AGENDA: 11

Authorization to Execute Contract Amendments for Production System Office

Board of Directors Meeting
September 16, 2020

Blair L. Adams
Information Systems Officer

Key Objective: 1

- Legacy System Deprecation
  - Permitting and Compliance
  - Business Process Reengineering
  - *In-Sourced* Support Model

Key Objective: 2

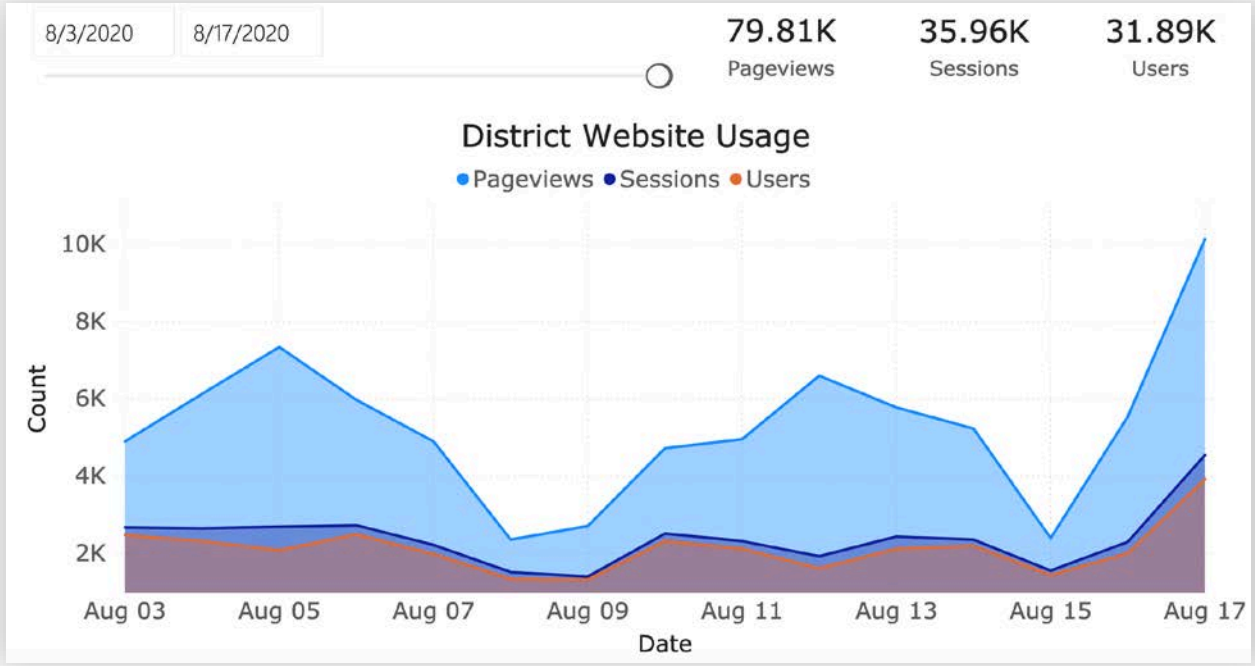
- Public Web Presence
  - Secure, Reliable Information (Pull)
  - Proactive Digital Notifications (Push)
  - Equity (i.e. 508, Languages, Data Access)

Key Objective: 3

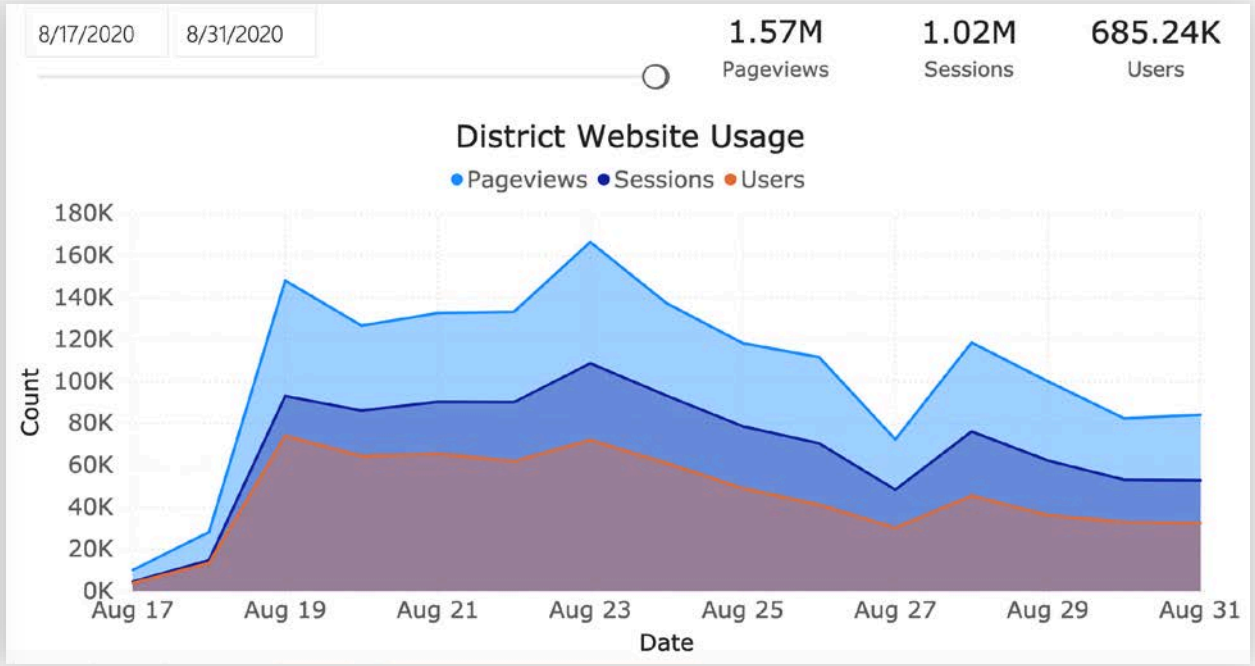
- Unified Digital Payments
  - Grow Online Payment Adoption
  - Payment Reconciliation Governance
  - Expand to both Inbound and Outbound

Website Usage Metrics

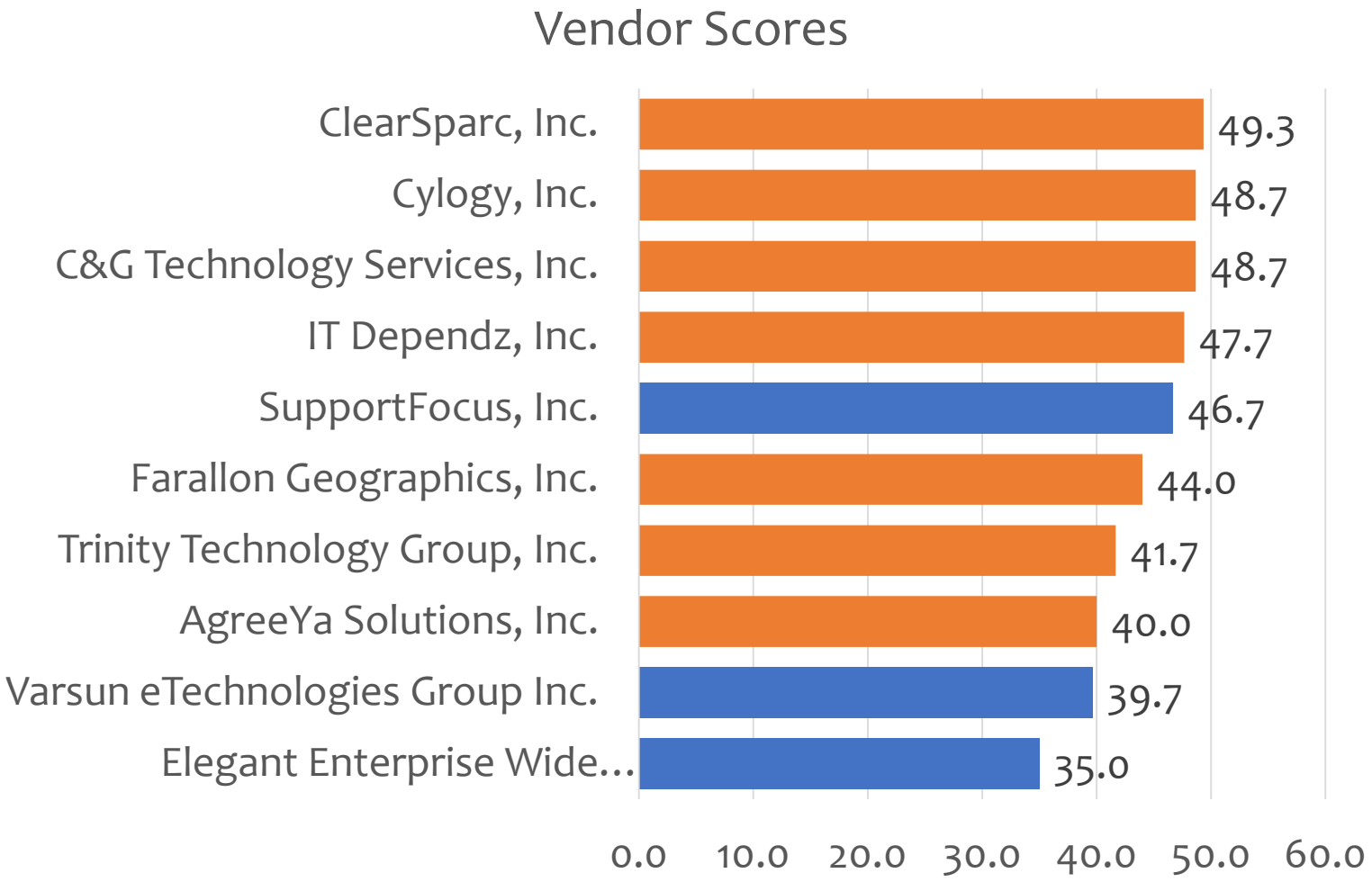
BEFORE WILDFIRES

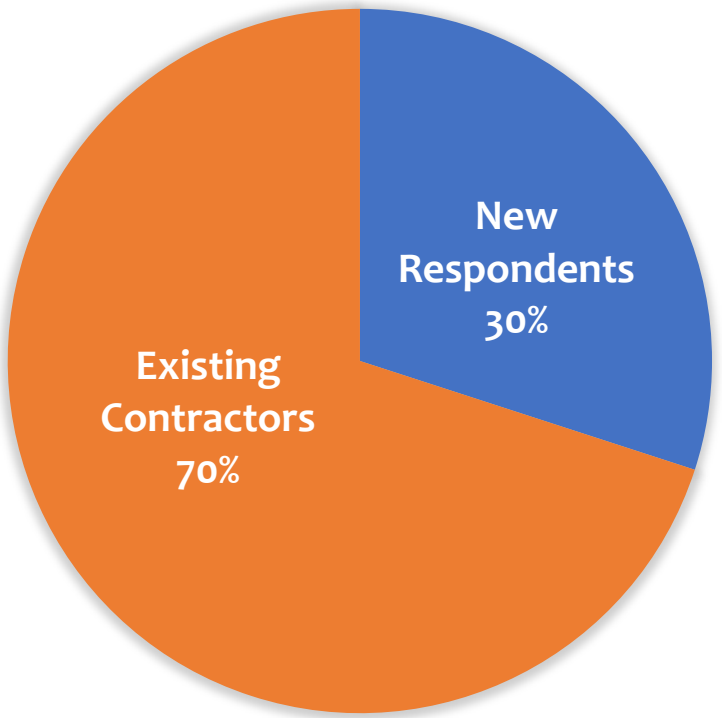


DURING WILDFIRES

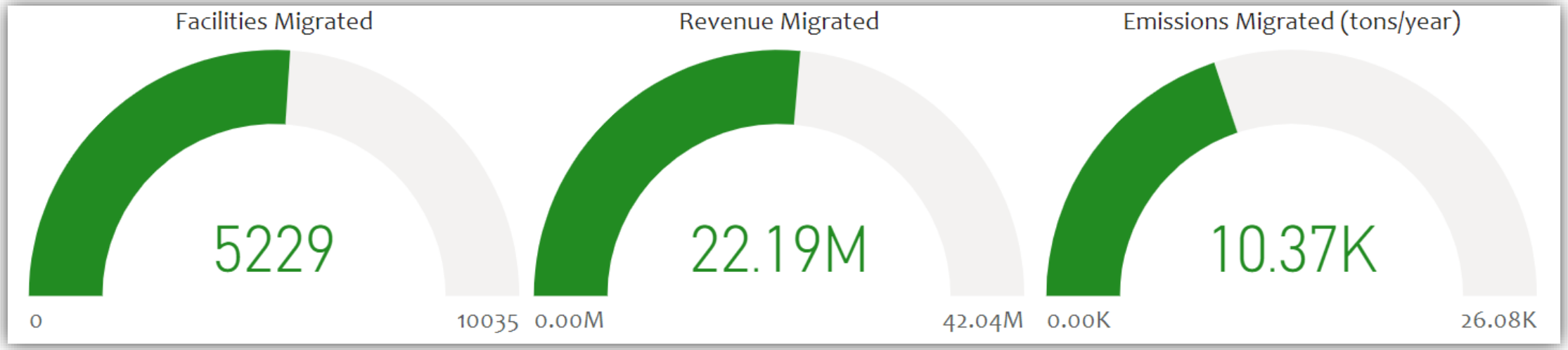


Request for Quotation: Results

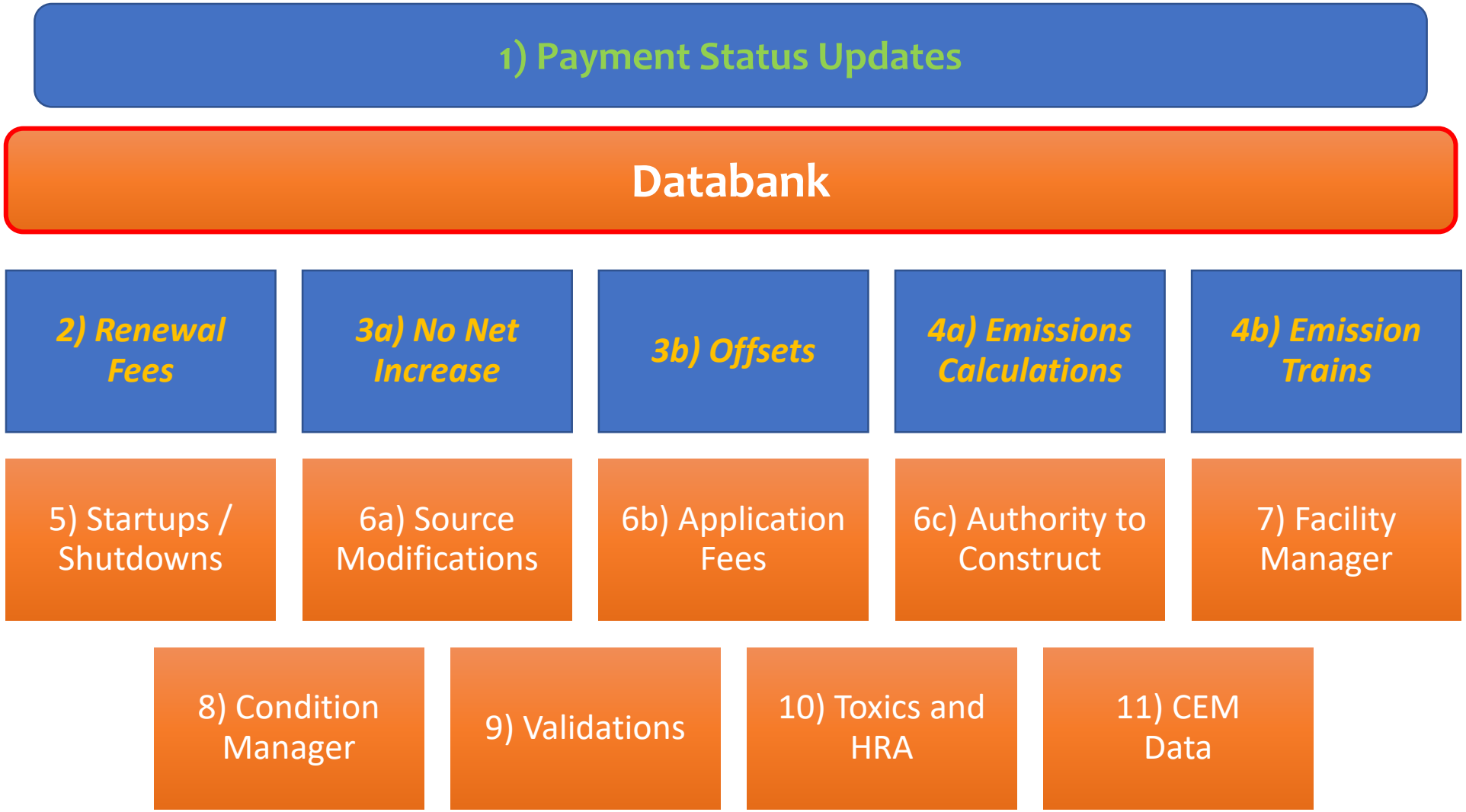




Triple Bottom Line Metrics (People, Profit, Pollution)



Remaining Features: Databank



Remaining Features: IRIS

Ingres Relational Information System (IRIS)

1) Stipulated Abatement Orders	2) Data Transfer	3) Financial Integration	4a) Notice of Violation	4b) Notice to Comply
5) Complaints Workflow	*6) Reports (IRIS)*	*7) Invoice Automation*	*8) Permit Automation*	9a) Radio Telephone Operators (Dispatch)
9b) Area Assignment	9c) Compliance Verification	10) Mutual Settlement	11) Reportable Compliance Activities (Episodes)	12) Permit Applications
13) Transfer of Ownership	14) Hearing Board			

AGENDA: 17

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Update on Wildfires and Air Quality

Board of Directors Meeting
September 16, 2020

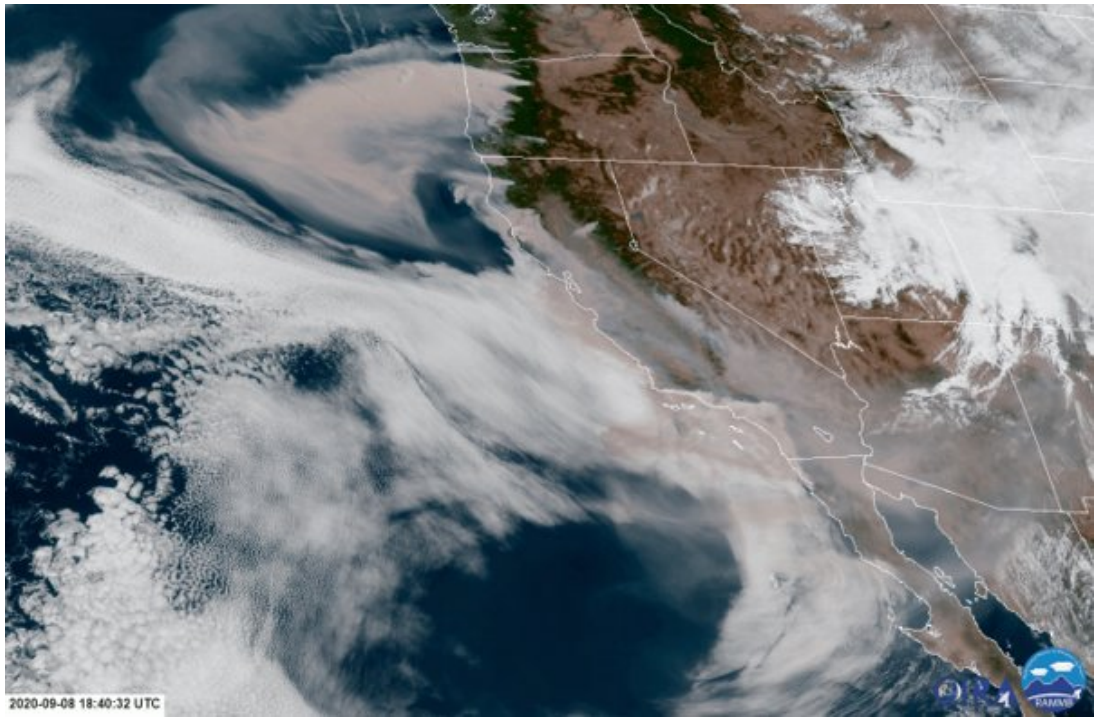
Wayne Kino, Deputy Air Pollution Control Officer
Kristine Roselius, Communications Officer

Overview

- Starting on Sunday, August 16, 2020, lightning strikes (over 14,000) ignited fires throughout California.

- To date, California has experienced over 900 wildfires burning over 2 million acres.

September 8, 2020 – Western United States



Presentation Outline

- Meteorology Report
- Discussion on wildfire events
- Air quality impacts
- Communications
- Air District actions and next steps

Current Meteorology Report

The current meteorology information will be inserted here and displayed during the Board of Directors meeting. The slides will be updated at the end of the meeting.

Key Wildfire Events

- LNU Lightning Complex, multiple North Bay counties >375,000 acres
- SCU Lightning Complex, multiple East Bay counties >396,000 acres

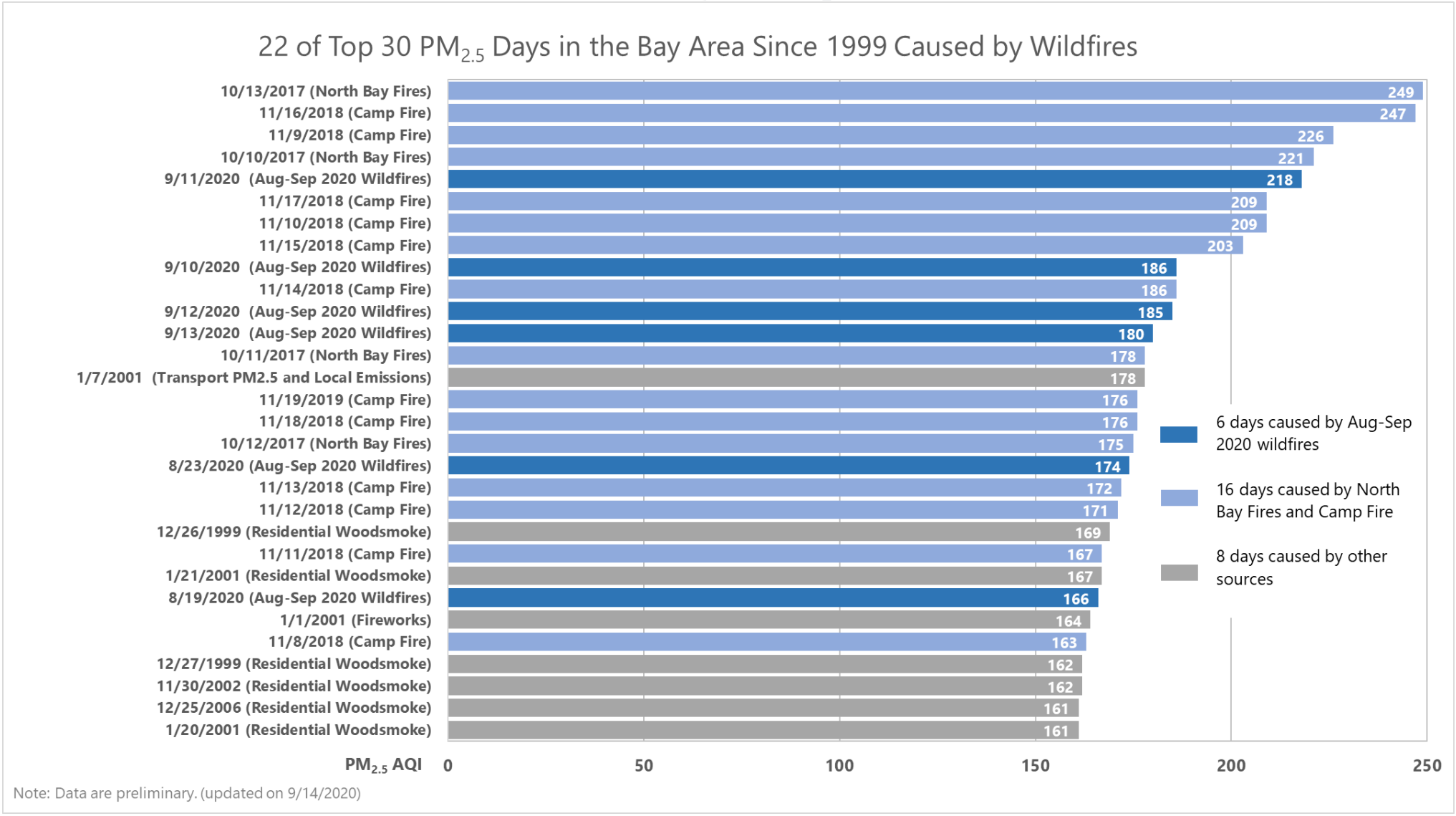
Key Wildfire Events (cont.)

