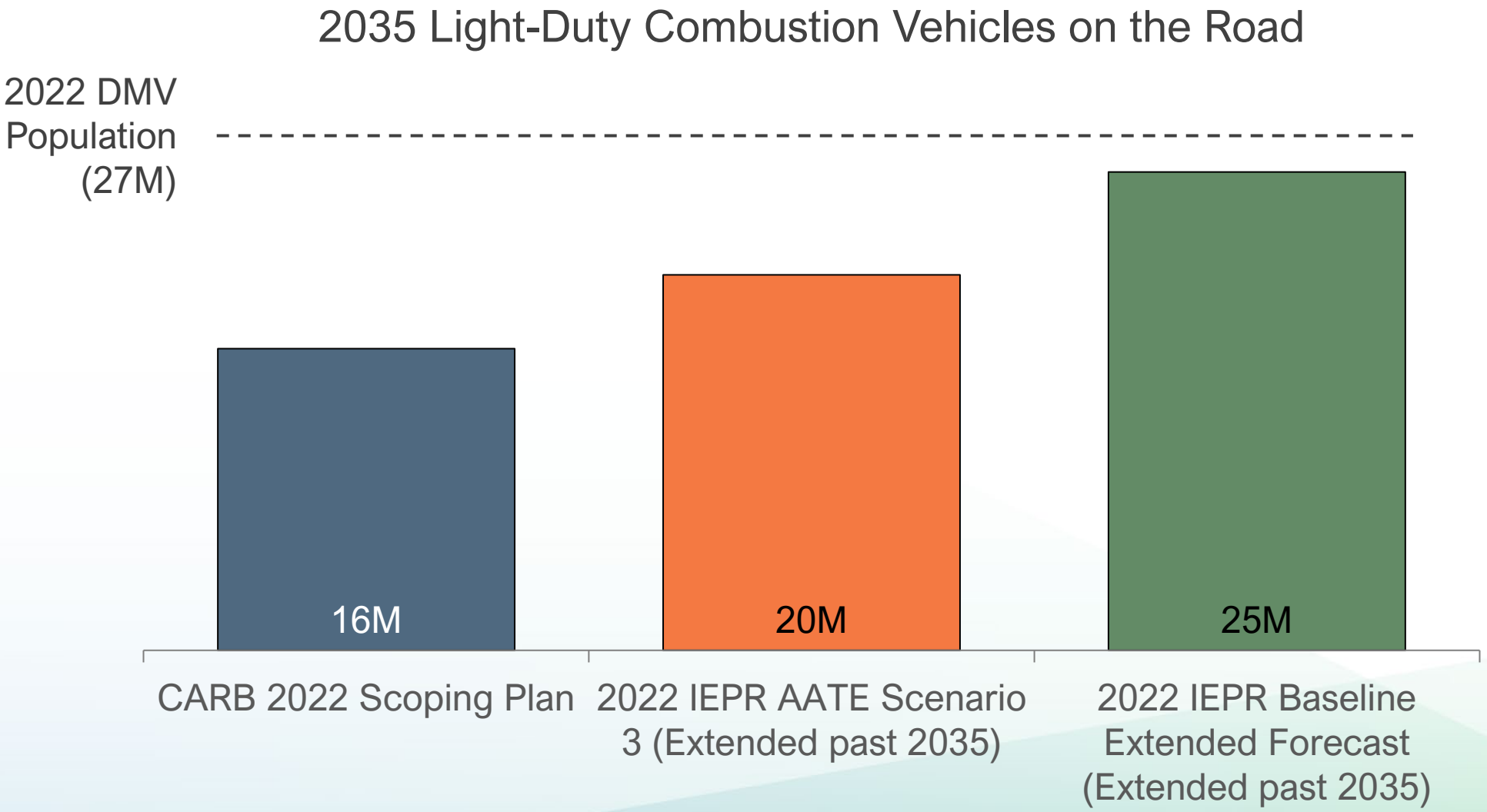
Statewide Average Zero-Emission Vehicle Share of New Sales for 2023