- CZU Lightning Complex, San Mateo and Santa Cruz counties
  >86,000 acres

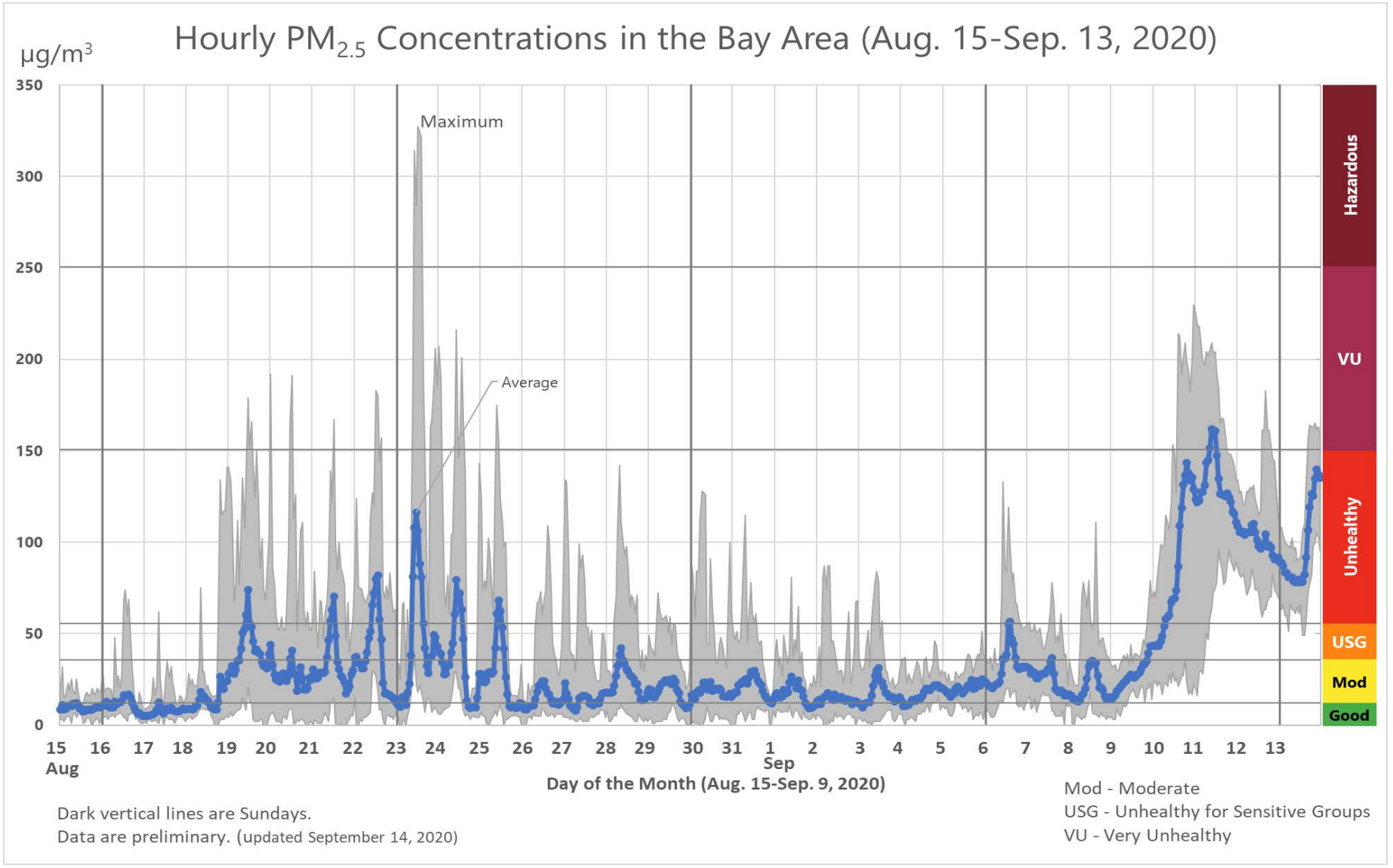
- Woodward Fire, Marin County
  >4,000 acres

- August Complex, multiple counties
  >471,000 acres

Air Quality Impact due to Wildfires

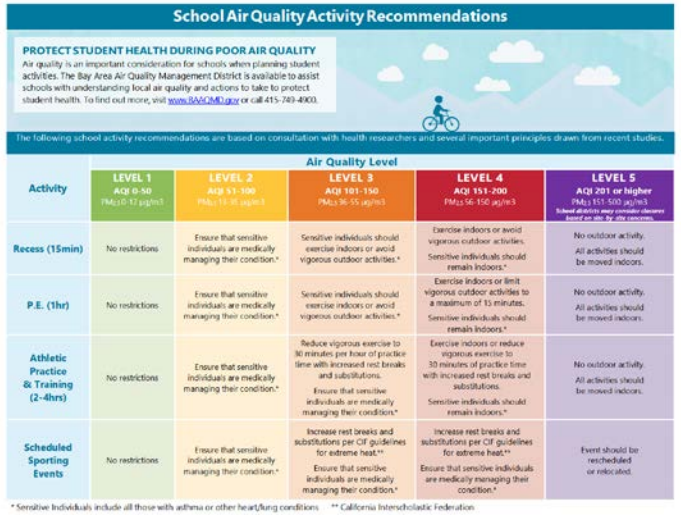


$PM_{2.5}$ – Current Wildfires



Communications

- Record-breaking string of Spare the Air alerts
- Significant interest from media/public
- Simple messaging
- Consistent guidance
- Outreach tools
  - Alert notifications
  - Website
  - New tools
- Partnerships/coordination



Air District Actions/Next Steps

- Continue to improve forecasting
- Continue to work with California Air Resources Board to locate temporary monitors
- Enhance monitoring capabilities
- Utilize sensor technology when applicable
- Improve smoke health effects guidance and actions information
- Enhance partnership by integrating Air District, federal, and state programs

Air District Actions/Next Steps (cont.)

- Continue to build coordination capability with local agencies
- Develop guidance for masks and clean air locations
- Purchase high efficiency filtration units for clean air/cooling facilities
- Define and address Air District role in wildfire response
- Amend/develop regulations and guidance to aid in preparing, preventing, and responding to wildfires

AGENDA: 18A

Transportation Fuels Trends, Refinery & Market Changes, and Expanded Use of Renewables

BAAQMD Board of Directors Meeting

Via Zoom

September 16, 2020

Gordon Schremp

Energy Assessments Division

California Energy Commission

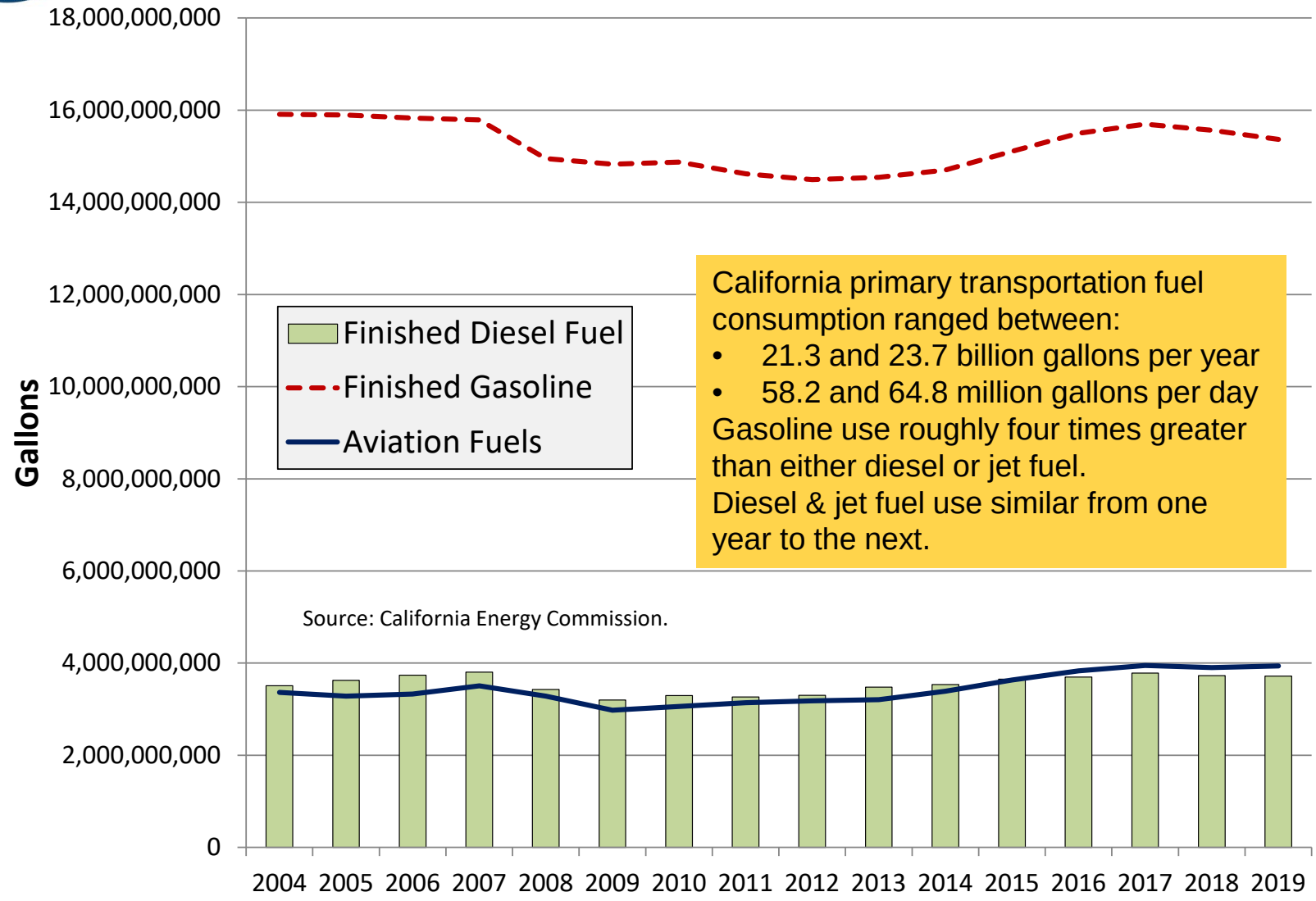
gordon.schremp@energy.ca.gov

Overview

- Transportation Fuel Demand
  - California historical
  - Increasing use of renewable fuels & electric vehicles
- 2020 – Year of the Pandemic
  - Changing activity & fuel demand destruction
- Refinery & Market Changes
  - Covid-19 operational changes
- Renewable Fuel Developments & Outlook
  - Planned refinery conversions to renewable production
    - Phillips 66 - Rodeo & Marathon - Martinez
  - Renewable diesel availability & timing
  - Potential market impacts

Transportation Fuel Demand - California

California Primary Transportation Fuels



California primary transportation fuel consumption ranged between:

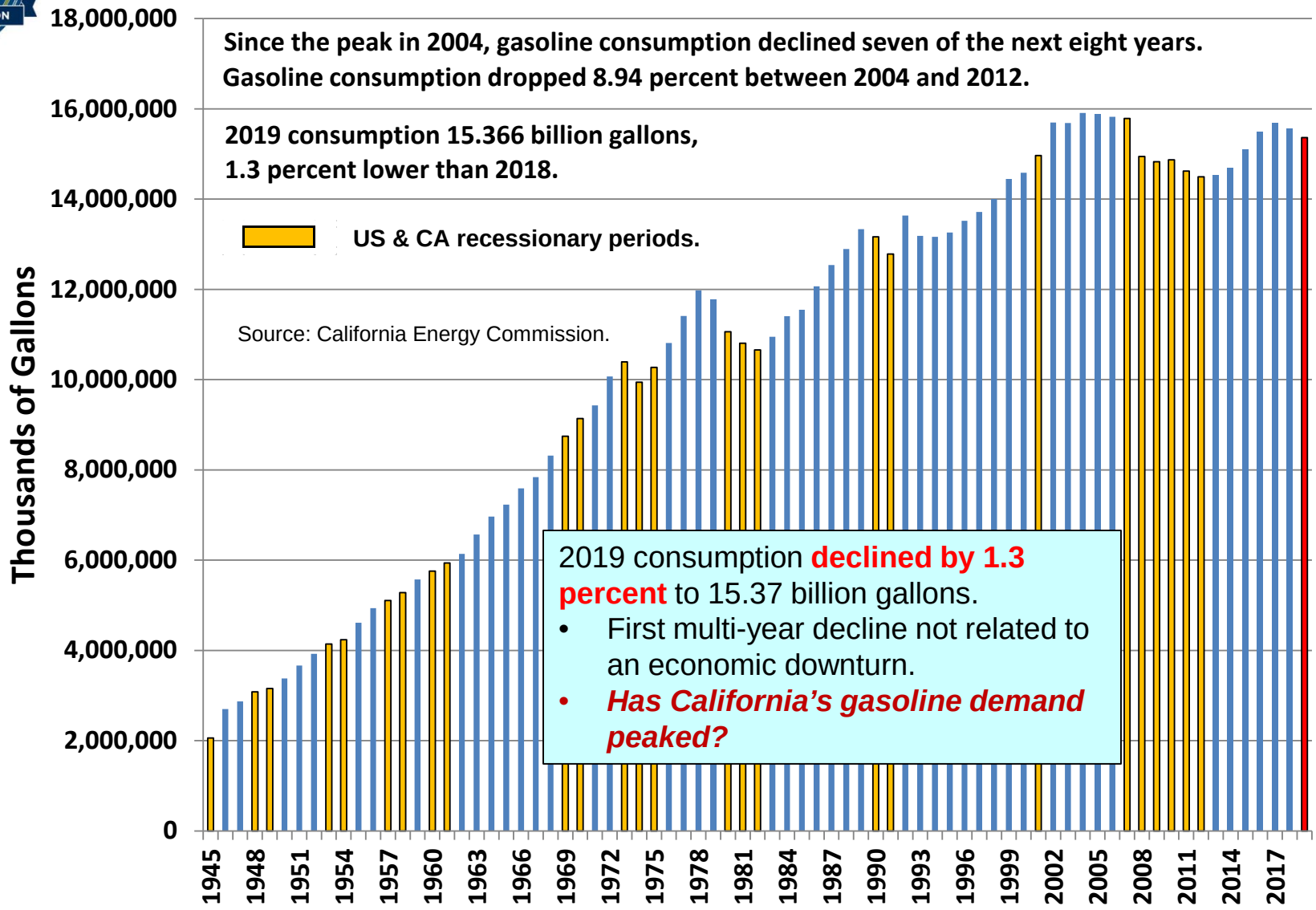
- 21.3 and 23.7 billion gallons per year
- 58.2 and 64.8 million gallons per day

Gasoline use roughly four times greater than either diesel or jet fuel.

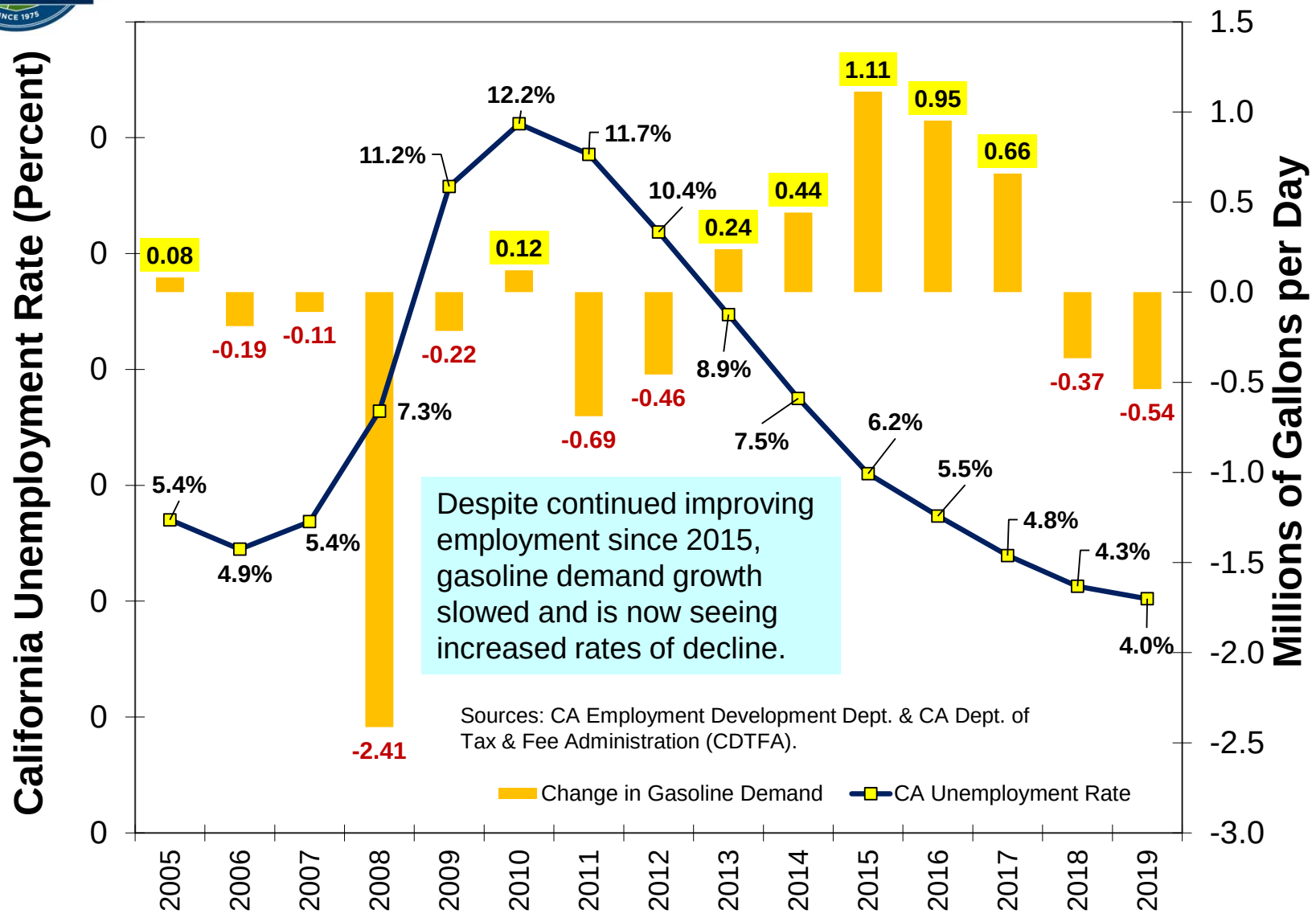
Diesel & jet fuel use similar from one year to the next.

Source: California Energy Commission.

California Gasoline Use 1945-2019



Gasoline & Unemployment



Gasoline Use Per Driver

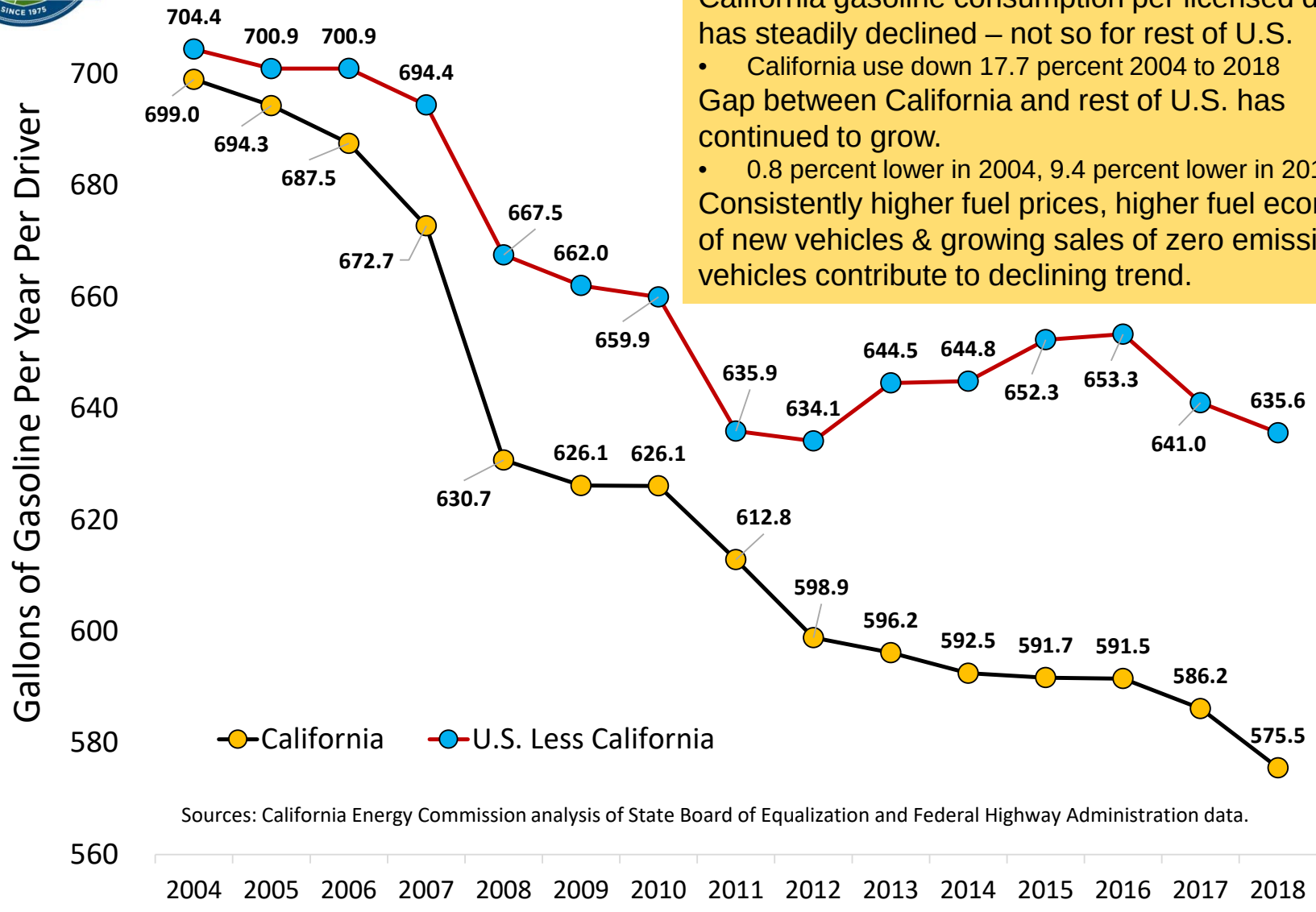
California gasoline consumption per licensed driver has steadily declined – not so for rest of U.S.

- California use down 17.7 percent 2004 to 2018

Gap between California and rest of U.S. has continued to grow.

- 0.8 percent lower in 2004, 9.4 percent lower in 2018

Consistently higher fuel prices, higher fuel economy of new vehicles & growing sales of zero emission vehicles contribute to declining trend.



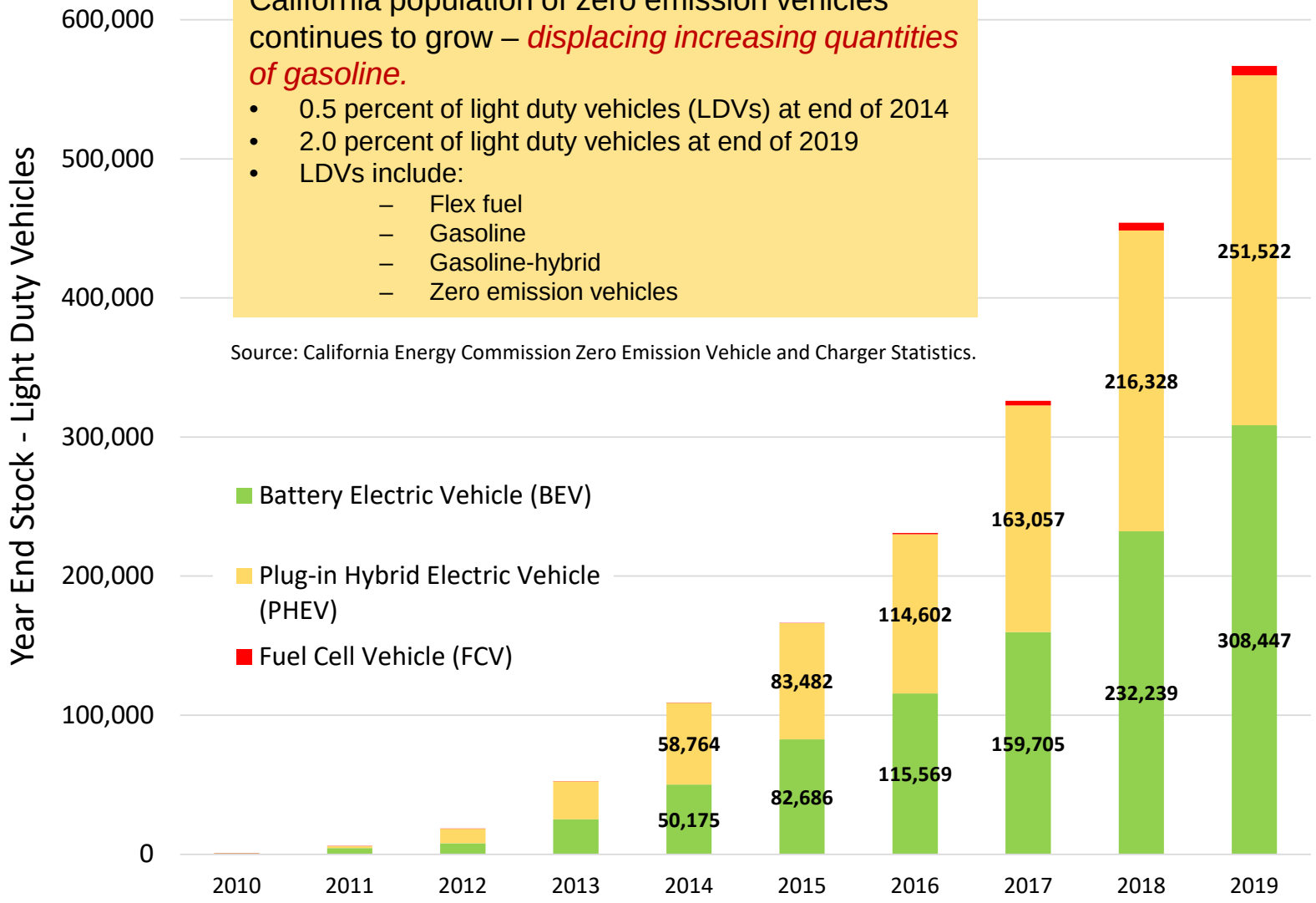
Sources: California Energy Commission analysis of State Board of Equalization and Federal Highway Administration data.

Increasing Penetration of Electric Vehicles

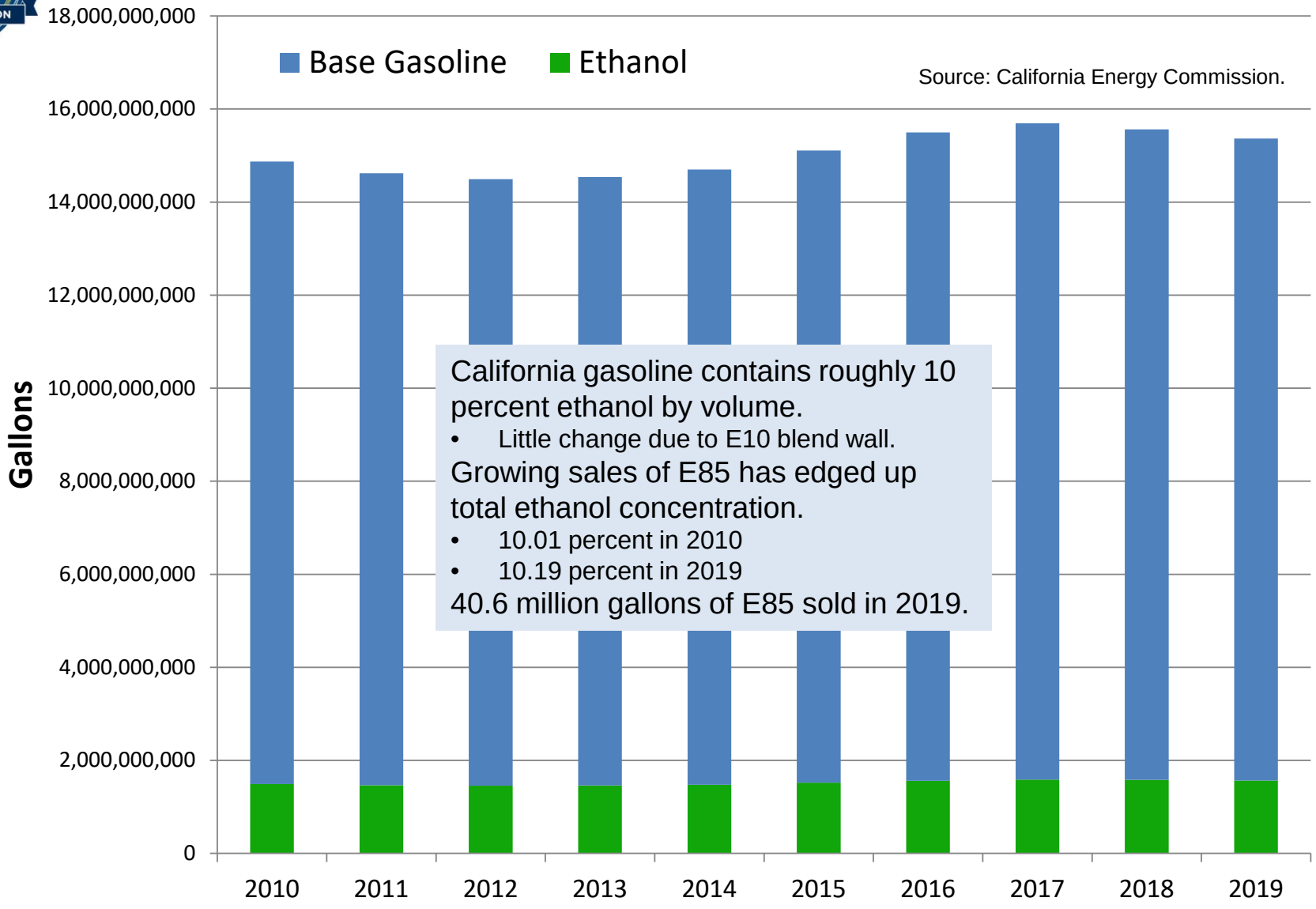
California population of zero emission vehicles continues to grow – *displacing increasing quantities of gasoline.*

- 0.5 percent of light duty vehicles (LDVs) at end of 2014
- 2.0 percent of light duty vehicles at end of 2019
- LDVs include:
  - Flex fuel
  - Gasoline
  - Gasoline-hybrid
  - Zero emission vehicles

Source: California Energy Commission Zero Emission Vehicle and Charger Statistics.



Gasoline & Ethanol



California gasoline contains roughly 10 percent ethanol by volume.

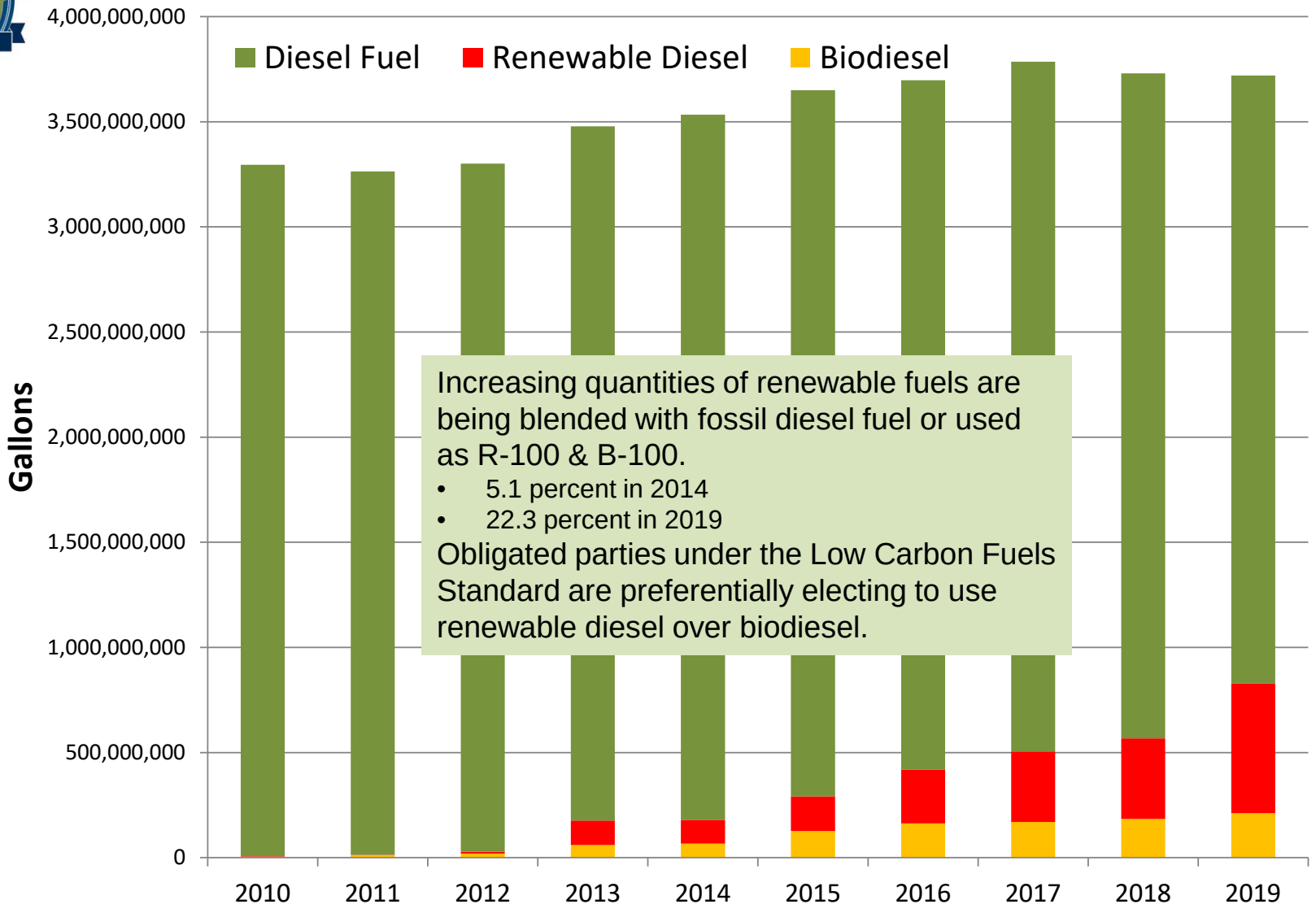
- Little change due to E10 blend wall.

Growing sales of E85 has edged up total ethanol concentration.

- 10.01 percent in 2010
- 10.19 percent in 2019

40.6 million gallons of E85 sold in 2019.

Diesel & Renewables

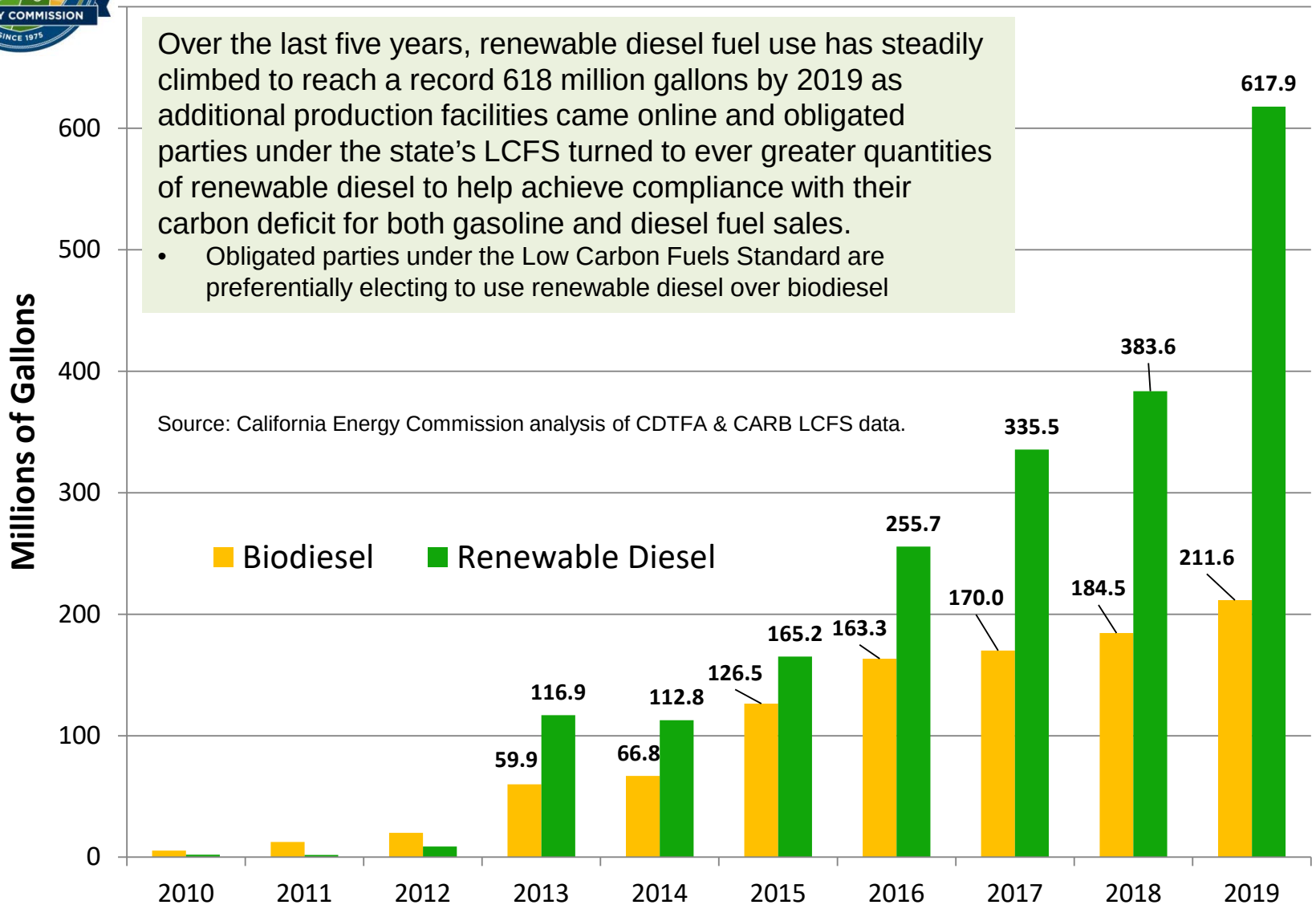


Source: California Energy Commission analysis of CDTFA & CARB LCFS data.

California Bio & Renewable Diesel Use

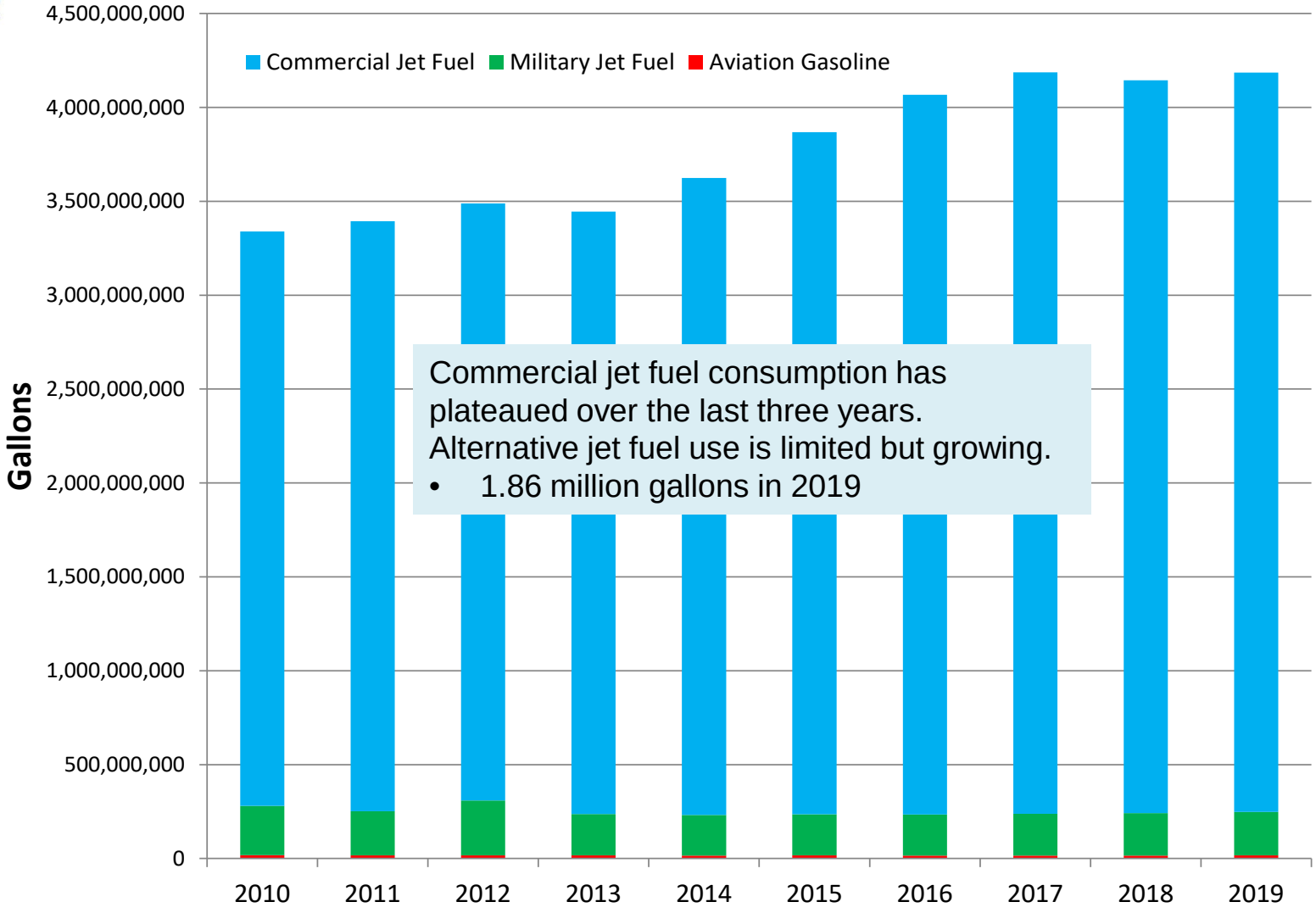
Over the last five years, renewable diesel fuel use has steadily climbed to reach a record 618 million gallons by 2019 as additional production facilities came online and obligated parties under the state's LCFS turned to ever greater quantities of renewable diesel to help achieve compliance with their carbon deficit for both gasoline and diesel fuel sales.

- Obligated parties under the Low Carbon Fuels Standard are preferentially electing to use renewable diesel over biodiesel



Source: California Energy Commission analysis of CDTFA & CARB LCFS data.

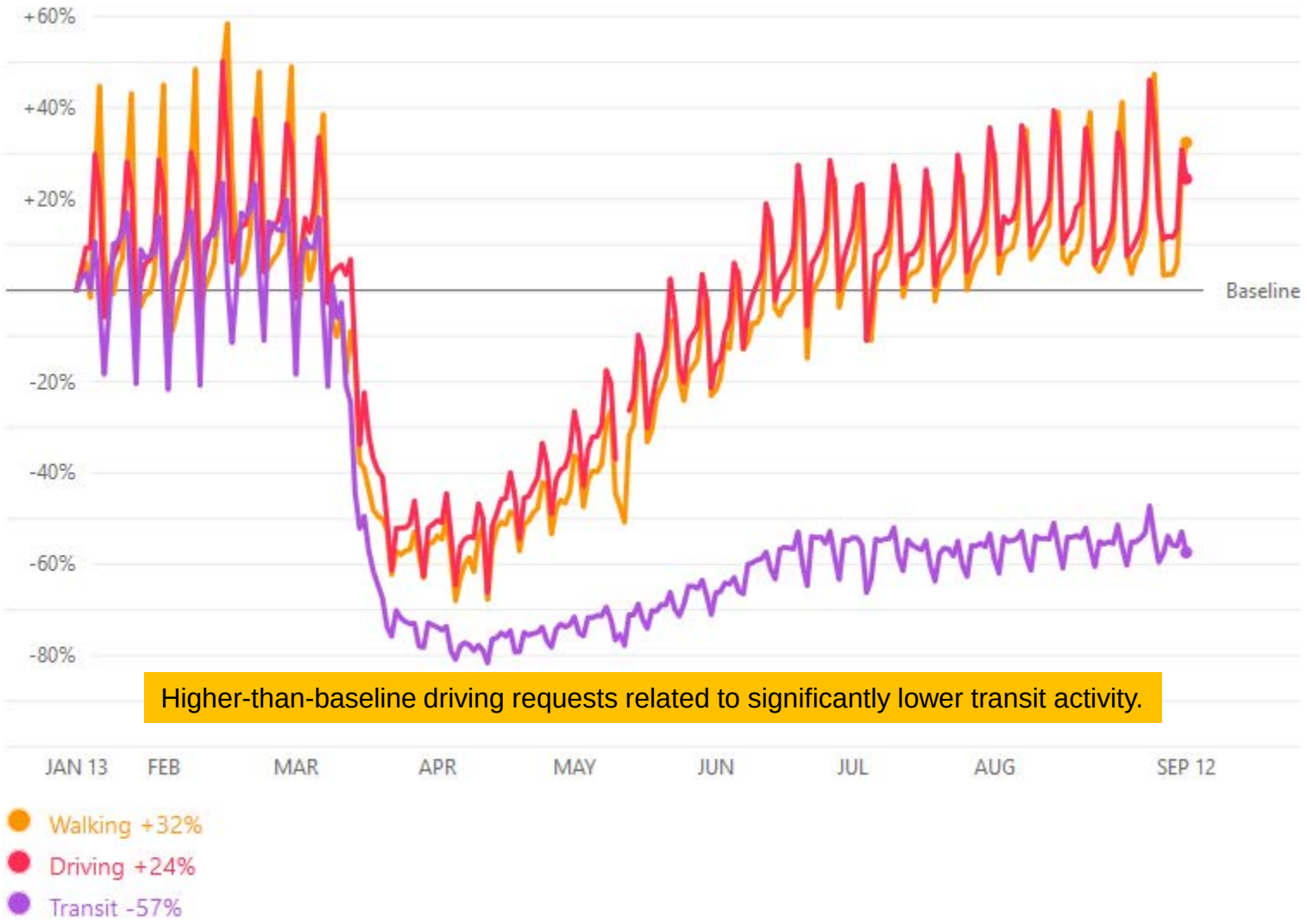
Aviation Fuels



Sources: California Energy Commission analysis of Petroleum Industry Information Reporting Act (PIIRA) & Energy Information Administration (EIA) data.