25%

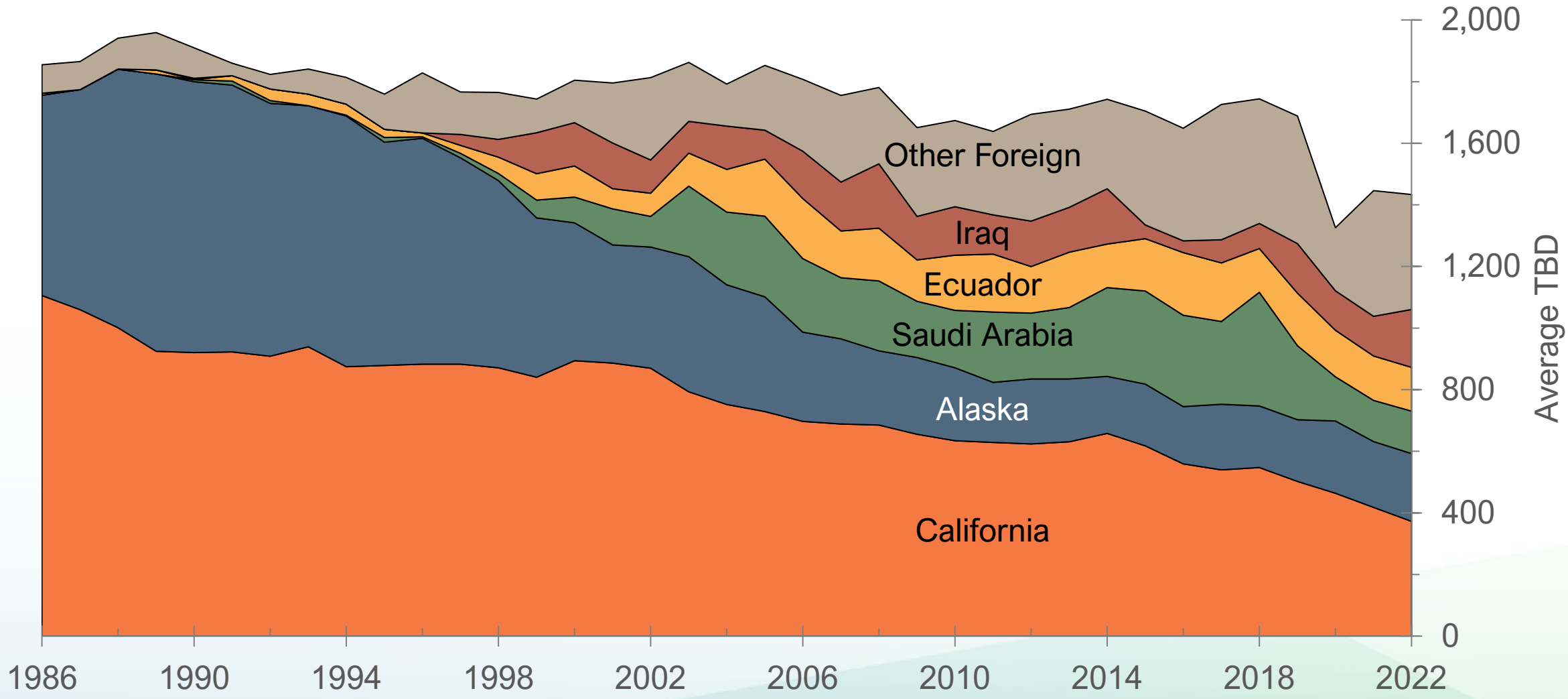


Note: Riverside and San Bernadino Counties modified to represent increased geographical concentration in the western portion of each county

Combustion Vehicles will Phase Out but Need Fuel for Decades

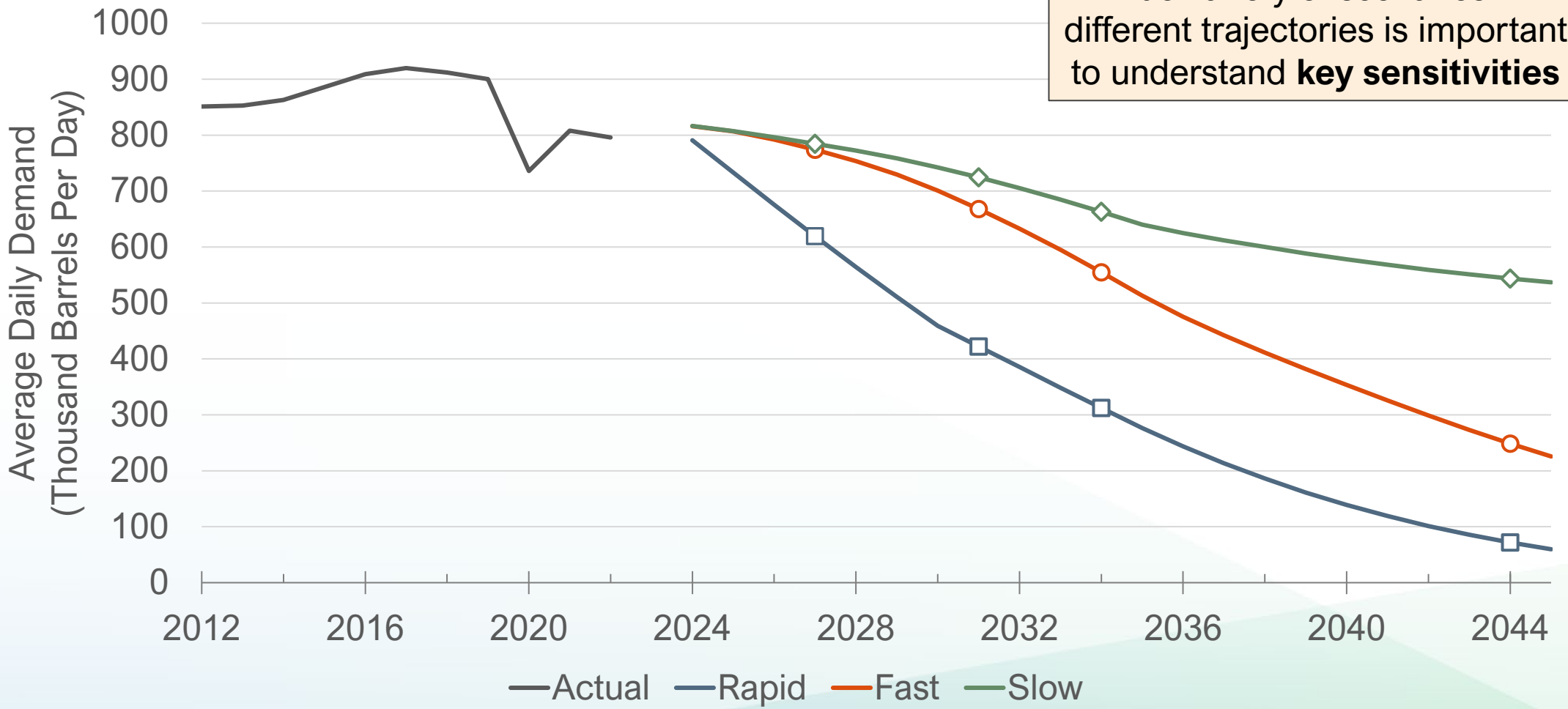


Long-Term Trends in Crude Imports

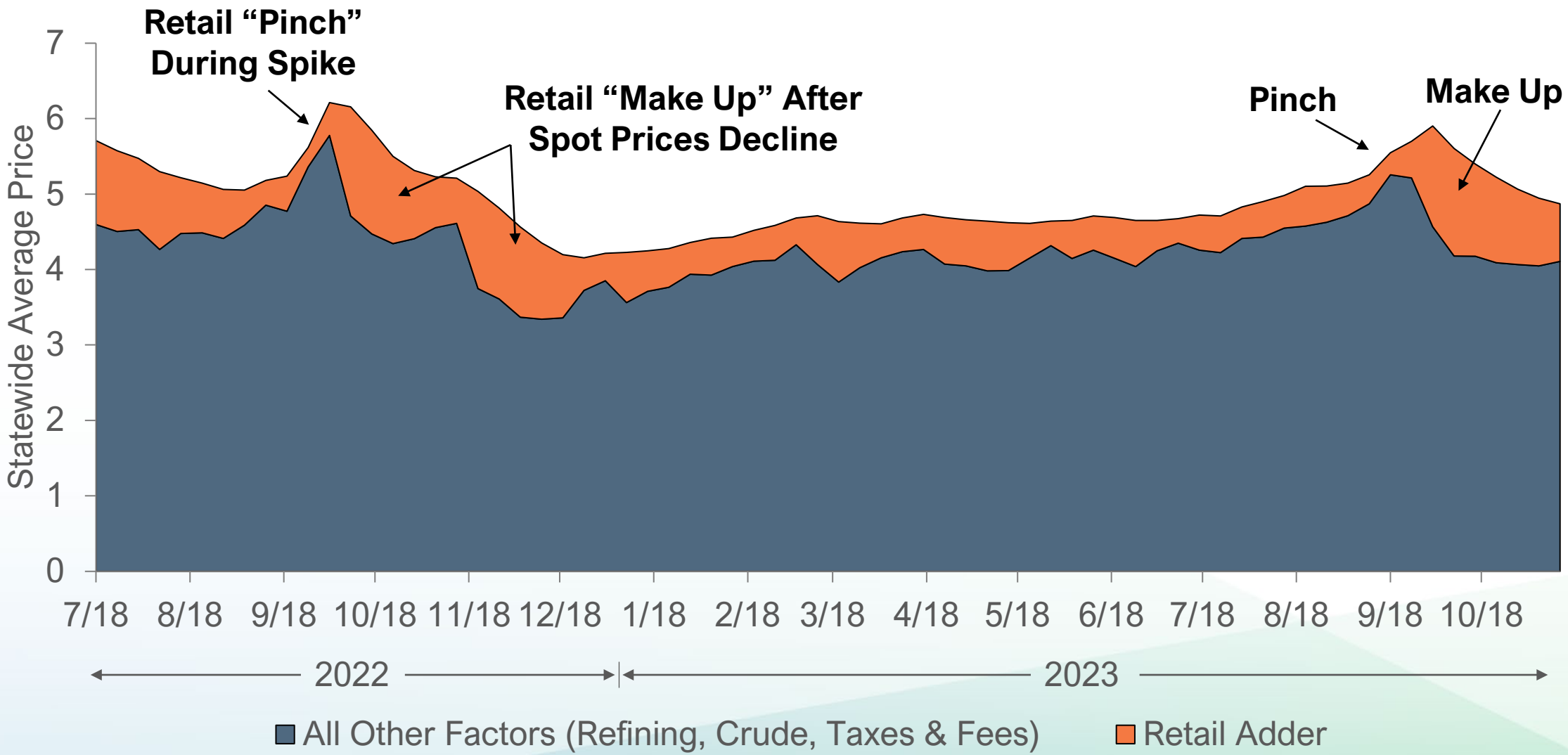


Gasoline Demand Scenarios used in the Assessment

A wide variety of scenarios with different trajectories is important to understand **key sensitivities**



Retail Dynamics

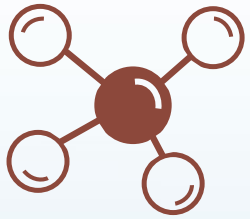


“A reliable supply of affordable and safe transportation fuels in California”