2020 – Year of the Pandemic

Mobility Trends – California

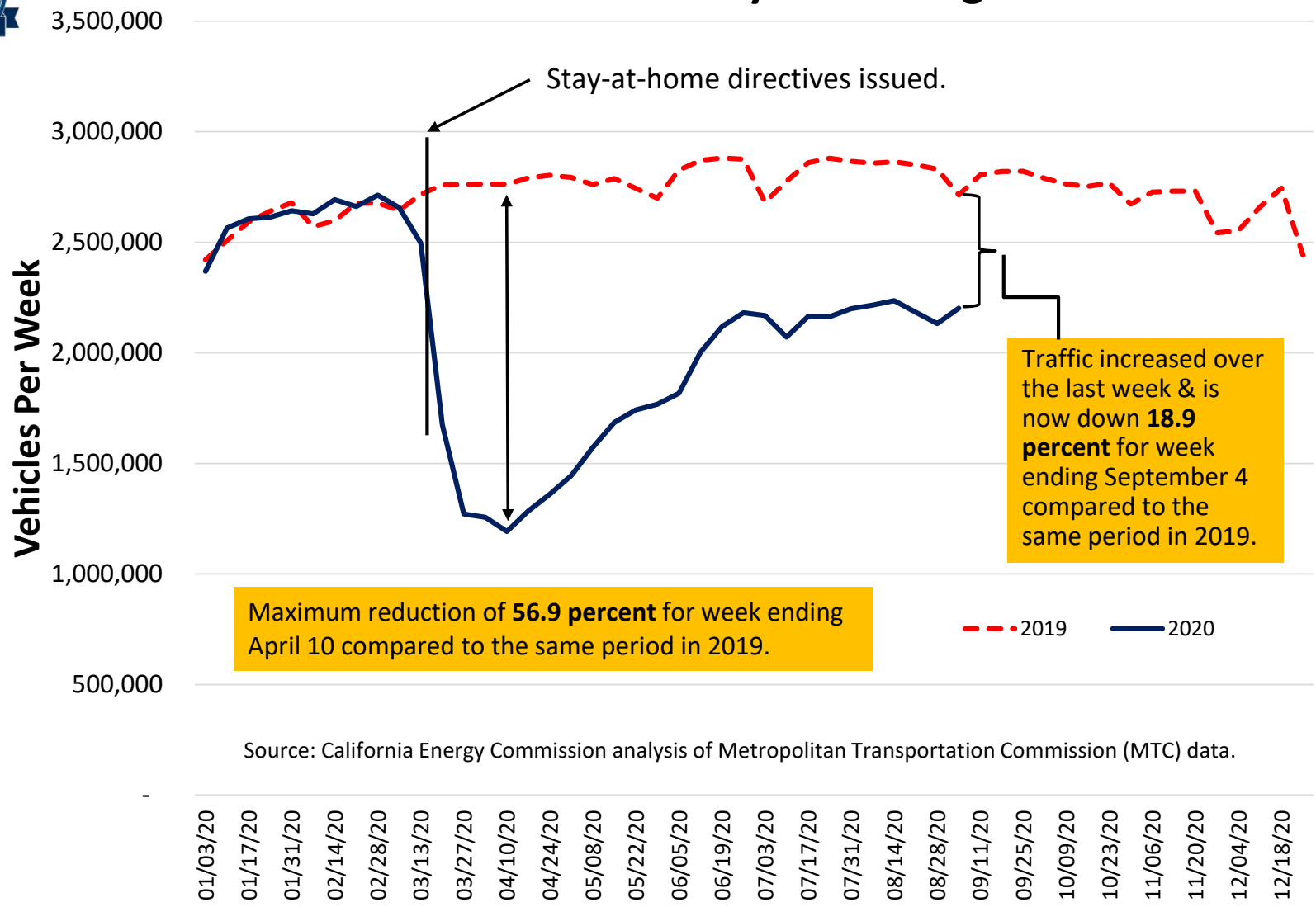


Source: Apple mobility trend reports – change in routing requests from baseline of January 13, 2020 – data through **9/12/20**

Mobility Trends – SF Bay Area

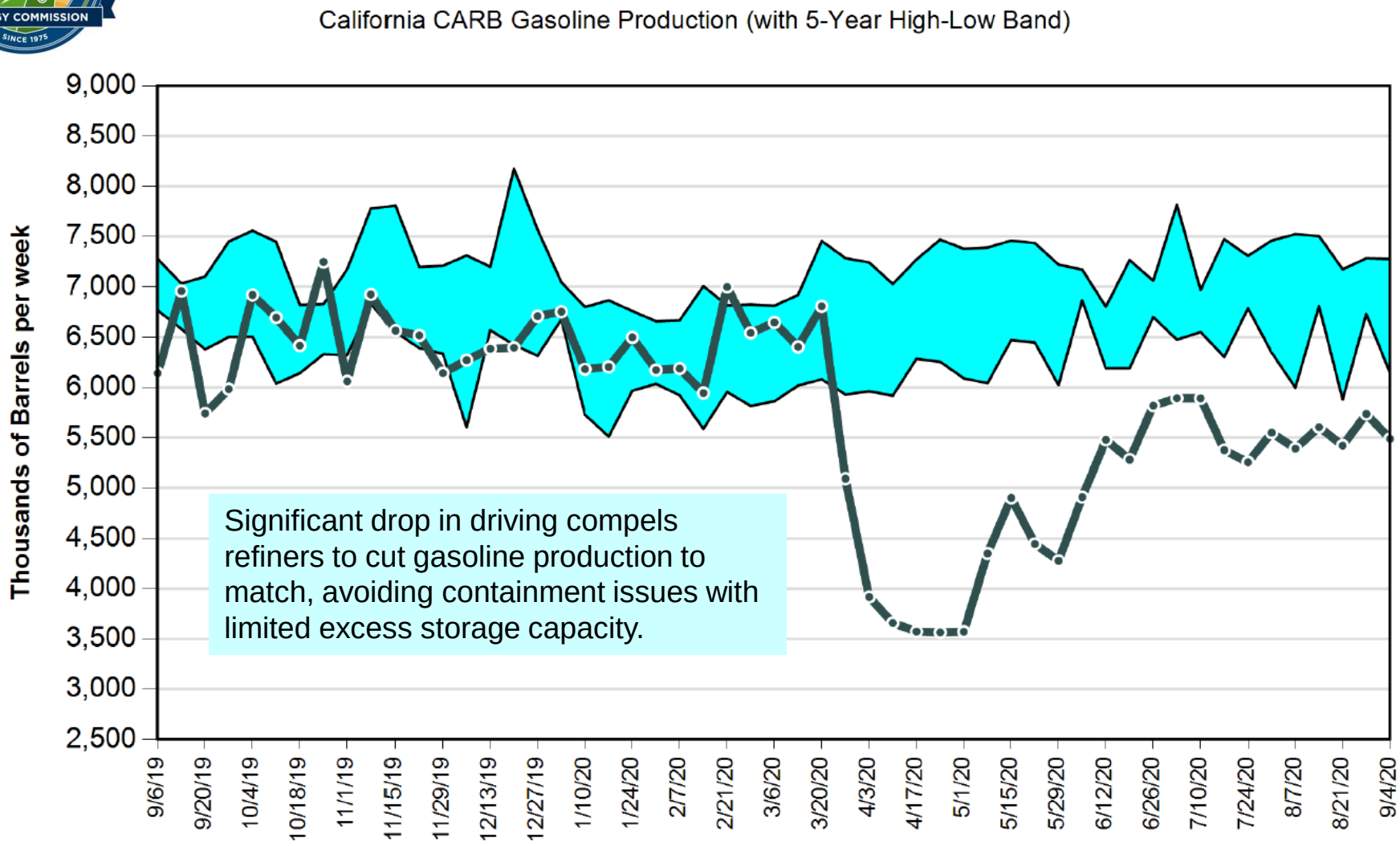
Source: Apple mobility trend reports – change in routing requests from baseline of January 13, 2020 – data through **9/12/20**

Vehicle Counts - SF Bay Area Bridges



Source: California Energy Commission analysis of Metropolitan Transportation Commission (MTC) data.

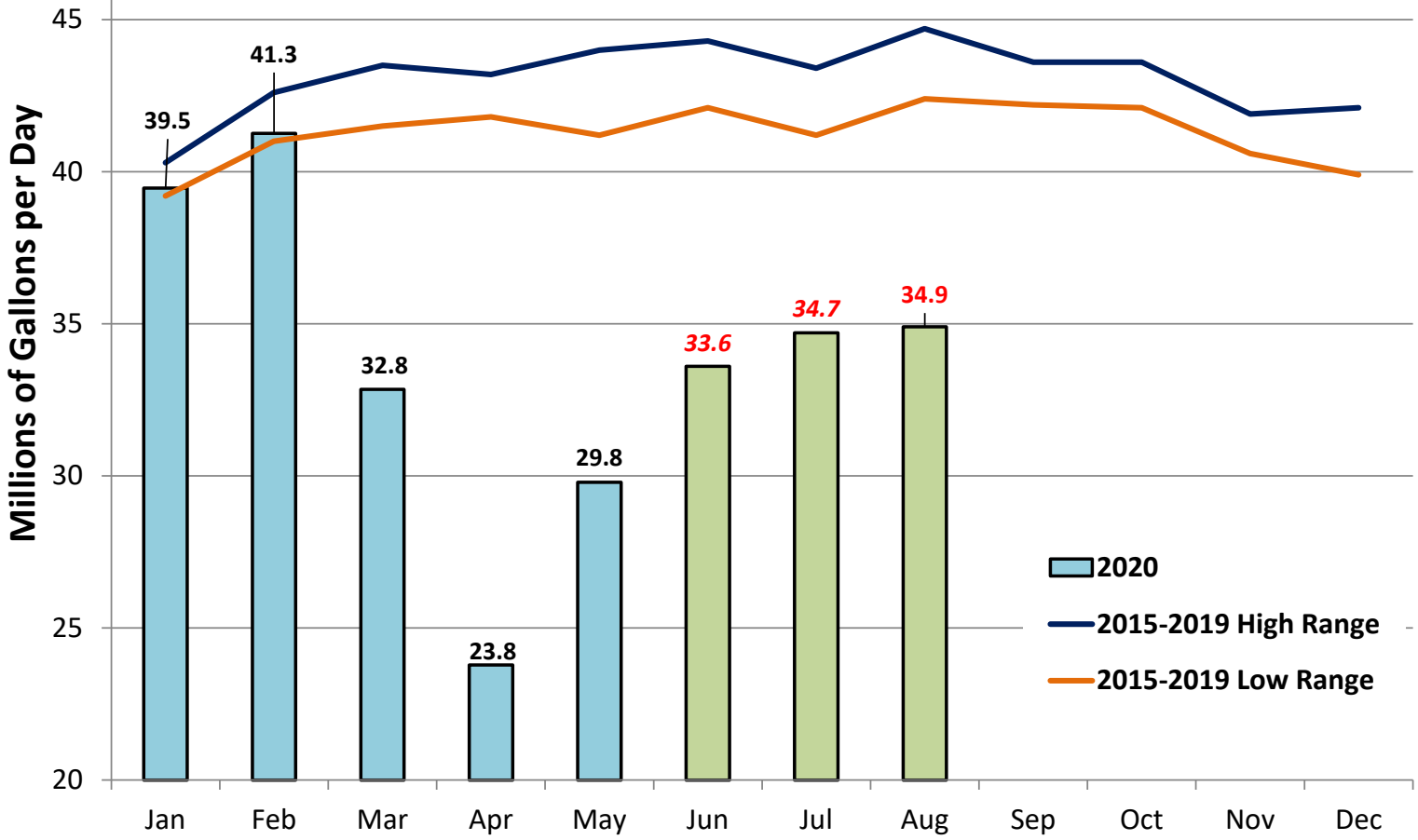
Gasoline Output Drops



Source: California Energy Commission weekly PIIRA reporting.

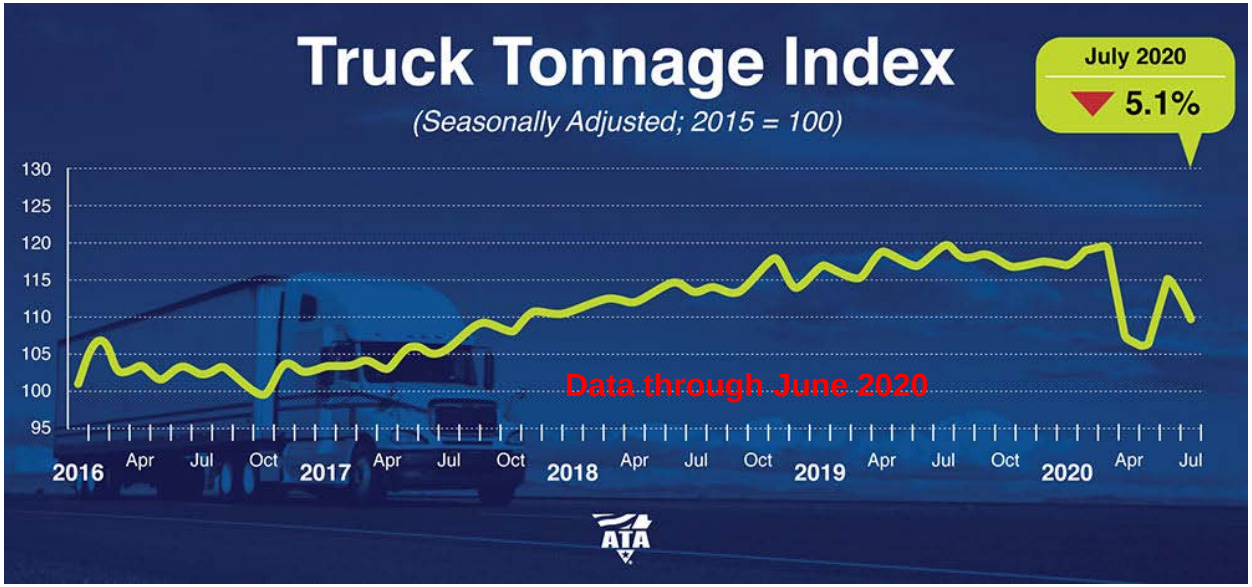
California Gasoline Demand - 2020

California gasoline consumption **was down 44.9 percent** in April compared to April 2019.
- Lowest average daily consumption since 1968



Source: California Energy Commission analysis of CDTFA data through May 2020 & projections based on analysis of State Lands Commission imports & weekly PIIRA reports..

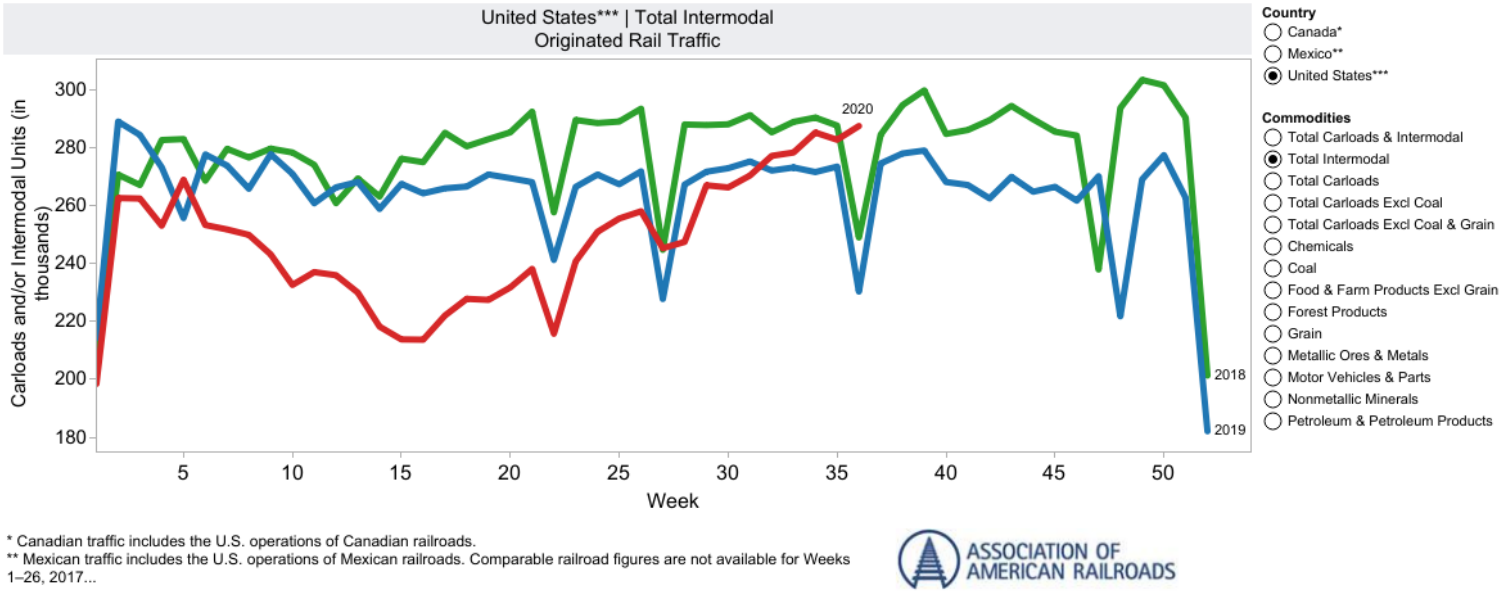
Trucking Activity – U.S.



Source: American Trucking Association (ATA)

- This national data clearly shows a freight hauling impact that was most profound during April but still persisting in May as commerce for many types of businesses were impacted by the stay-at-home directives.
- The truck tonnage index for July 2020 shows a 5.1 percent decline in activity compared to the previous month & down 8.3 percent compared to July 2019.

Rail Activity – United States



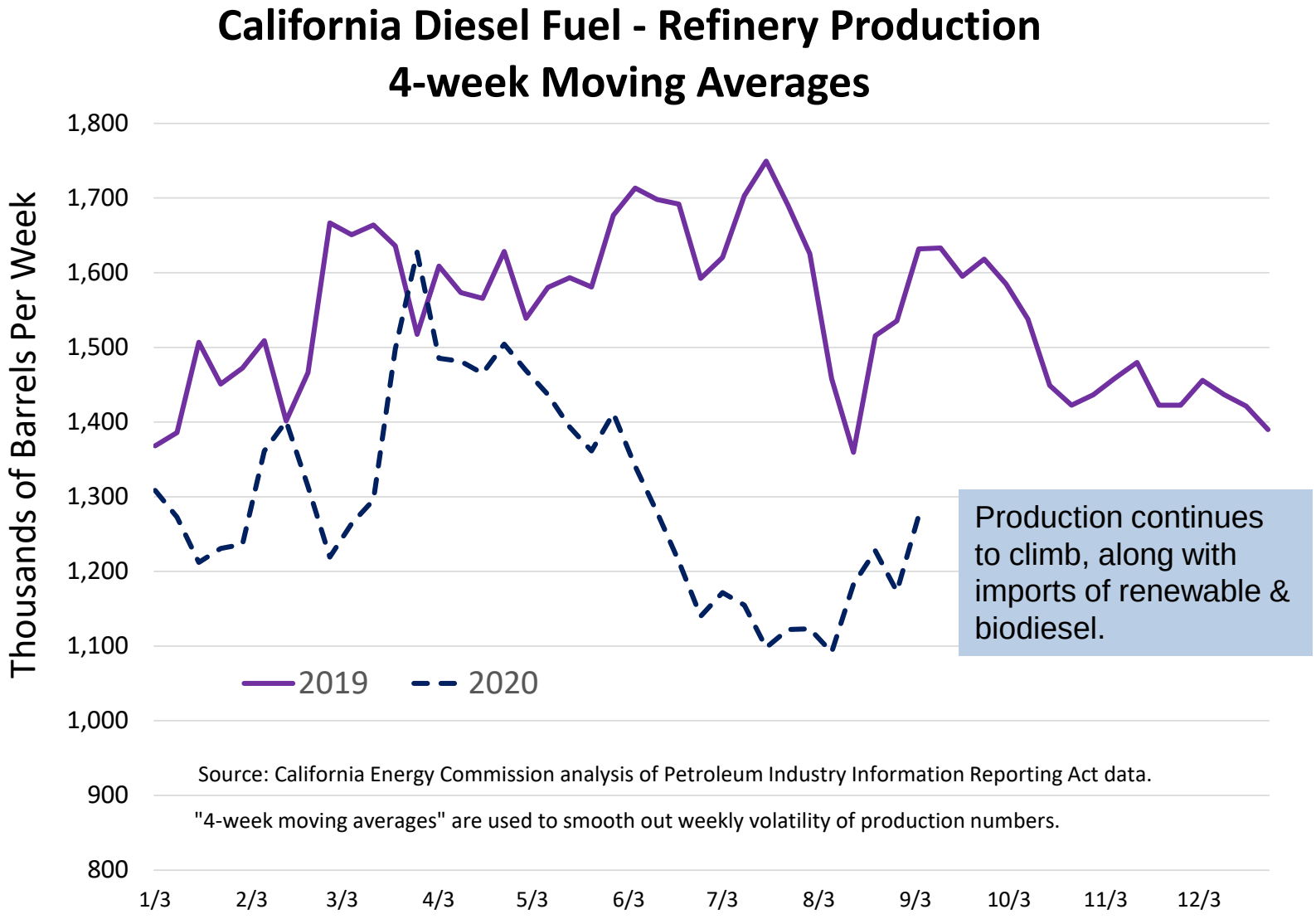
* Canadian traffic includes the U.S. operations of Canadian railroads.
** Mexican traffic includes the U.S. operations of Mexican railroads. Comparable railroad figures are not available for Weeks 1–26, 2017...

ASSOCIATION OF AMERICAN RAILROADS

- Intermodal rail activity is reflective of goods movement and includes railcars transporting shipping containers and truck trailers. According to AAR, more than 90 percent of the rail activity originating in California is intermodal, while nearly 80 percent of the rail activity with California as the destination was intermodal.
- The steepest departure from 2019 occurred during the week ending April 11, 2020 when intermodal activity was 20.0 percent lower than same period in 2019. Since that point, however, intermodal rail activity has generally continued to recover.

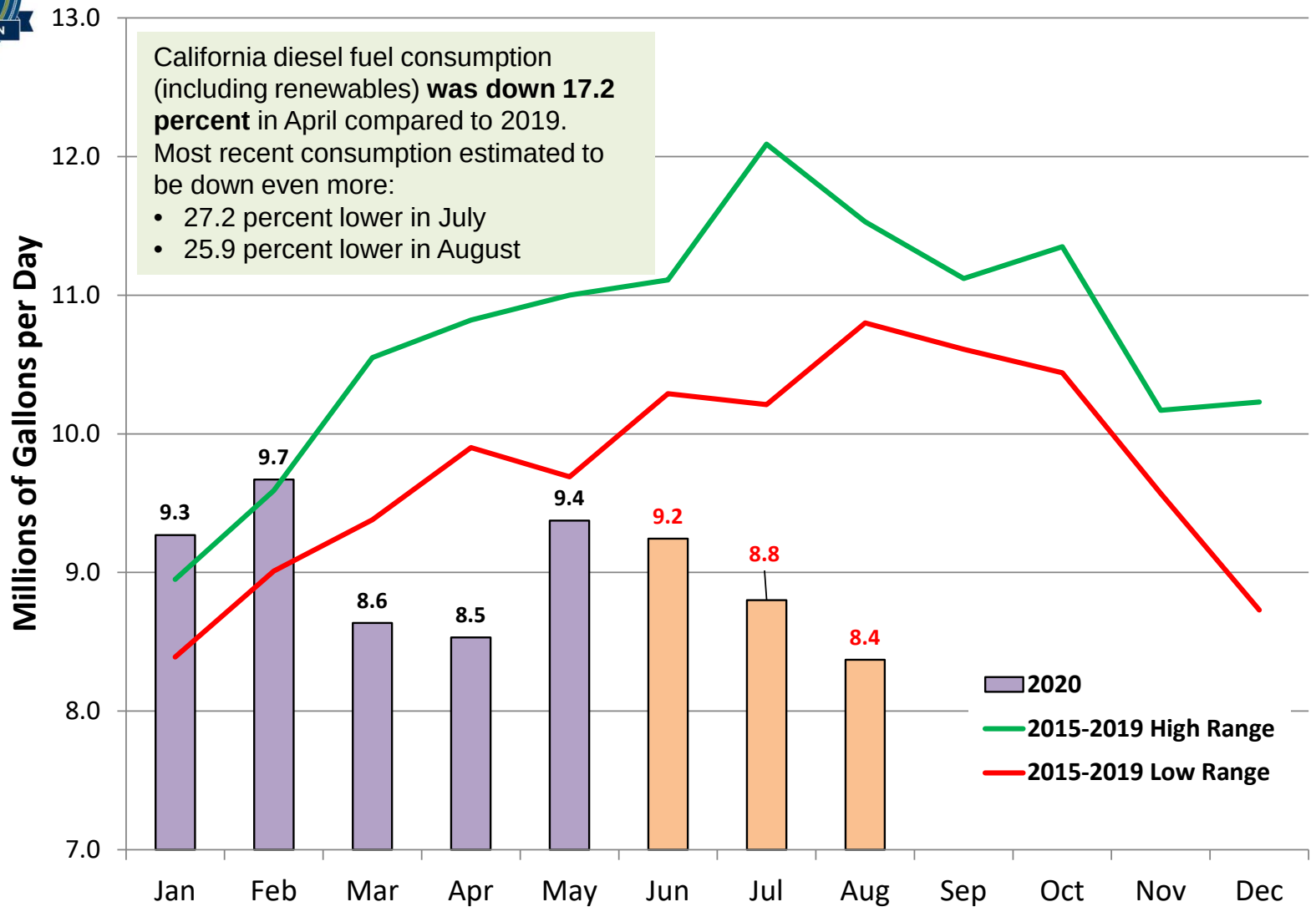
2020 Y-T-D **down 6.9 percent** for intermodal rail activity versus 2019 Y-T-D.

Diesel Output Decline Recovering



Production continues to climb, along with imports of renewable & biodiesel.

California Diesel Demand - 2020



Source: California Energy Commission analysis of CDTFA data through May 2020 & projections based on analysis of State Lands Commission imports & weekly PIIRA reports.

Flight Activity Decline Varies

Global Scheduled Flights Change year-over-year

Week compared with equivalent week in previous year i.e.
Monday 6 January 2020 vs. Monday 7 January 2019.

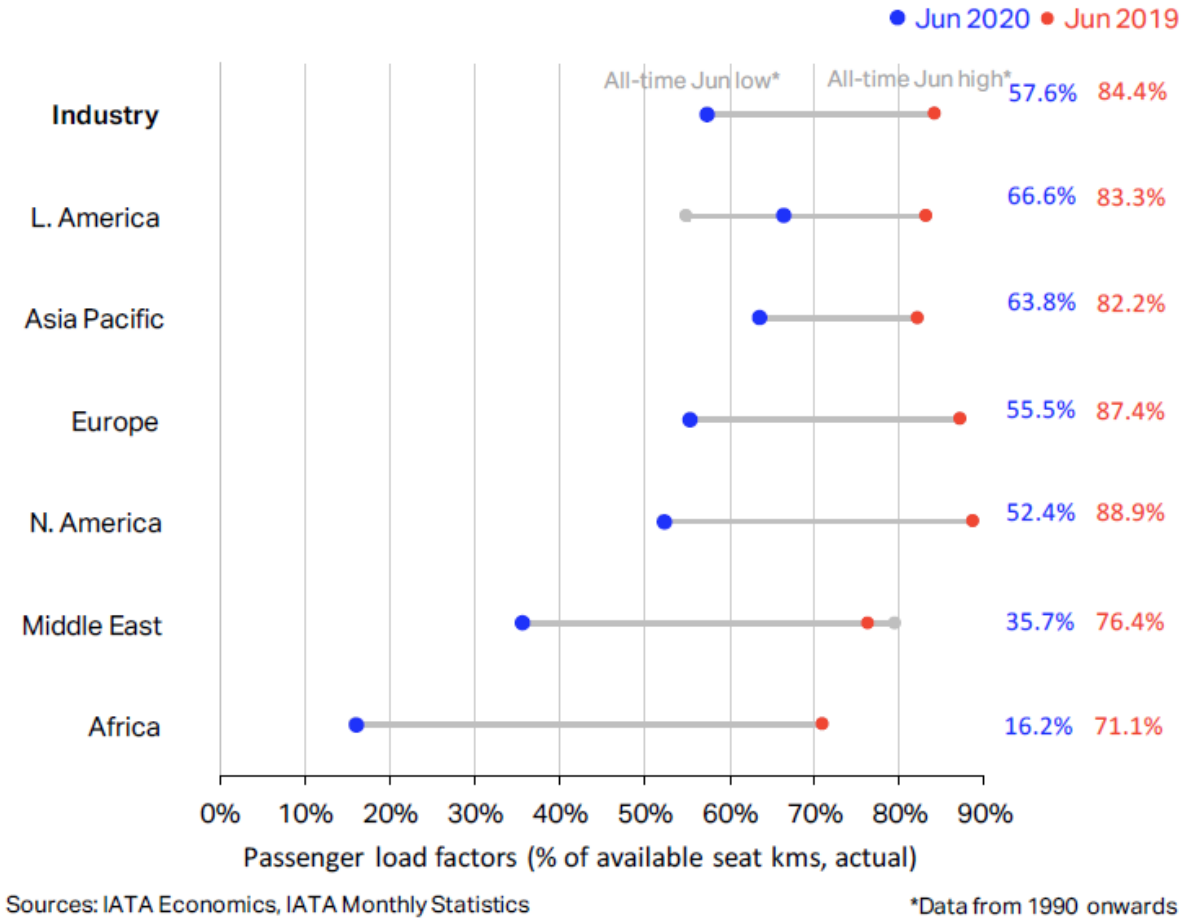
OAG

Region	January	February	March	April	May	June	July	August	31 August	7 September	14 September
ALL	0.8%	-8.6%	-14.8%	-64.5%	-68.6%	-63.8%	-52.2%	-47.9%	-47.0%	-47.9%	-47.9%
Spain	-3.7%	-1.8%	-23.2%	-94.0%	-93.3%	-90.2%	-60.0%	-45.5%	-52.5%	-56.5%	-61.0%
Hong Kong	-9.7%	-46.5%	-77.6%	-93.5%	-90.4%	-90.1%	-91.2%	-91.5%	-89.4%	-89.2%	-89.0%
Germany	-8.5%	-6.9%	-30.7%	-92.9%	-91.3%	-87.2%	-70.3%	-62.7%	-63.1%	-64.6%	-65.7%
Singapore	-0.1%	-16.1%	-43.1%	-93.8%	-96.6%	-95.4%	-94.1%	-92.7%	-93.8%	-93.6%	-93.5%
Italy	-3.3%	-4.2%	-48.0%	-85.6%	-83.3%	-88.0%	-63.0%	-50.3%	-56.3%	-56.1%	-58.7%
France	-0.8%	0.4%	-15.3%	-90.6%	-91.7%	-87.4%	-61.1%	-49.5%	-50.6%	-52.5%	-52.5%
UK	-3.8%	-3.3%	-22.8%	-92.3%	-93.4%	-90.0%	-76.8%	-66.1%	-64.8%	-65.9%	-65.6%
Australia	-3.5%	-3.2%	-5.7%	-82.6%	-83.2%	-80.4%	-76.5%	-75.7%	-74.1%	-74.1%	-74.0%
Sweden	-9.2%	-5.6%	-22.7%	-87.0%	-88.6%	-83.9%	-74.8%	-70.9%	-72.6%	-72.2%	-72.2%
UAE	-1.9%	-3.0%	-23.1%	-81.1%	-79.1%	-80.4%	-68.3%	-64.6%	-60.1%	-59.9%	-67.8%
South Korea	2.2%	-11.6%	-49.5%	-56.7%	-49.5%	-49.5%	-46.6%	-41.5%	-43.8%	-52.0%	-48.7%
USA	1.7%	1.2%	-2.2%	-56.9%	-74.2%	-67.8%	-49.7%	-47.5%	-45.7%	-49.3%	-50.2%
India	2.1%	6.3%	7.6%	-83.3%	-56.6%	-69.0%	-60.5%	-58.7%	-56.1%	-56.0%	-50.3%
China	4.3%	-55.1%	-40.2%	-42.6%	-28.8%	-20.7%	-14.7%	-10.8%	-6.2%	-3.3%	-4.2%
Japan	2.4%	-3.5%	-16.5%	-40.3%	-47.1%	-45.0%	-35.2%	-26.8%	-37.7%	-39.4%	-36.3%

Source: Schedules Analyser

- China & Hong Kong saw earliest impacts from coronavirus
- China showing nearly complete signs of recovery
- U.S. scheduled flights down by 50.2 percent for the week ending September 14

Air Passenger Load Factors

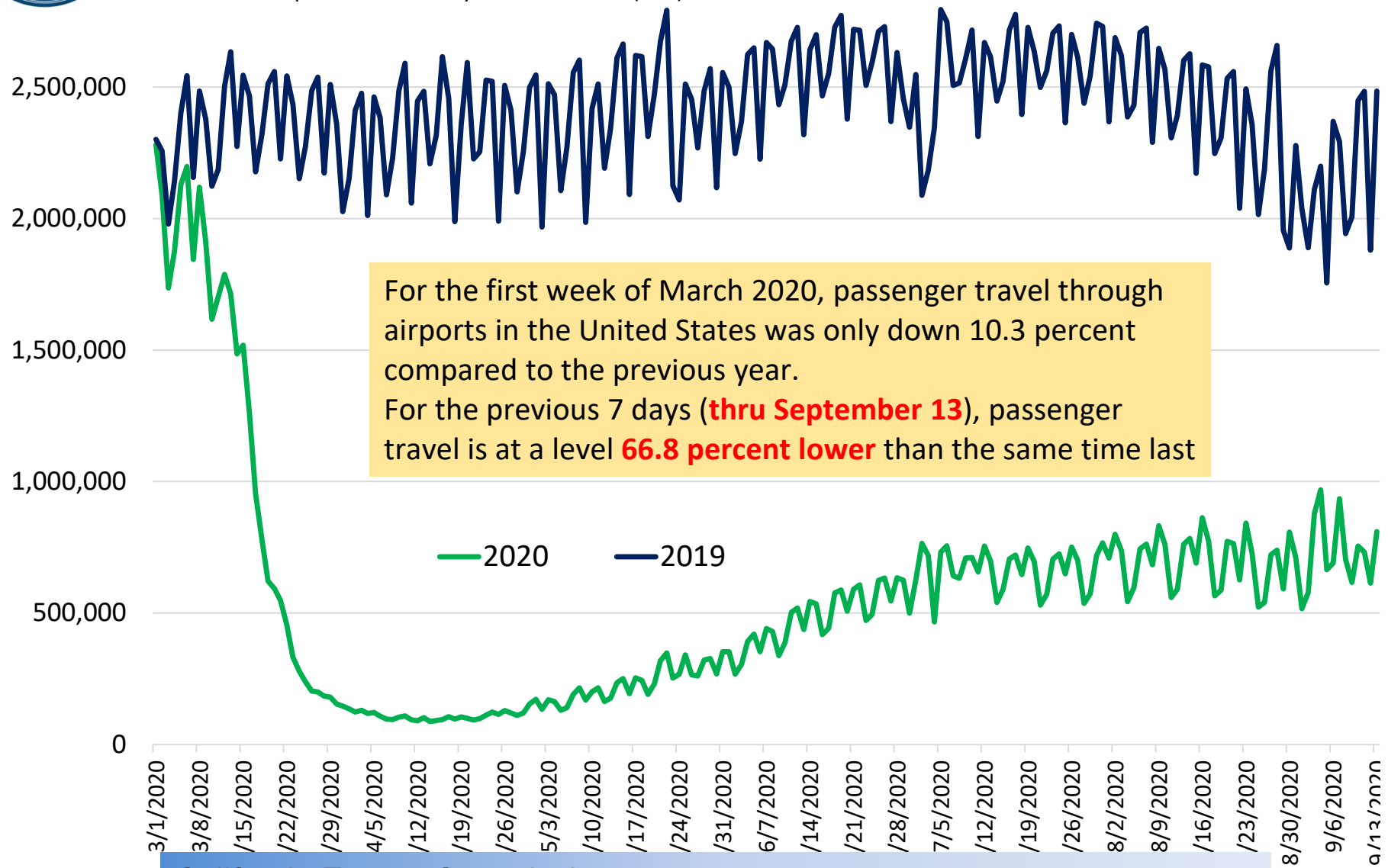


During June 2019 load factors were at record levels for nearly all regions.
Pandemic has resulted in all-time low load factors for all regions, except Latin America.

- ***These levels are economically unsustainable***

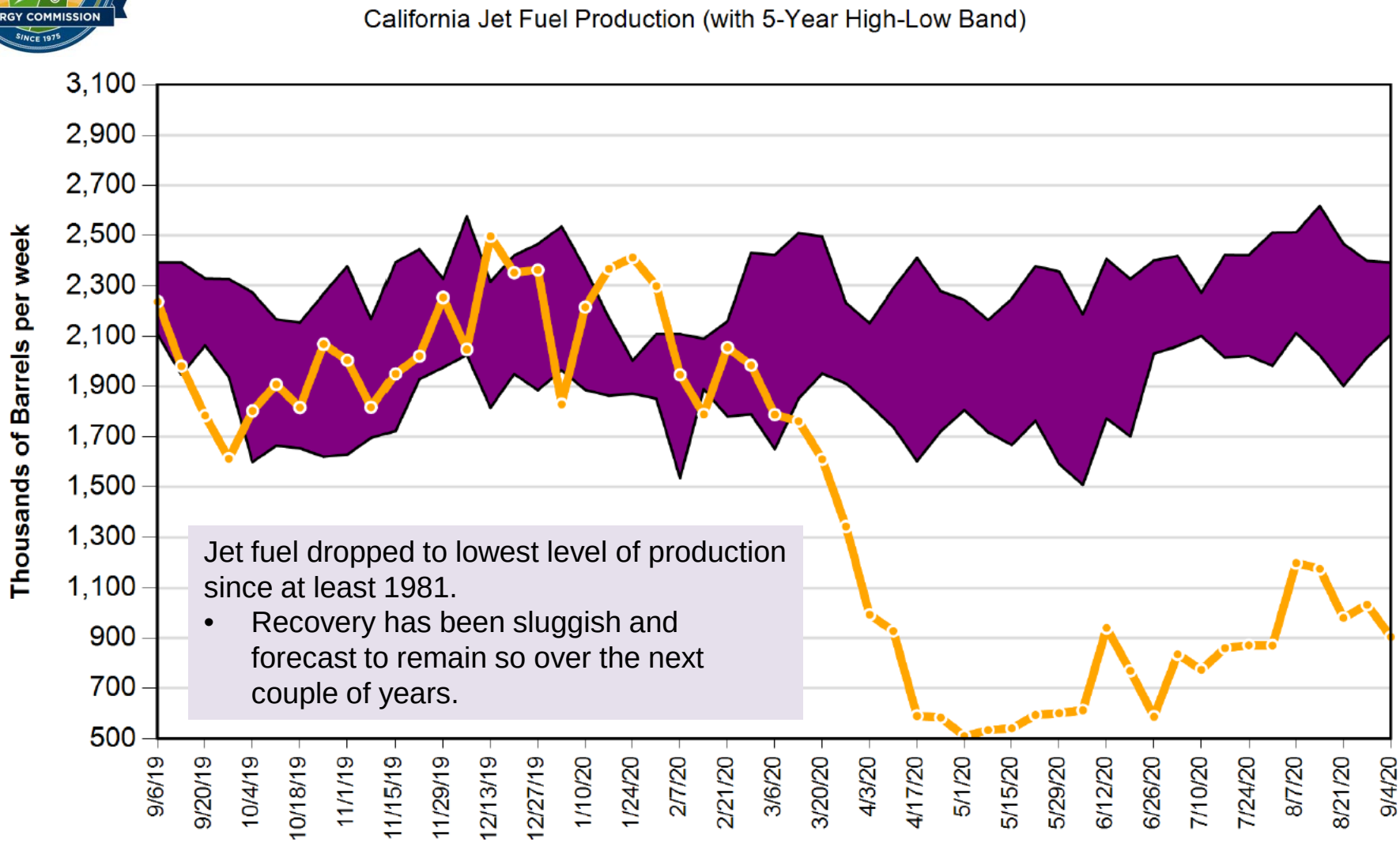
United States Airport Passenger Counts 2020 vs. 2019

Source: Transportation Security Administration (TSA).



For the first week of March 2020, passenger travel through airports in the United States was only down 10.3 percent compared to the previous year.
For the previous 7 days (**thru September 13**), passenger travel is at a level **66.8 percent lower** than the same time last

Jet Fuel Output Collapses



Jet fuel dropped to lowest level of production since at least 1981.

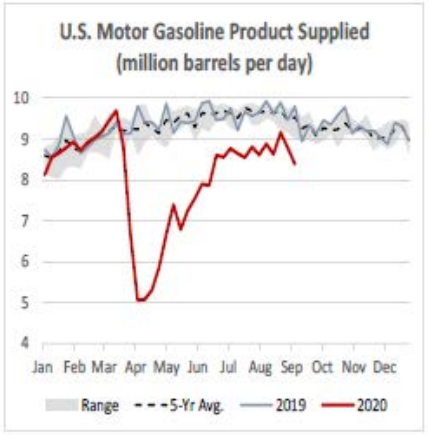
- Recovery has been sluggish and forecast to remain so over the next couple of years.

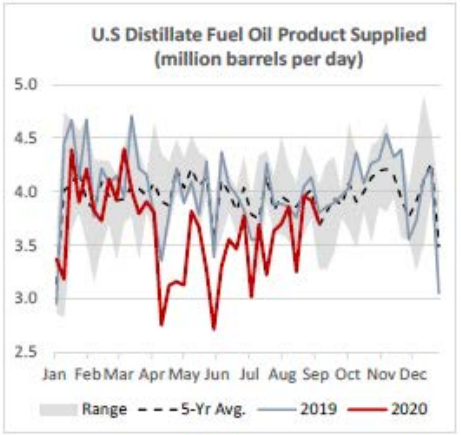
Source: California Energy Commission weekly PIIRA reporting.

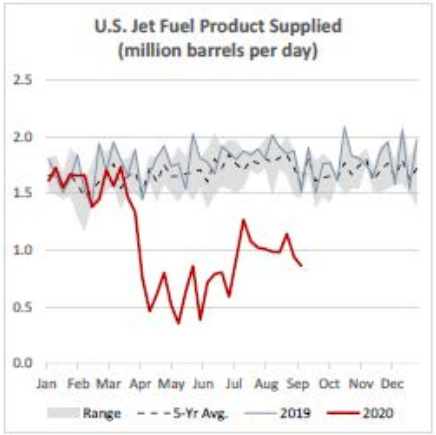
Covid-19 Refinery Operational Changes

Refinery Response to Loss of Demand

- The disproportionate reduction of demand for transportation fuels created challenges for the refining industry that required them to employ various strategies that included:
  - Decreased processing of crude oil
  - Temporary closure of entire refinery
  - Operational changes to some process units to alter the ratio of jet fuel and diesel fuel produced
  - Incremental exports of excess gasoline production to non-traditional markets
  - Increased inventory levels short of creating containment issues



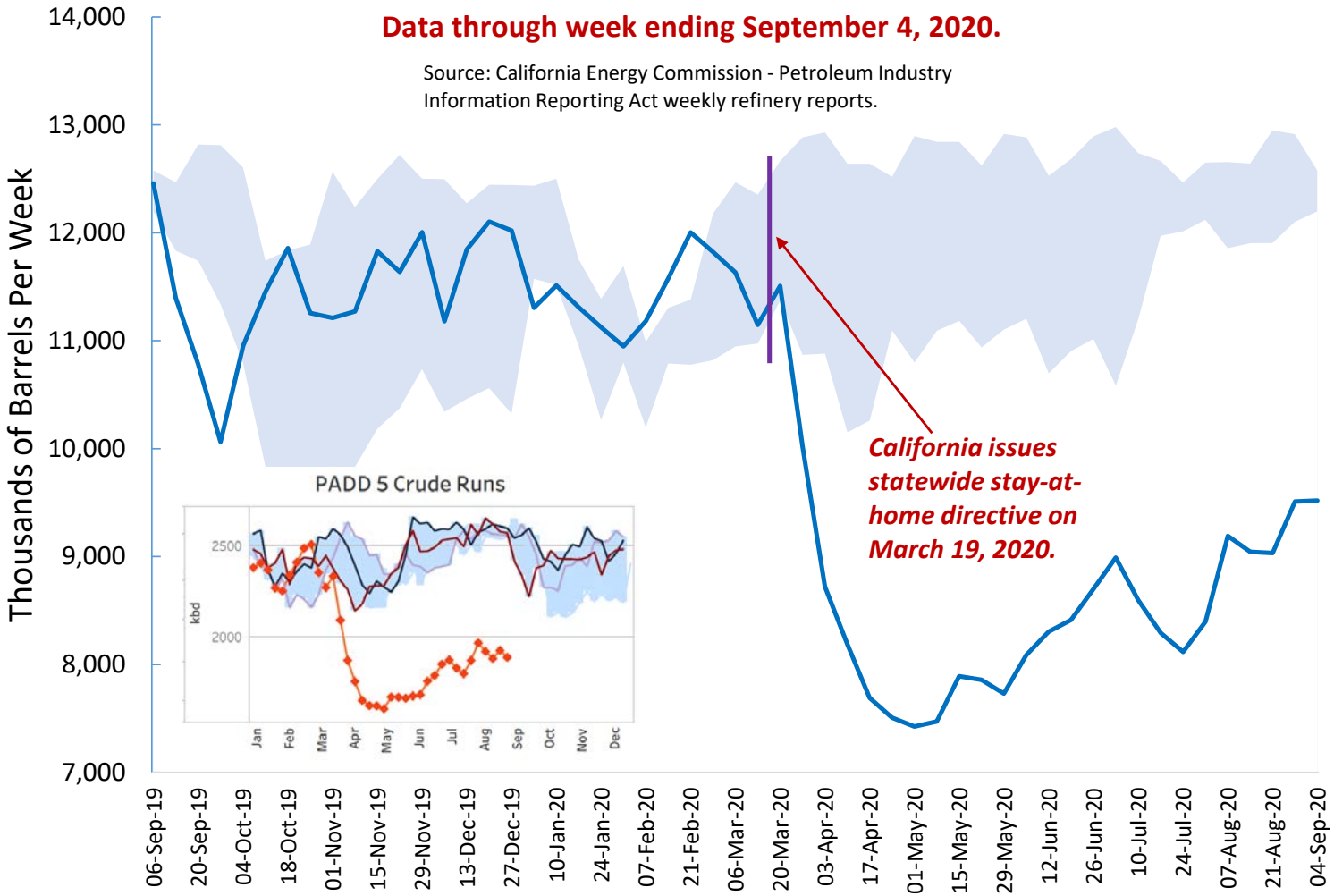




Source: EIA Weekly Petroleum Status Report

Data through September 4, 2020

Refinery Inputs – West & California



CA refinery utilization rate fell to 56.0 percent for week ending May 1, 2020

- ***Lowest level in at least 40 years.***

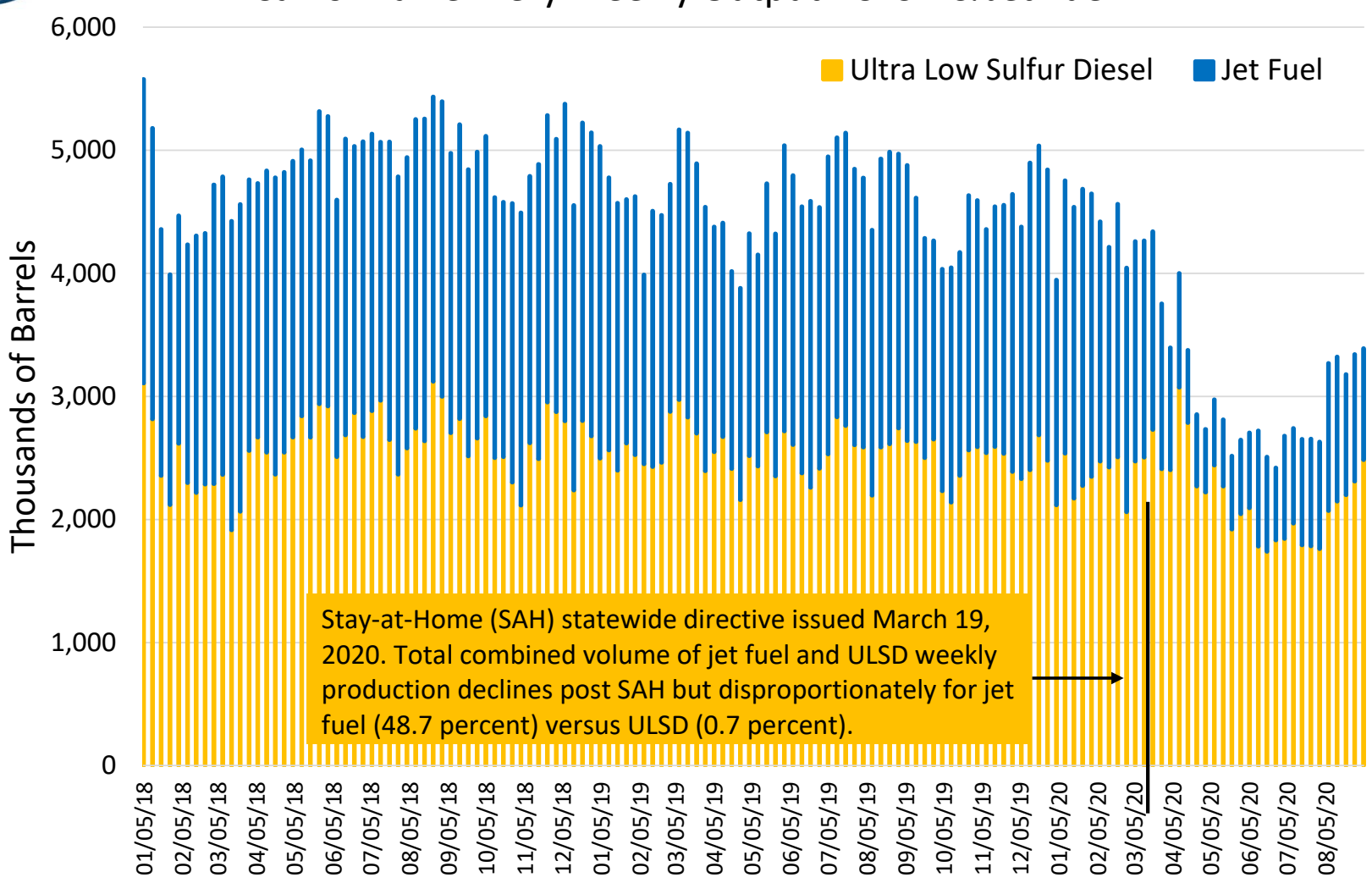
Temporary Idling of Refineries

Company	Refinery Name	Location	Crude Oil Processing Capacity (Barrels Per Day)	Closure Reason	Closure Date	Status
Calcasieu Refining	Calcasieu	Lake Charles, Louisiana	135,500	Demand Reduction	8/1/2020	Idle
HollyFrontier	Cheyenne	Cheyenne, Wyoming	52,000	Renewable Conversion	8/4/2020	Permanent
Marathon Petroleum	Gallup	Gallup, New Mexico	26,000	Uneconomic	4/22/2020	Permanent
Marathon Petroleum	Martinez	Martinez, California	166,000	Renewable Conversion	4/28/2020	Permanent
North Atlantic Refining	Come-by-Chance	Come By Chance, Newfoundland	130,000	Demand Reduction	April 2020	Idle