Price Spike Risk Management

Refinery Dynamics

Regional Market Concentration

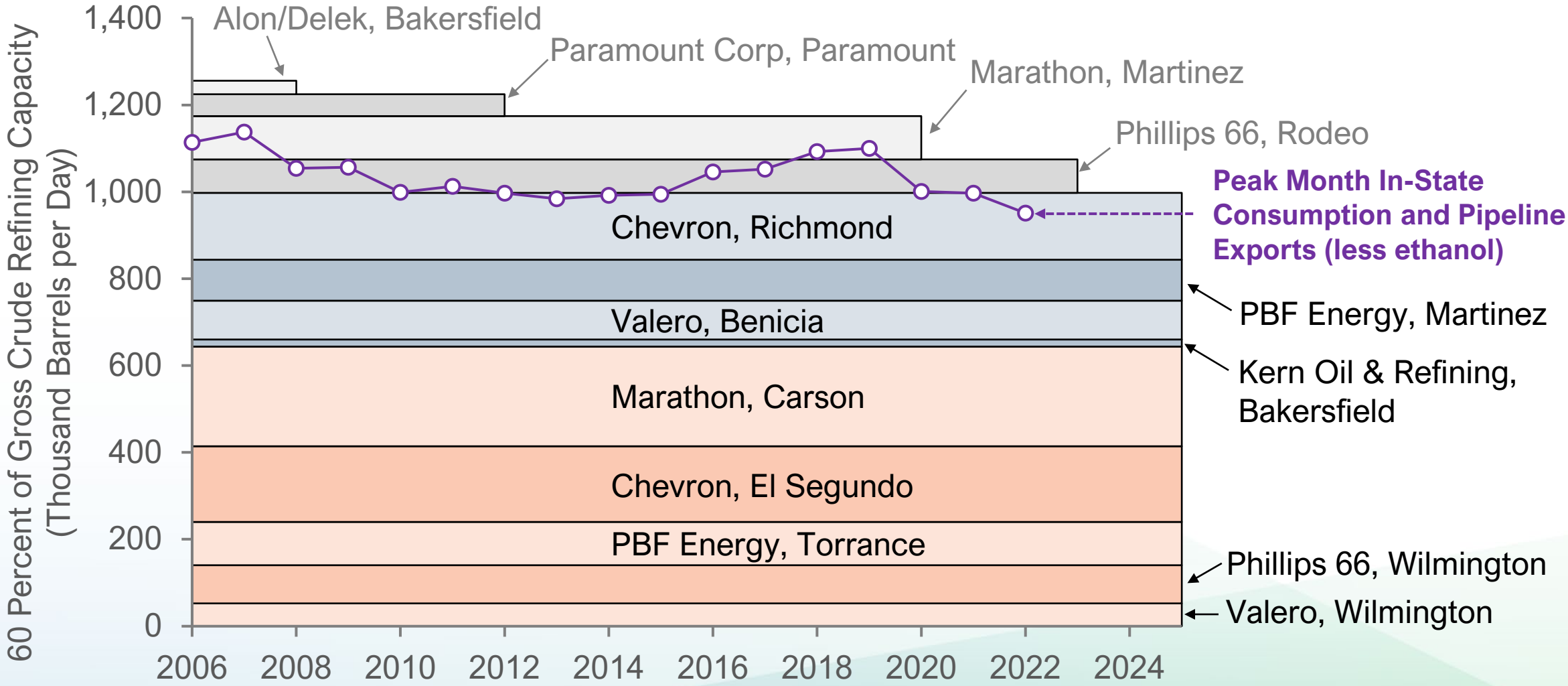


Fuel additives

Branded and unbranded fuels

Multiple interval considerations for demand:
3-year
7-year
10-year
20-year

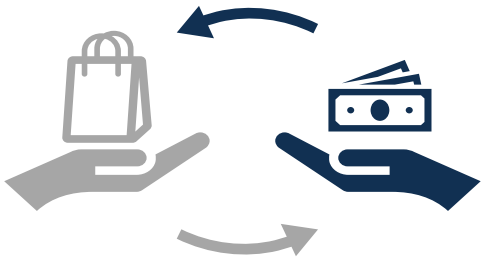
Estimated Gasoline Refinery Capacity



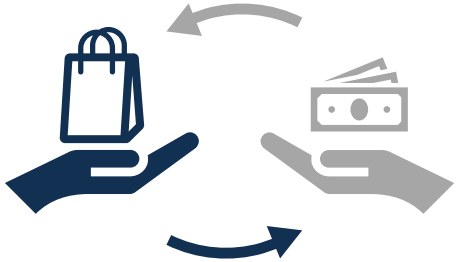
Source: CEC Staff, CDTFA

Framework for a Reliable, Safe, Affordable Supply

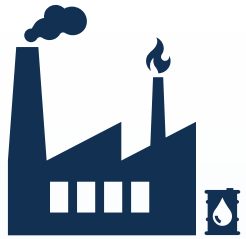
Strategy



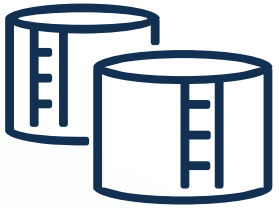
Demand



Supply

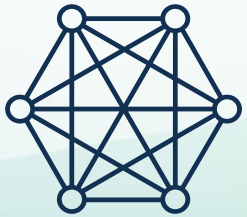


Production



Storage

Imports



Highly Complex

Moving Forward

Balance Considerations

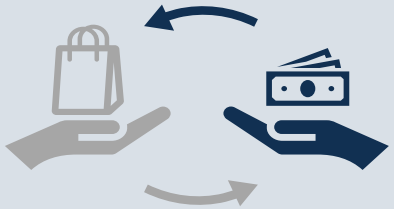
1. Fiscal implications
2. Regulatory obligations/limits
3. Support/change of perception of support/departure from state policies