There have been five announced temporary refinery closures in the United States and Canada

- April 16, 2020 - Marathon announced temporary idling of their refinery in Martinez, CA
  - Refinery long-term idling process was completed during the first week of May
  - Refinery is 4th largest in California and represents 9.1 percent of statewide capacity for facilities that produce California gasoline and diesel fuel – 21 percent of refineries in the greater San Francisco Bay Area
  - Marathon announced on July 31 that their refinery in Martinez will not be restarted but “indefinitely idled”, continue to be used as a terminal & converted to renewable fuel production

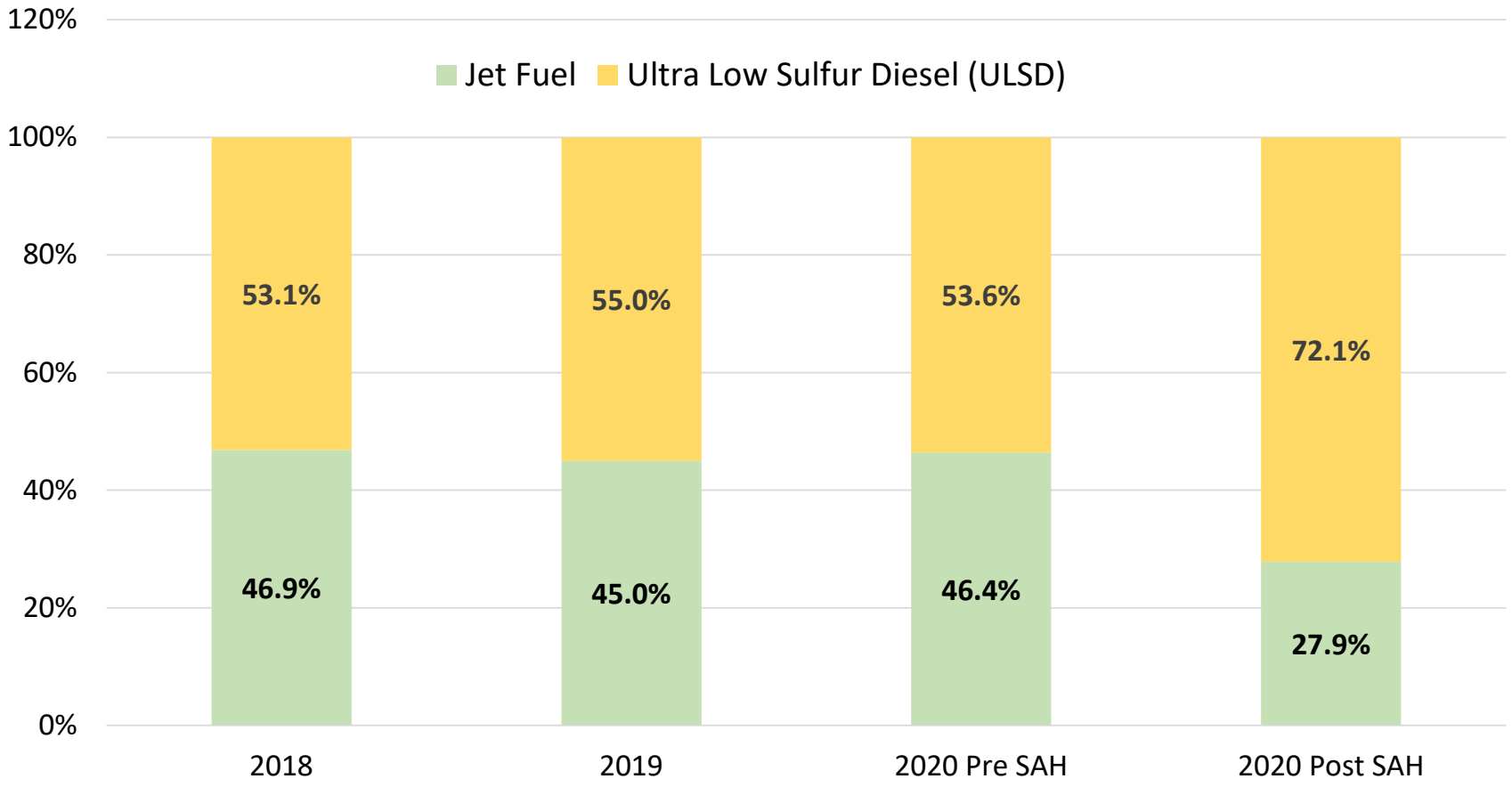
Refiners Adjust Ratio of Jet Production



Source: Energy Commission analysis of Petroleum Industry Information Reporting Act data.

Refiners Adjust Ratio of Jet Production

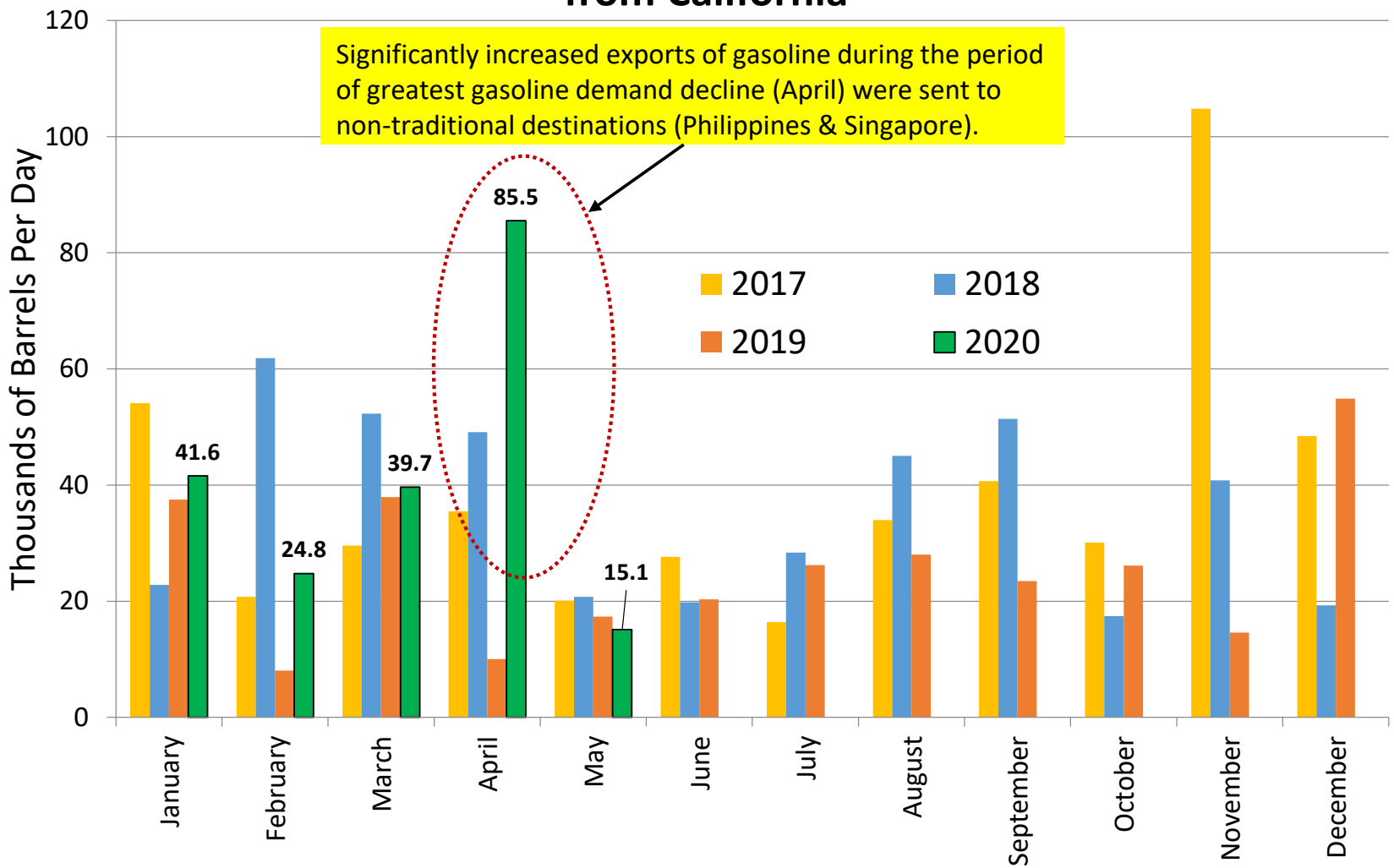
Proportion of Jet Fuel & ULSD Production
California Refineries



Source: Energy Commission analysis of Petroleum Industry Information Reporting Act data.

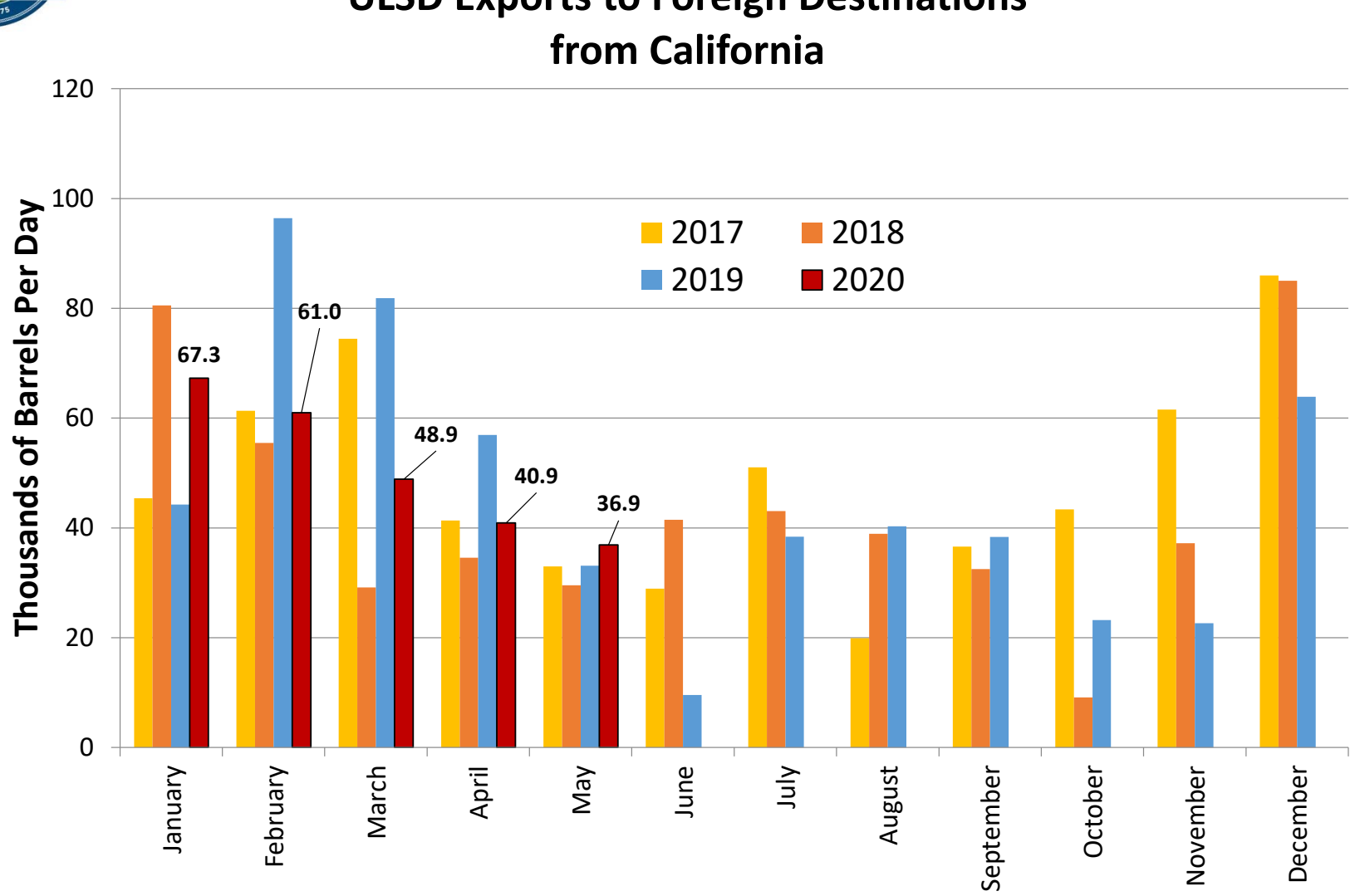
Note: 2020 Pre-Stay-at-Home (SAH) is average of data through week ending 3/13/20. Post SAH is average of data from week ending 3/20/20 through week ending 9/4/20.

Refiners Export Excess Gasoline



Source: California Energy Commission analysis of the International Trade Commission's Interactive Tariff and Trade DataWeb.

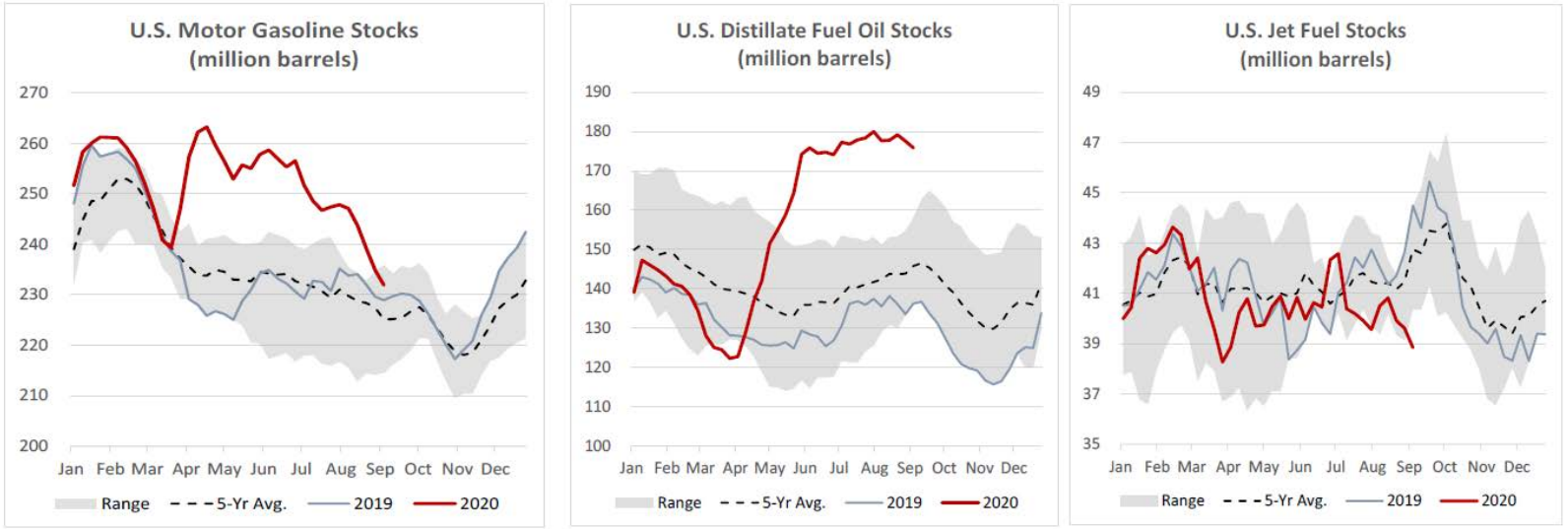
Refiners Exports of Diesel Normal



Source: California Energy Commission analysis of the International Trade Commission's Interactive Tariff and Trade DataWeb.

Transportation Fuel Inventories – U.S.

Data through September 4, 2020



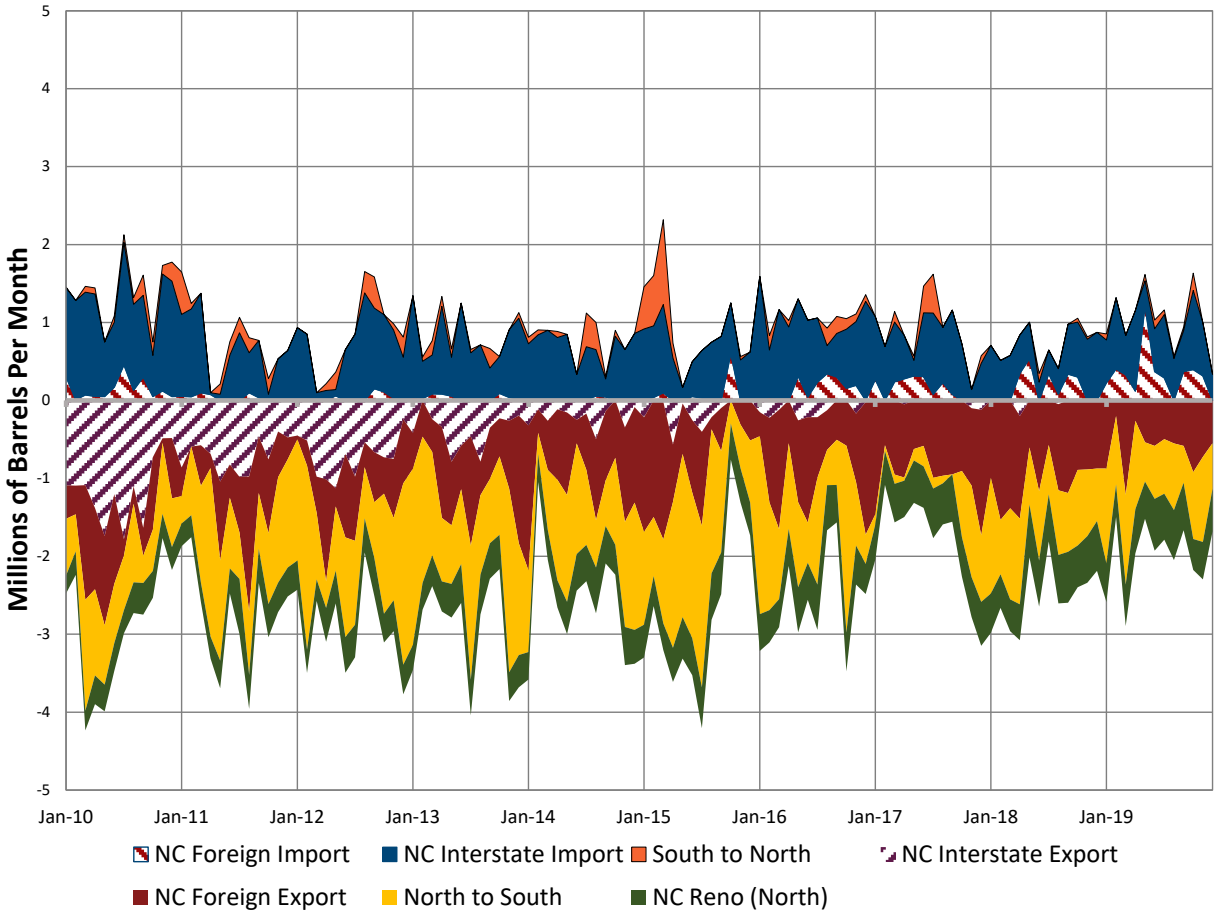
Source: Energy Information Administration.

- Gasoline inventory levels continue back down into a normal seasonal range as gasoline demand recovery outpaces increased refinery output
- Diesel fuel inventories remain well above to top of the historical range as rising diesel demand has been evenly matched with increased production
- Jet fuel inventories have recently dropped below the bottom of the seasonal range – still plenty of supply in light of record low demand

Covid-19 Market Changes

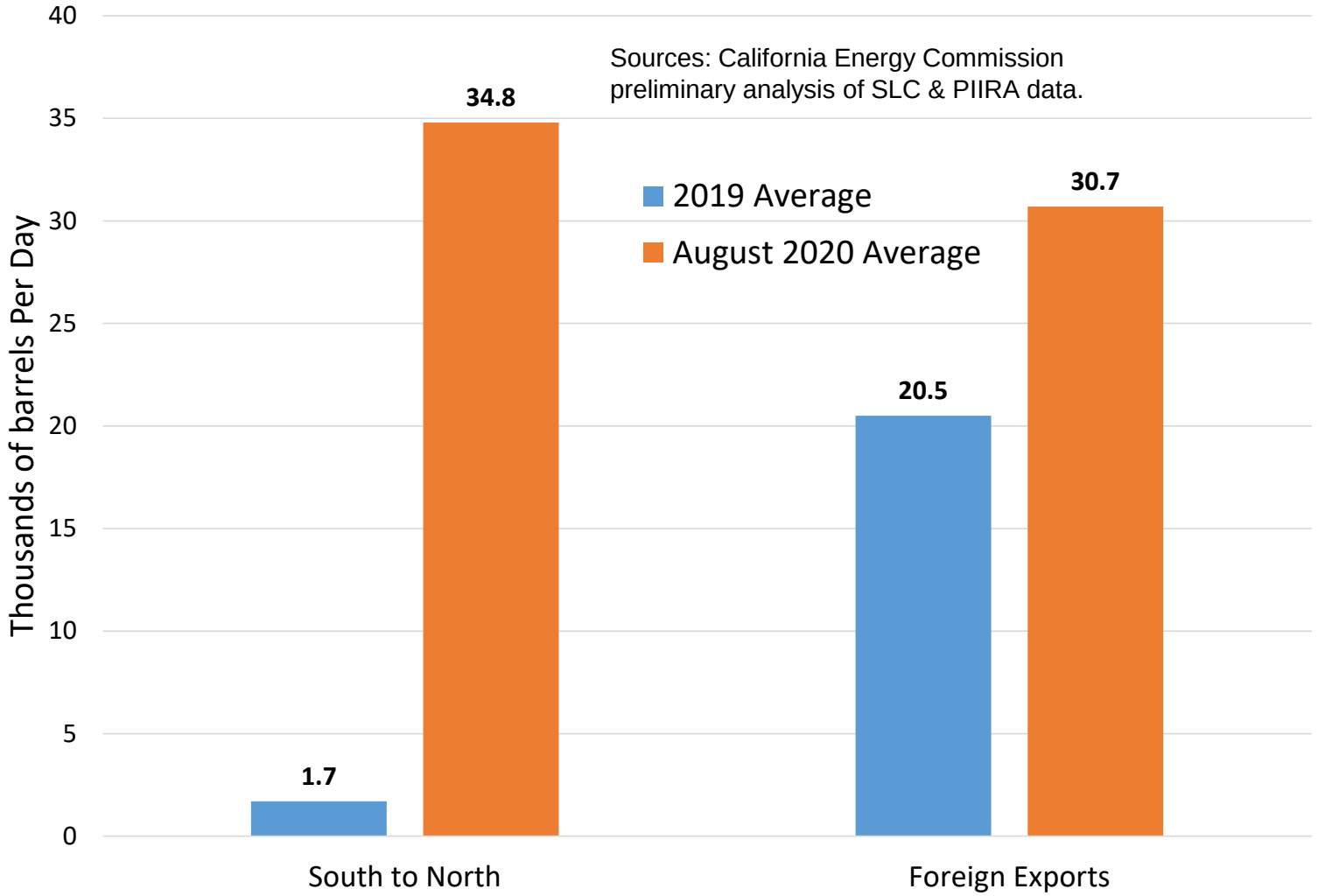
Gasolines Flows – Northern California

- Net exporter
- Foreign imports growing
- Domestic imports from WA refiners – steady
- Imports from S. Calif. intermittent & small – refinery outages
- Pipeline exports to Reno
- Foreign exports steady
- Domestic exports to PNW declined – replaced by WA refiners
- Exports to S. Calif. normal portion of their supply – volumes fluctuate based on refinery outages



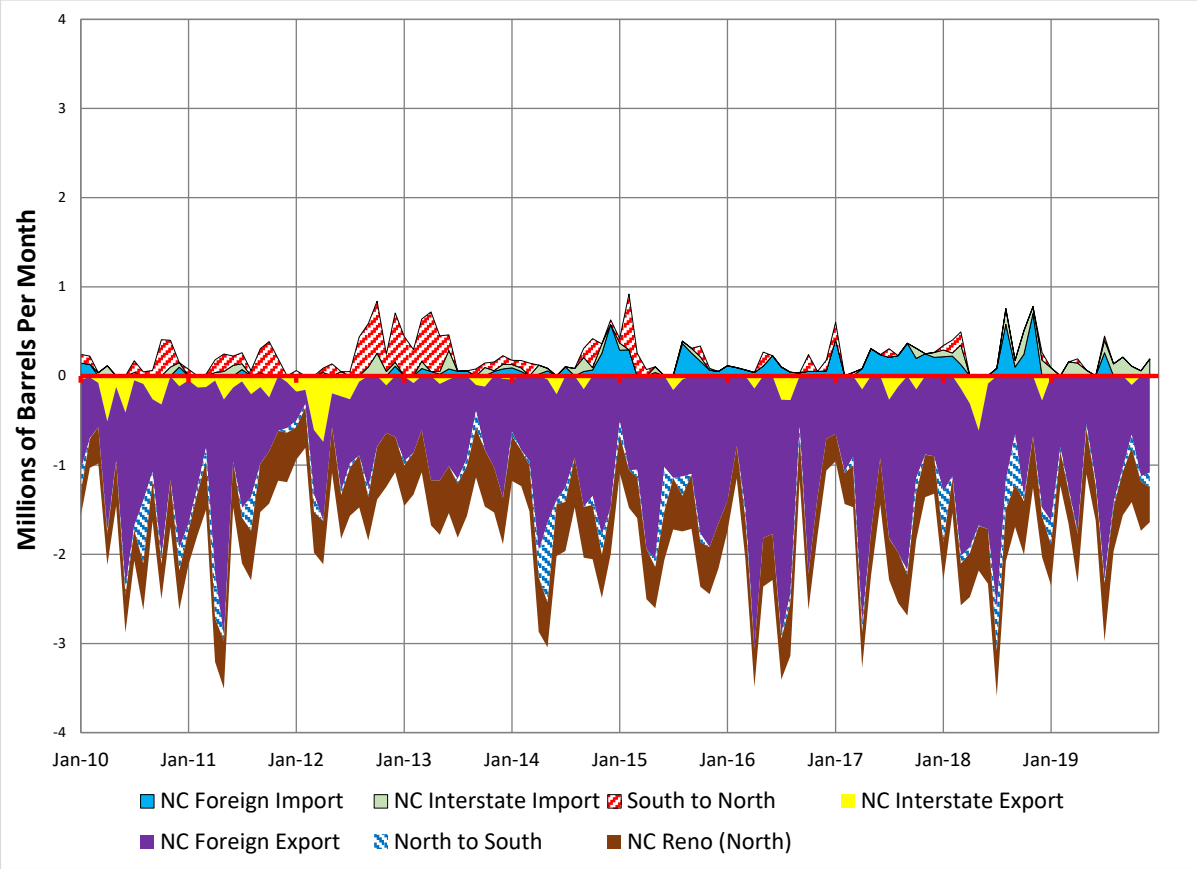
Source: California Energy Commission.