Next Steps

- CEC will work with CARB and DPMO on a prioritization plan for the recommendations in the assessment, also considering stakeholder feedback

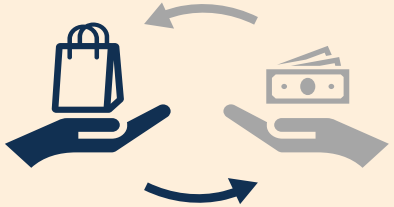
Option Summary

1. Enhanced ZEV Access
2. VMT Reduction Strategies
3. Fuel Conservation



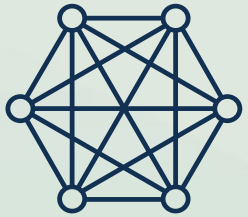
Demand Strategies

4. Storage Strategies
5. Production Enhancement Strategies
6. Alignment of Gasoline Specifications for Western States
7. Import Strategies



Supply Strategies

8. Gas Price Stabilization Fund
9. Cost of Service Model
10. State-Owned Refineries
11. Retail Margin Management



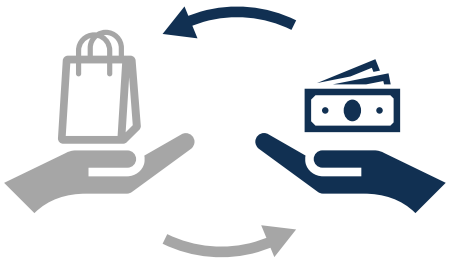
Highly Complex Implementation

12. Railcar Replenishment

Other

1. Enhanced ZEV Access

Accelerate ZEV adoption with State incentives that are equity focused.



Demand Strategy

Pros

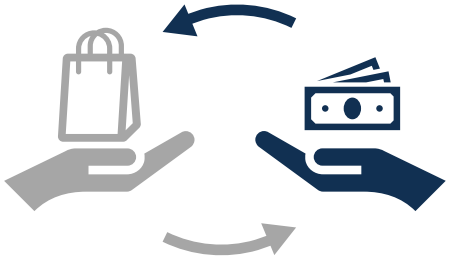
- Potential increase in demand elasticity, reducing the impact of supply shocks.
- More ZEVs on the road will lead to less gasoline consumption.
- ZEVs have no tailpipe emissions and higher adoption will lead to lower emissions.

Cons

- Programs can become over-subscribed if they do not continue to receive an infusion of appropriated state funding.
- ZEV adoption does not reduce VMT, which may have negative impacts on congestion.

2. VMT Reduction Strategies

Develop statewide policies to increase infill and mixed-use development, create more transportation-efficient locations, and build a TDM framework.



Demand Strategy

Pros

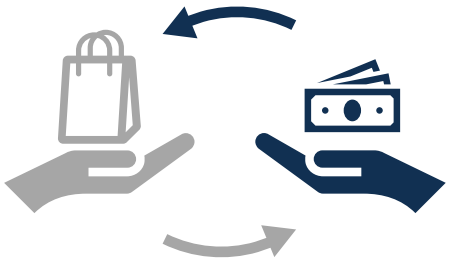
- Infill and mixed-use development may promote VMT reduction and in turn reduce gasoline consumption.
- Potential increase in demand elasticity, reducing the impact of supply shocks.
- TDM could lead to increased transit usage and remote work, reducing gasoline consumption.

Cons

- Unclear total reduction of demand in response to supply shocks.
- Some areas are not amenable to high density, so price spikes may continue to affect some regions.
- High transit usage is historically only seen in dense communities.
- May not be feasible for less dense and more rural communities.

3. Fuel Conservation Measures

Develop and implement tools to encourage fuel conservation.