Gasoline Flow Changes



Gasoline deliveries from Southern California up significantly following idling of Marathon – Martinez refinery.

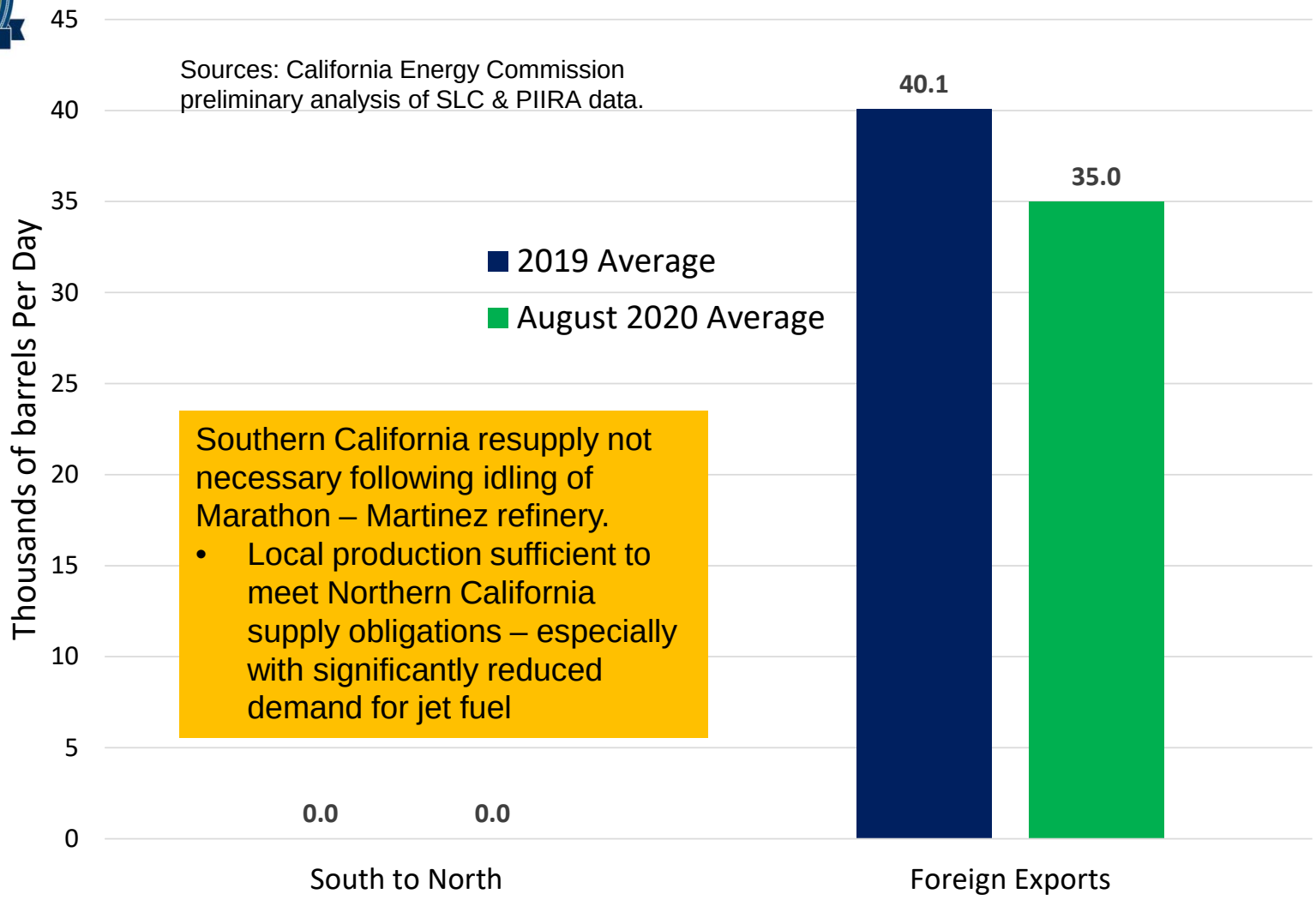
Diesel Flows – Northern California



- Large net exporter
- Foreign imports rare
- Domestic imports from WA refiners recently routine
- Imports from S. Calif. Intermittent & small – refinery outages
- Pipeline exports to Reno
- Foreign exports steady
- Domestic exports to PNW small – replaced by WA refiners
- Exports to S. Calif. small

Source: California Energy Commission

Diesel Fuel Flow Changes



Southern California resupply not necessary following idling of Marathon – Martinez refinery.

- Local production sufficient to meet Northern California supply obligations – especially with significantly reduced demand for jet fuel

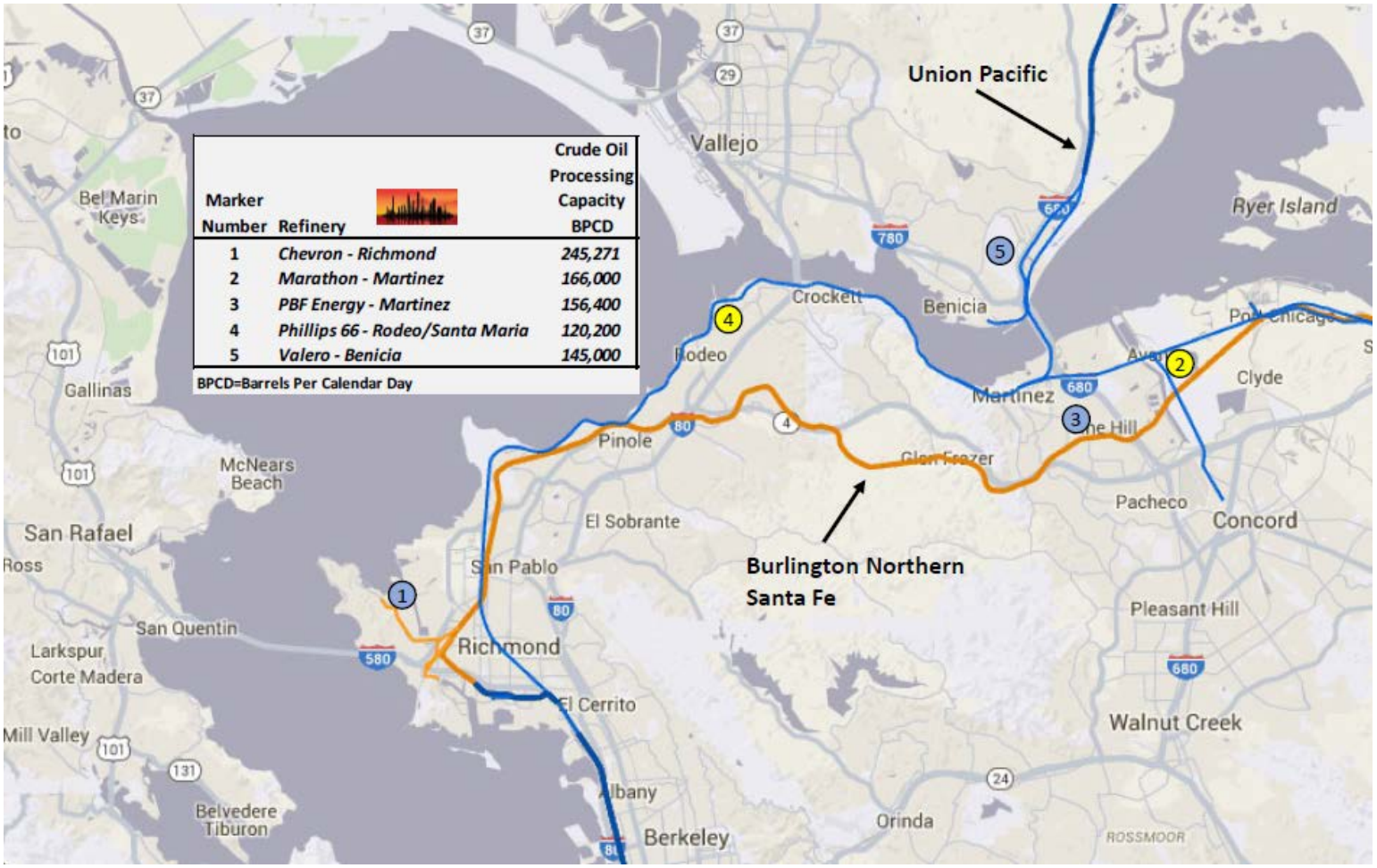
Renewable Fuel Developments & Outlook

Planned Refinery Modifications

- Marathon & Phillips 66 have recently announced plans to convert their facilities to produce renewable transportation fuels
  - Primarily renewable diesel fuel
  - Smaller quantities of renewable:
    - Gasoline components, propane, and possibly jet fuel
- Once the conversions have been completed no additional fossil-based crude oil will be processed at Phillips 66 – Rodeo
- Crude oil processing at Marathon – Martinez refinery was previously halted during early May 2020 as the refinery continued operating as a distribution terminal for gasoline and diesel fuel
- What is the outlook for transportation fuel supply going forward?

Refinery Locations – Northern California

SF Bay Area refiners all have access to marine vessel delivery.



Marker Number	Refinery	Crude Oil Processing Capacity BPCD
1	*Chevron - Richmond*	*245,271*
2	*Marathon - Martinez*	*166,000*
3	*PBF Energy - Martinez*	*156,400*
4	*Phillips 66 - Rodeo/Santa Maria*	*120,200*
5	*Valero - Benicia*	*145,000*

BPCD=Barrels Per Calendar Day

Sources: Oil Change International map, Energy Information Administration refinery data, and Energy Commission analysis.

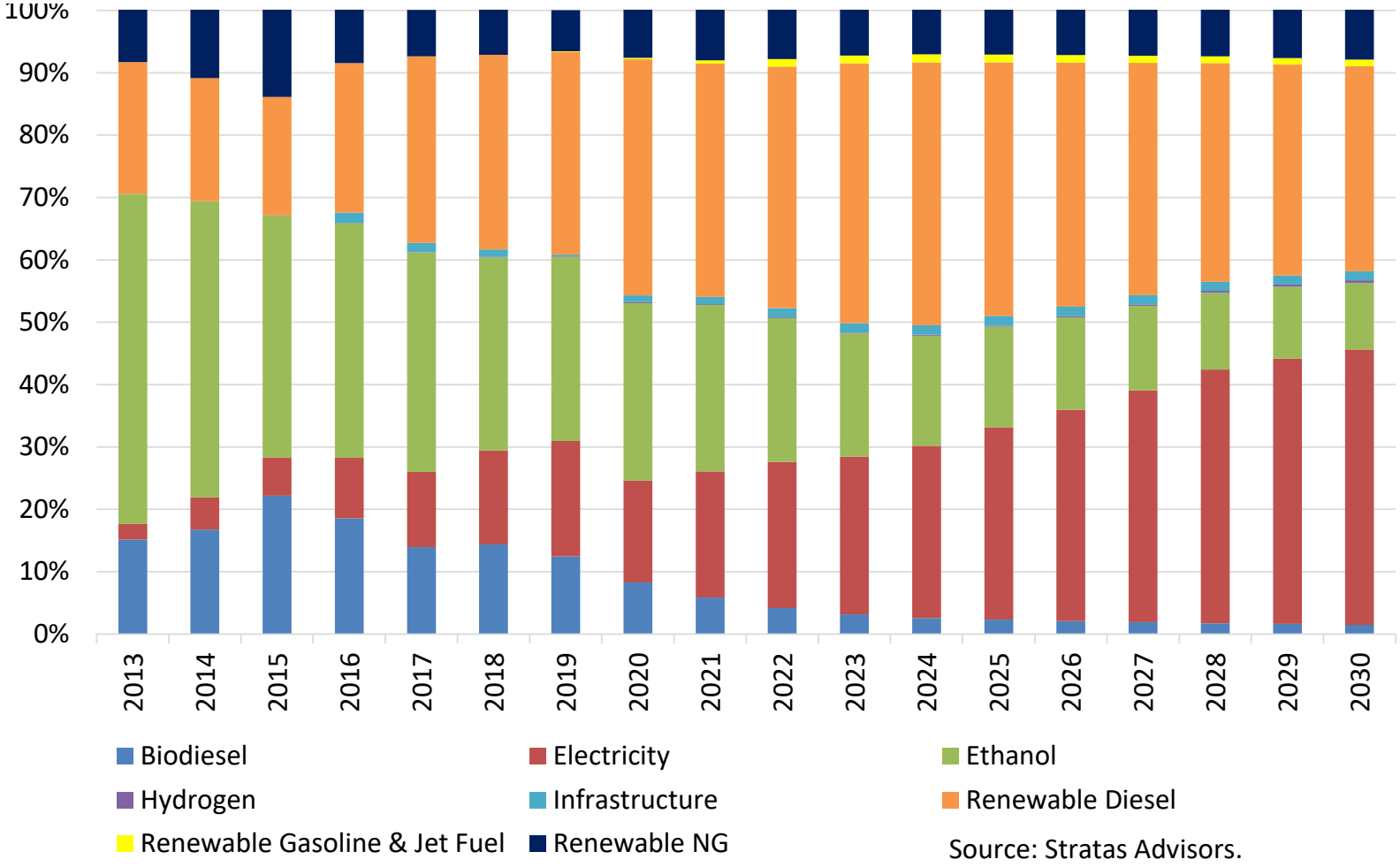
Phillips 66 Project Overview

- Phase 1 – completion anticipated mid-2021
  - Conversion of existing diesel hydrotreater
  - Approximately 8,000 barrels per day renewable diesel production capacity or ***120 million gallons per year***
- Phase 2 – completion anticipated 1Q 2024
  - Approximately 44,000 barrels per day of incremental renewable fuel production capacity or **680 million gallons per year – 800 MM gallons for both phases combined**
  - Mostly renewable diesel fuel, some renewable naphtha and propane
  - Project includes renewable feedstock pre-treatment units to handle:
    - cooking oil, fats, greases, tallow and soybean oils
- Final Investment Decision (FID) targeted for 1Q 2022
  - $750-800 MM capital cost, return on investment greater than 30 percent
- Logistics for receiving feedstocks mainly via marine and rail

Marathon Project Overview

- Phase 1 – completion anticipated 2022
  - Conversion of existing diesel hydrotreater
  - Approximately 17,000 barrels per day renewable diesel production capacity or ***260 million gallons per year***
- Phase 2 – completion anticipated late 2023
  - Approximately 31,000 barrels per day of incremental renewable diesel production capacity or **475 million gallons per year – 736 MM gallons for both phases combined**
  - Mostly renewable diesel fuel, some renewable naphtha and propane
  - Project includes renewable feedstock pre-treatment units to handle:
    - cooking oil, fats, greases, tallow and soybean oils
- Final Investment Decision (FID) targeted for September 2020
  - Capital costs for the Marathon project have not been announced but will likely be in the range of the P66 conversion as the scope & capacity are similar.
- Logistics for receiving feedstocks mainly via marine and rail

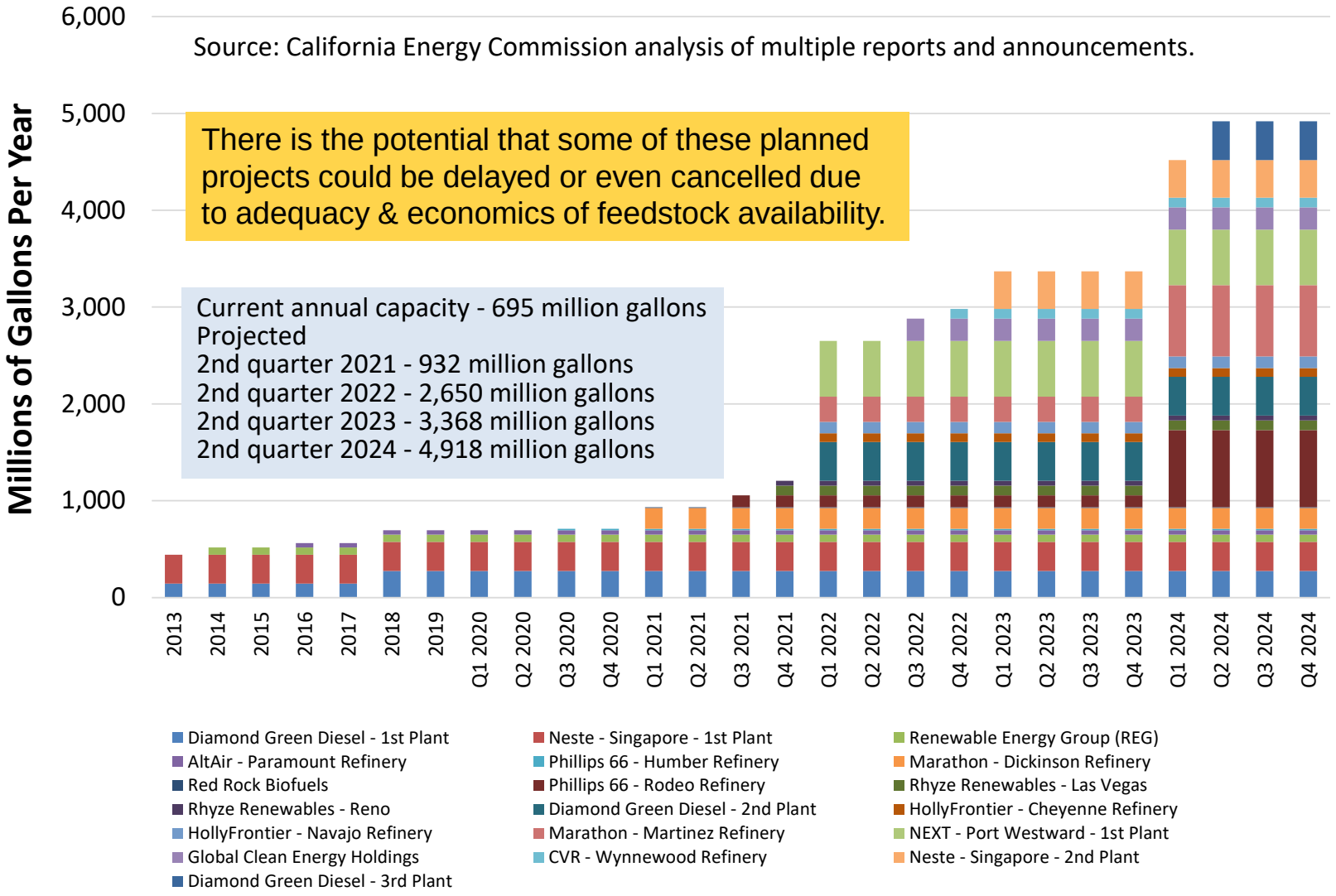
Low Carbon Fuels Standard
Historical & Projected Credit Useage



Importance of renewable diesel for LCFS compliance forecast to grow and remain strong through 2030.

Increasing Renewable Diesel Availability

Renewable Diesel Fuel Production Capacity



What Happens to Fuel Post Covid?