Demand Strategy

Pros

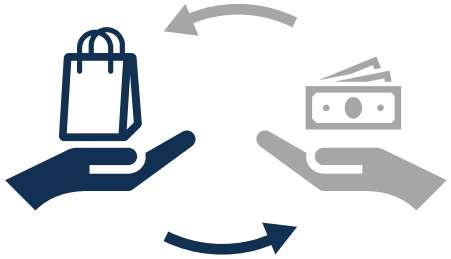
- A marketing, education, and outreach strategy is a low-cost option to call for voluntary conservation to reduce gasoline consumption.
- Potential increase in demand elasticity, reducing the impact of supply shocks.

Cons

- Unclear total impact in terms of reducing demand in response to supply shocks.
- Could spur panic buying, increasing demand, and exacerbating the price spike.
- May not be feasible for less dense and more rural communities.

4. Storage Strategies

Storage strategies will help maintain an adequate buffer supply that can allow for a short-term boost to overall supply and mitigate cases of supply shock.



Supply Strategy

Pros

- Additional storage and mandated minimum stocks will provide a quickly available reserve, potentially mitigating short-term price spikes.
- Utilizing existing storage reduces stranded risk asset.
- Existing storage has existing logistical pathways for rapid distribution.

Cons

- Stock minimums may create shortages in downstream markets.
- Could increase in average prices for to maintain additional storage.
- If the state builds additional storage, there is the risk of stranded assets.
- Rotation of fuel for RVP purposes may increase costs.

5. Production Enhancement Strategies

Production enhancement covers several distinct approaches but look to increase the supply of gasoline by modifications to standards outside any sort of interstate agreement.

Supply Strategy

Pros

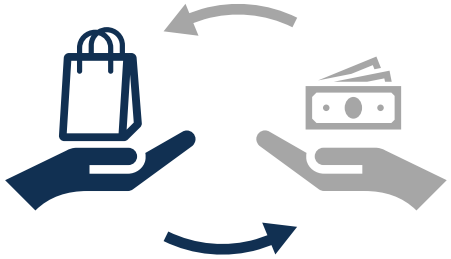
- Likely to lower the price of fuel due to additional supply.
- Increase in supplies during high-risk periods.
- Widespread access to non-CARBOB gasoline in stock or in nearby locations could be used to reduce the spot market price during a supply shock.

Cons

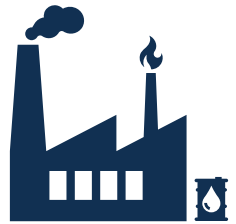
- Increased risk of violation of federal air quality attainment standards and related sanctions or litigation.
- Negative pollution effect and health risks.

6. Alignment of Gasoline Specifications for Western States

Establish a unified gasoline specification for several states in the West.



Supply Strategy



Pros

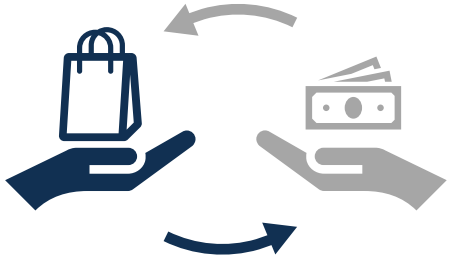
- RVP would remain the same, which means lower risk of increased air pollution.
- Shorter associated import timelines could reduce supply shock effects in California.

Cons

- Legislative or regulatory changes would be necessary.
- With CARBOB being the most difficult to produce, it is possible that the agreed upon specification could lead to a less stringent emissions standard for California.

7. Import Strategies

Import strategies are intended to increase supply directly or indirectly by bringing in fuel from refineries from outside the State.



Supply Strategy

Pros

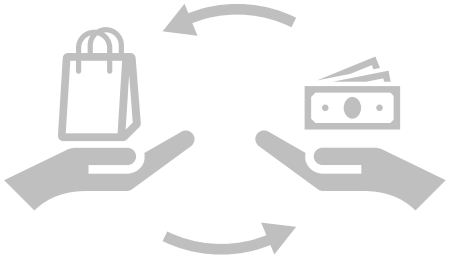
- Provides security during times of increased supply shock risk.
- Increasing total supply could decrease spot prices.
- Incentives to stimulate shipments may result in additional CARBOB fuel arriving in California.

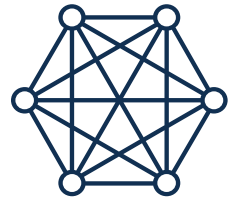
Cons

- Could increase gasoline cost, since importing fuel is more expensive than refining in state.
- Potential high cost to the state if the state were to act as an importer.
- Logistical and financial concerns to continuously import fuel into the state.

8. Gas Price Stabilization Fund

During times of lower gas prices, fees would be levied in a variable manner to then allow for reduced taxes or fees during times of high gas prices.





Pros

- The price of gasoline would be stable throughout the year and less susceptible to price spikes.

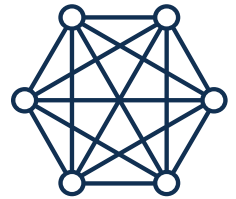
Cons

- Challenging to optimize the extra fees in lower gas price periods to backfill times when gas prices are higher.
- Gas prices may remain consistently high throughout the year and the difference between the average price in California and the average price in the U.S. may widen.

9. Cost-of-Service Model

California would actively regulate the operating rules, prices, and rate of return of the petroleum fuel market.

Supply Strategy



Pros

- The state would have more control over the margins.

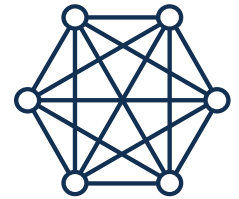
Cons

- Current operators do not have natural or logistical monopolies.
- Challenging to optimize operations and yields due to stricter regulatory environment.
- Unclear how this would control trading parties.

10. State-Owned Refineries

The State of California would purchase and own refineries in the State to manage the supply and price of gasoline.

Supply Strategy



Pros

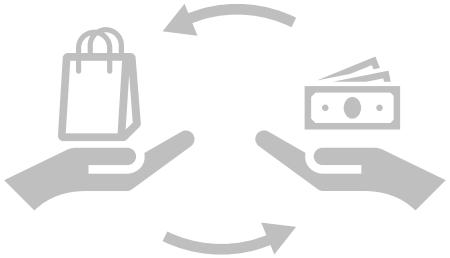
- The state would operate a market independent source of production which would eliminate potential market manipulation.

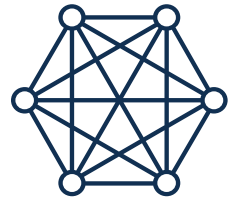
Cons

- High capital costs.
- There are complex industrial processes that the State has no experience in managing.
- Significant legal issues would need to be addressed.

11. Retail Margin Management

Measure, publicize, and potentially manage retail margins.





Pros

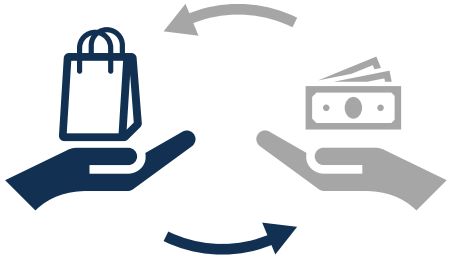
- Linking allowable retail dealer margins to a ceiling can reduce the lag in restoration of retail prices after a spike.
- Transparency may foster faster responses to spot market changes.

Cons

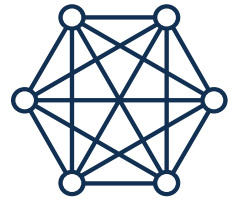
- Retail associations may object to publishing retail margins based on actual data or limiting retail margins.
- Price caps do not have a history of effective implementation.

12. Railcar Replenishment

Use railcars to provide CARBOB or Conventional BOB to California.



Supply Strategy



Pros

- Option for additional supply of finished fuel or blendstocks.
- May be faster than marine movements from the Gulf Coast.

Cons

- Limited locations to load unit trains of gasoline or blendstocks at Gulf Coast refineries.
- Limited locations in CA to offload.
- Timing concerns of loading and unloading may limit the effectiveness.

Thank You!

Questions from the dais?

Quentin Gee, Ph.D.
Energy Assessments Division
quentin.gee@energy.ca.gov