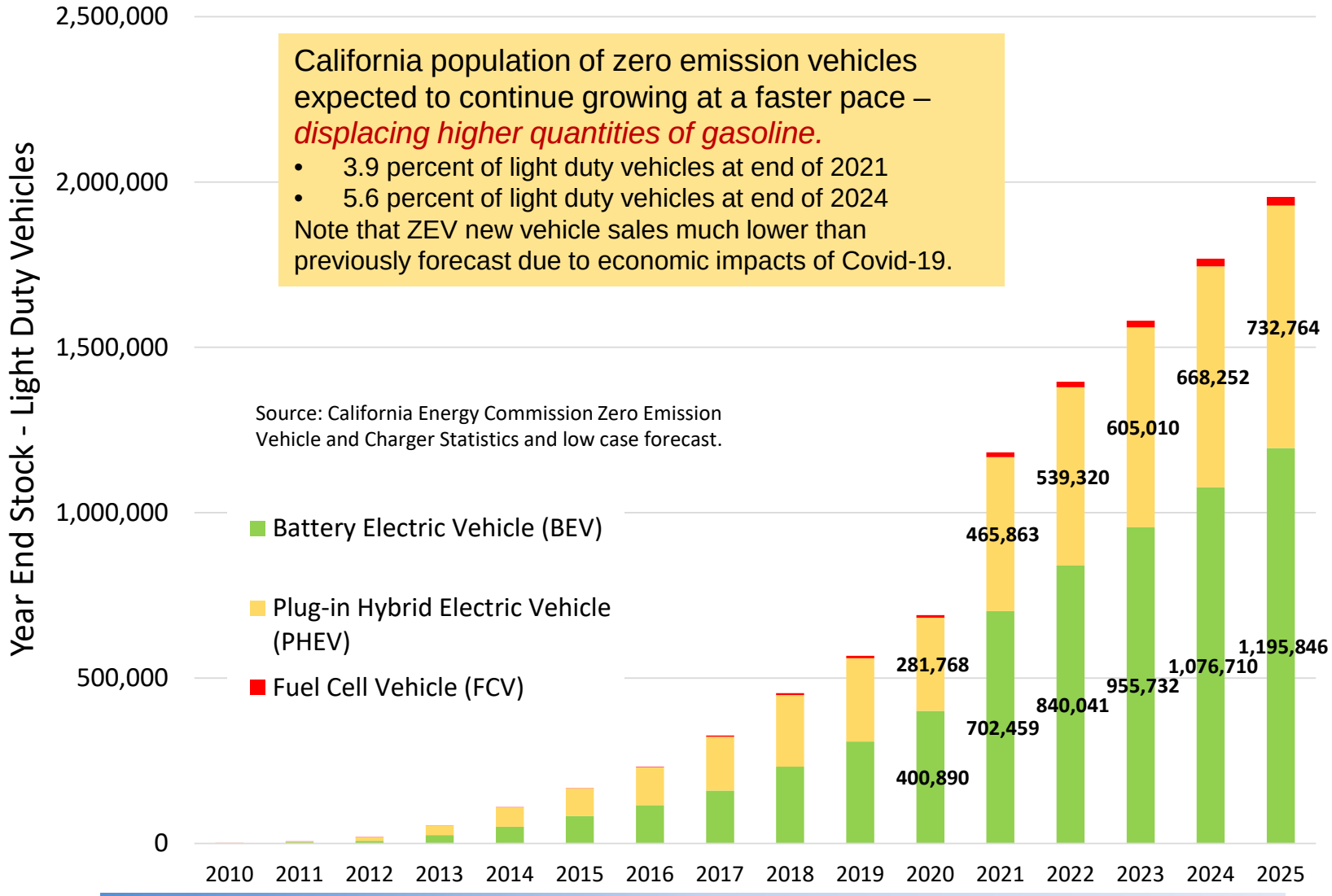
- Once business activity directives are relaxed/lifted, will fuel demand return to pre-Covid levels?
- Gasoline
  - Will all workers return to work or will some portion remain teleworking for the foreseeable future?
    - Will likely depend on whether productivity was maintained and operational expenses could be reduced for some businesses
    - KMPG estimates 35 percent of U.S. jobs could be accomplished remotely
    - Gartner survey finds that 10 to 15 percent of employees could be permanently tele-working going forward
  - Will commuters stay away from more crowded mass transit?
    - So far, the very low transit ridership figures suggest there are ongoing concerns

Electric Vehicle Outlook

California population of zero emission vehicles expected to continue growing at a faster pace – *displacing higher quantities of gasoline.*

- 3.9 percent of light duty vehicles at end of 2021
- 5.6 percent of light duty vehicles at end of 2024

Note that ZEV new vehicle sales much lower than previously forecast due to economic impacts of Covid-19.



Adequacy of Fuel Supply

- Gasoline supply outlook
  - Gasoline demand forecast to continue declining, even under a “high demand” case
  - Compared to 2019
    - Down 50 thousand barrels per day by 2021
    - Down 120 thousand barrels per day by 2024
  - Assuming the Martinez refinery produced gasoline similar to their distillation capacity of 9.1 percent, that estimated loss of 84,000 b/d has already replaced from production from other California refineries
  - Over the next couple of years gasoline demand is not expected to return to pre-Covid levels
  - By 2024 when Phillips switches to renewable fuel production, gasoline demand will already be 120,000 b/d lower than 2019
    - Some limited renewable gasoline production (naphtha) is expected beginning in 2024 & additional blending components can be imported, if necessary

What Happens to Fuel Post Covid?

- Diesel fuel
  - Trucking activity will probably pick up as additional businesses reopen
    - But “capacity” for some types of businesses (such as restaurants) may not return to pre-Covid levels until some time next year
- Jet fuel
  - IATA forecasting that aviation travel will still be 60 percent lower than normal by the end of 2020
    - “Global passenger traffic (revenue passenger kilometers or RPKs) will not return to pre-COVID-19 levels until 2024”
  - Potential health concerns by some travelers unwilling to fly in very close proximity to others & reduced discretionary income resulting from economic impacts

Adequacy of Fuel Supply

- Diesel supply outlook
  - Diesel demand forecast to continue declining, even under a “high demand” case – but at a much more gradual pace compared to gasoline
  - Compared to 2019
    - Down 5 thousand barrels per day by 2021
    - Down 12 thousand barrels per day by 2024
  - Assuming the Martinez refinery produced California diesel fuel similar to their distillation capacity of 9.1 percent, that estimated loss of 20,000 b/d has already replaced from production from other California refineries
    - Refiners will continue to have incremental spare diesel production capability with the anticipated longer-term demand reduction for jet fuel
  - Even if diesel demand in California recovers to pre-Covid levels by sometime next year incremental imports of renewable diesel are expected to arrive beginning later this year
    - Nearly 14,000 b/d from Marathon’s Dickinson refinery conversion
  - By 2024 when Phillips switches to renewable fuel production their renewable diesel output is expected to be similar to levels prior to the switchover

Additional Questions

Source: Tuoi Tre News - September 9, 2020.

AGENDA: 18B

Martinez Refinery
Pivoting from fossil to renewable energy

Presentation to Bay Area Air Quality Management District Board

September 16, 2020

Forward Looking Statements

This presentation includes forward-looking statements regarding Marathon Petroleum Corporation (MPC). You can identify forward-looking statements by words such as "anticipate," "believe," "estimate," "expect," "forecast," "goal," "intend," "objective," "opportunity," "plan," "position," "potential," "predict," "project," "seek," "target," "could," "may," "should," "would," "will" or other similar expressions that convey the uncertainty of future events or outcomes. We have based our forward-looking statements on our current expectations, estimates and projections about our industry and our company. We caution that these statements are not guarantees of future performance and you should not rely unduly on them, as they involve risks, uncertainties and assumptions that we cannot predict and many of which are beyond our control. Accordingly, our actual results may differ materially from the future performance that we have expressed or forecast in our forward-looking statements. Factors that could cause actual results to differ materially from those implied in the forward-looking statements include our ability to achieve the strategic and other objectives related to the transactions described herein. In accordance with "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, we have included in MPC's Annual Report on Form 10-K for the year ended Dec. 31, 2019, quarterly reports on Form 10-Q and other SEC filings, cautionary language identifying important factors, though not necessarily all such factors, that could cause future outcomes to differ materially from those set forth in the forward-looking statements. Copies of MPC's Forms 10-K and 10-Q, and other SEC filings, are available on the SEC's website, MPC's website at https://www.marathonpetroleum.com/Investors/or by contacting MPC's Investor Relations office.

Marathon's Climate Targets and Initiatives

Actions – not goals – to meet MPC's 2030 climate target

- Announced plans to evaluate strategic repositioning of Martinez refinery to renewable diesel facility, which is part of a larger sustainability focus at MPC.

- In March, MPC announced a company-wide goal to reduce greenhouse gas emissions intensity 30%[1] below 2014 levels by 2030 and tied it to executive & employee compensation.
  - First independent refining company to do so.

Learn more at : https://sustainability.marathonpetroleum.com

News Release

Marathon Petroleum Corporation

Marathon Petroleum Corp. Establishes Greenhouse Gas Emissions Goal and Links Goal to Executive and Employee Compensation Programs

03/04/2020

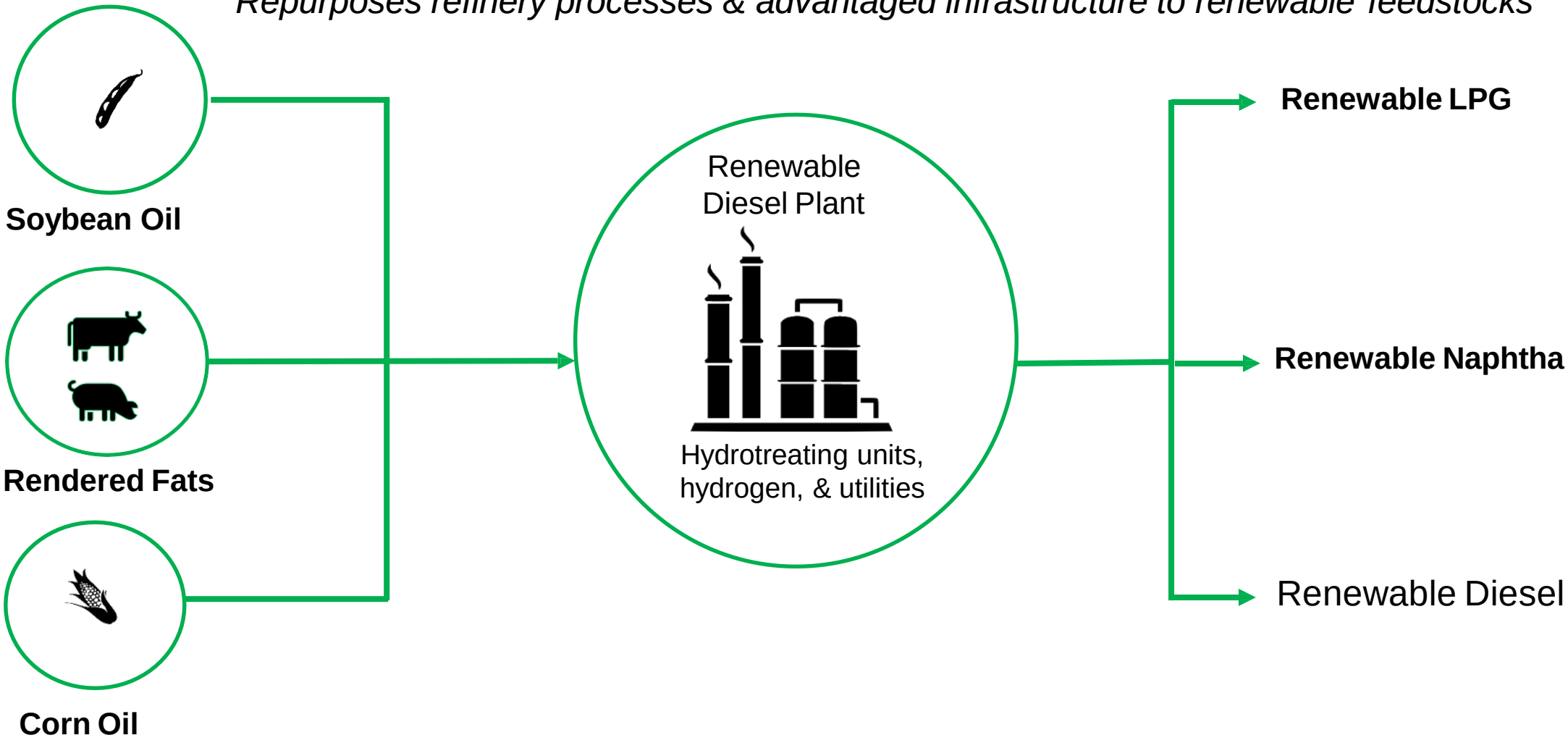
FINDLAY, Ohio, March 4, 2020 /PRNewswire/ -- Marathon Petroleum Corp. (NYSE: MPC) has established a companywide goal to reduce its greenhouse gas (GHG) emissions per barrel of oil equivalent (BOE) processed to 30% below 2014 levels by 2030. The company has linked achievement of the goal to its executive compensation program and certain employee programs.

[1] Defined as Scope 1 and 2 sources of greenhouse gas emissions

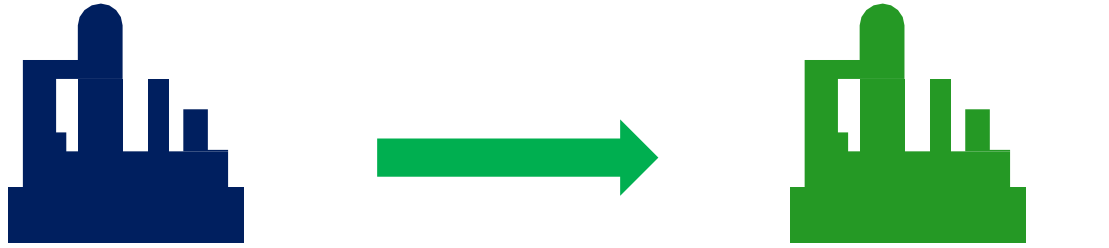
Potential Martinez Renewable Fuels Conversion

Simplified Overview

Repurposes refinery processes & advantaged infrastructure to renewable feedstocks



Renewable Fuels Facility Benefits the Environment



Petroleum → **Renewable Fuels**

Reduce Stationary Criteria Pollutant Emissions by ~	Reduce Stationary Greenhouse Gas Emissions by ~	Reduce Greenhouse Gas Lifecycle Emissions by ~	Reduce Water Consumption by more than
70%	60%	24 million tonnes	1 billion gallons per year

Renewable Diesel Facts

- Renewable diesel is an engine-ready replacement for petroleum diesel.
  - Higher quality & cleaner burning
- Renewable diesel is not the same as biodiesel.
  - Biodiesel has different properties & must be blended with other fuels.
  - Most manufacturers' engines can operate at no more than 20% of fuel from biodiesel.
- Renewable diesel demand is increasing with state & federal policies such as California's low carbon fuel standard and U.S. EPA's renewable fuel standard.
- Exciting project that could support economic recovery & will allow California and MPC to be leaders in sustainable energy.
  - Plan to submit permit applications in October.


MARATHON

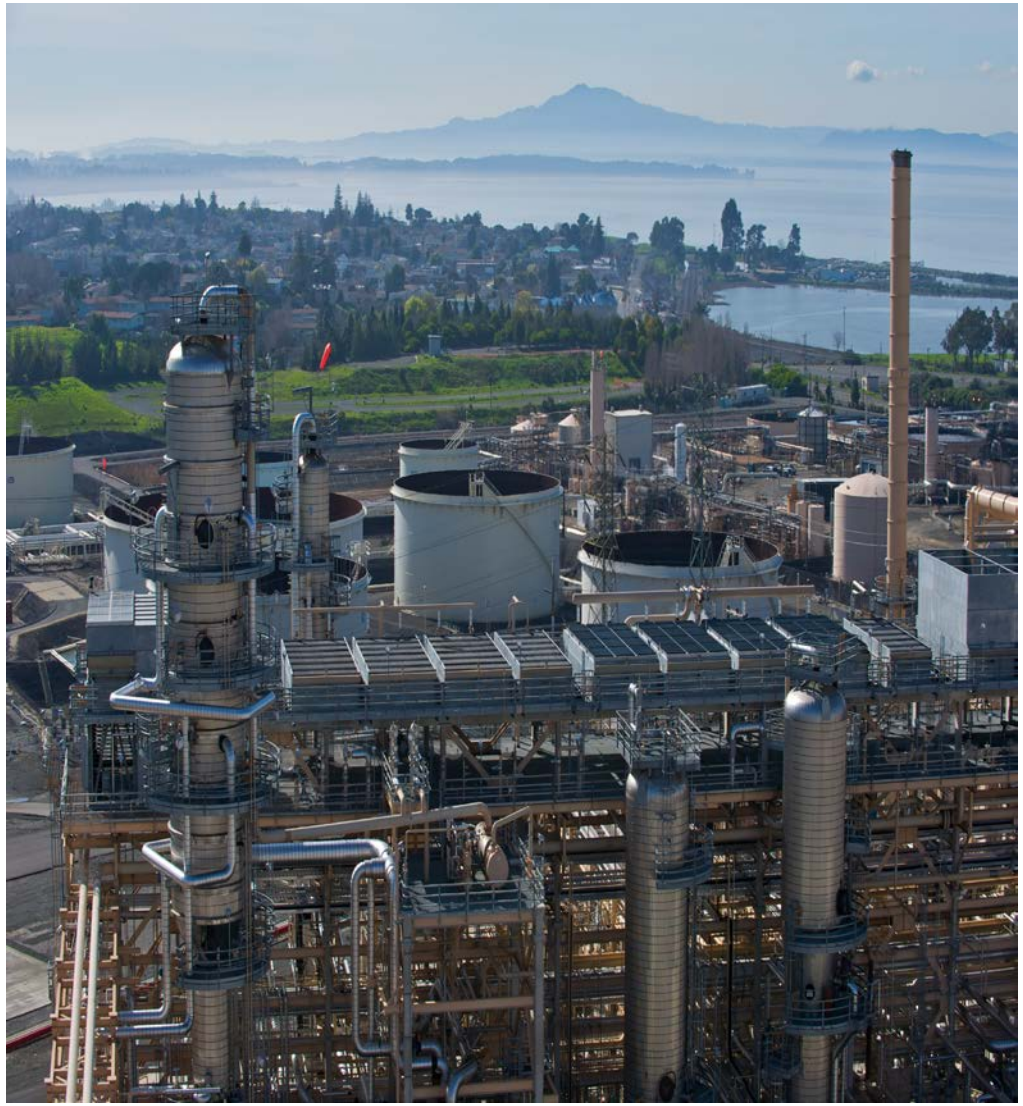
Rodeo Renewed

AGENDA: 18C

BAAQMD
September 16, 2020

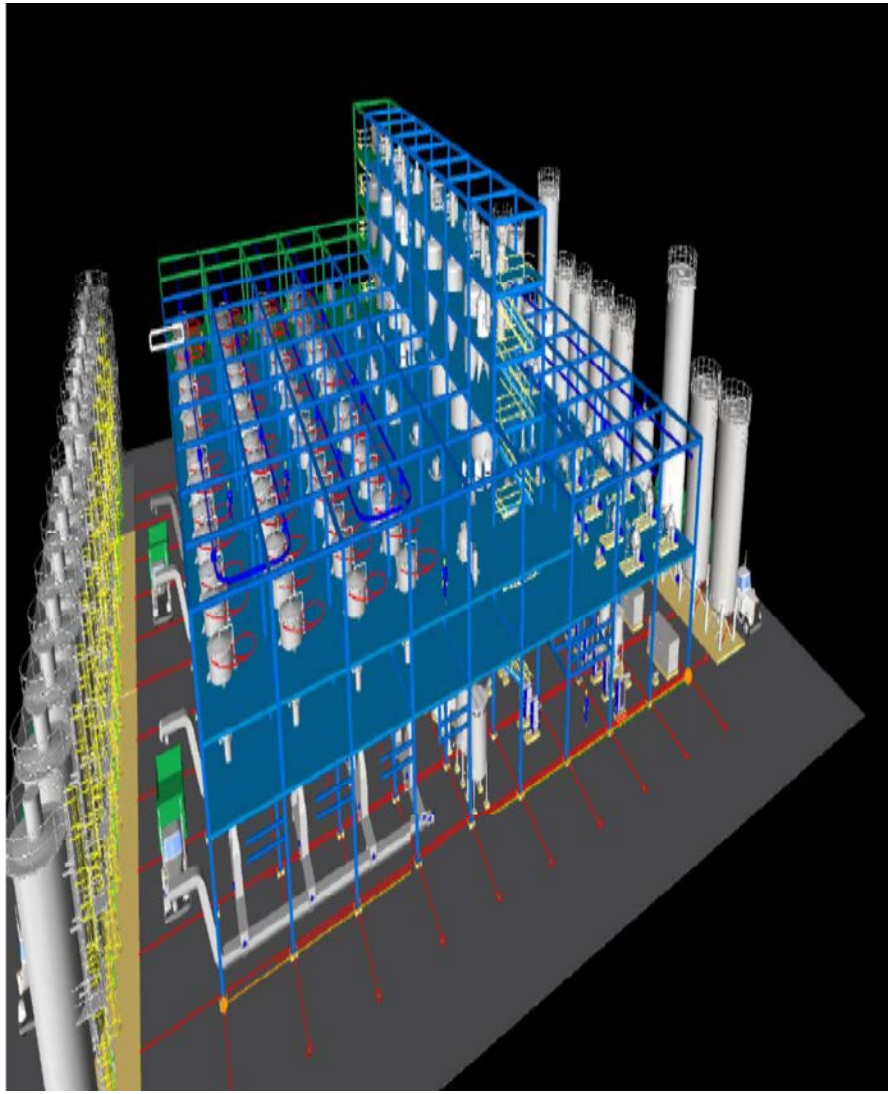
Phillips 66 Rodeo Refinery

- Proudly operating in the Bay Area for 124 years
- Operations include a front-end refinery in Santa Maria, connected by a 236-mile pipeline
- Rodeo Refinery provides 12% of CA's diesel market and 6% of the gasoline market
- Total workforce: 480 employees, 320 contractors
- Challenging business environment that is no longer sustainable
- Opportunity to preserve family wage careers while redefining the facility and creating a sustainable resource in the CA energy market
- Rodeo Refinery uniquely positioned to leverage existing site into the **world's largest renewable fuels production facility**



Rodeo Renewed

- Facility would be the **WORLD'S LARGEST - up to 800 million gallons**
- Consumer demand would now be met by renewable diesel and renewable gasoline
- Facility will have the ability to produce renewable jet fuel
- Feedstock will be used cooking oil, vegetable oils, and fats
  - No plans to use Palm Oil
- Facility would **no longer** process or transport crude oil
- Project will use gas production to produce renewable hydrogen
- On-site solar power will provide 15% of the site's energy requirements



Why Rodeo is the Right Option for Renewables

- **Hydroprocessing capability**
  - Two high pressure hydrocrackers and high pressure diesel hydrotreater
    - Existing systems suited for Renewables (Metallurgy / Reaction System Equipment / High Recycle Rates)
  - Existing Hydrogen supply
- **Advantaged Logistics**
  - Access to global markets via marine terminal
  - Proprietary Terminals and Pipelines
- **Support Facilities**
  - Existing waste water treatment / Odor abated tankage
  - Ability to produce renewable naphtha, jet, and diesel with existing fractionation systems

Renewable Diesel & Gasoline

What is 76 Renewable Diesel

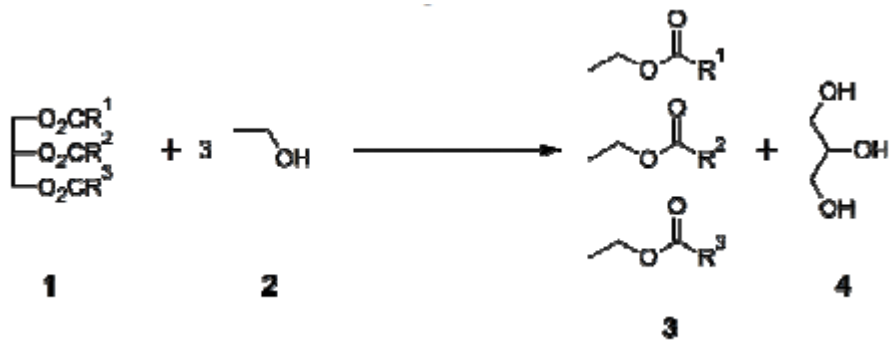
- Renewable diesel is a “drop-in” replacement fuel that exceeds specs of crude oil-derived diesel but with lower carbon intensity (35 vs 100)
  - “Drop-in” fuel means no engine conversion is needed
  - Meets California diesel and Ultra Low Sulfur Diesel (rest of United States) specs
  - Higher cetane than current California diesel produced
- Renewable naphtha will be blended to make a low-sulfur, high performing fuel
- A premium quality fuel that is colorless, cleaner burning and very stable
- **Renewable diesel is NOT biodiesel**

Renewable vs Bio Diesel

Biodiesel is produced by a different process, is 12% less energy efficient, and <u>can't</u> be used as a "drop-in" fuel.

- Rodeo Renewed is a **renewable** diesel project, **<u>not</u> biodiesel**.

- **<u>Biodiesel:</u>**
  - Produced using a transesterification process
  - Feedstocks similar to renewable diesel – include algae as well
  - Chemically different from petro and renewable diesel due to presence of "O" (oxygen atom)
  - Poor cold flow properties
  - Lower cetane and energy content
  - Most engines limited to 5% (some to 20%)
  - FAME (**<u>F</u>**atty **<u>A</u>**cid **<u>M</u>**ethyl **<u>E</u>**ster)



Benefits of Rodeo Renewed Project

CARBON FOOTPRINT REDUCTION

- Reduces GHG by 50%

REDUCED AIR EMISSIONS

- Criteria emissions reduced by 60%
  - SO_x – 75% reduction
  - PM_{10} – 50% reduction
  - NO_x - 60% reduction

WATER USAGE REDUCTION

- Reduces industrial water consumption by ~ 20% (500gpm)

CREATION of GREEN JOBS

- Facility would employ 400+ renewable energy jobs
- Project would require 500+ construction jobs utilizing local union labor
- Facility would **continue to provide** high-paying family-wage jobs with healthcare benefits

Rodeo Renewed

Phillips 66 looks forward to making California the home of the world's largest renewable fuels production facility.

Questions? Visit www.RodeoRenewed.com

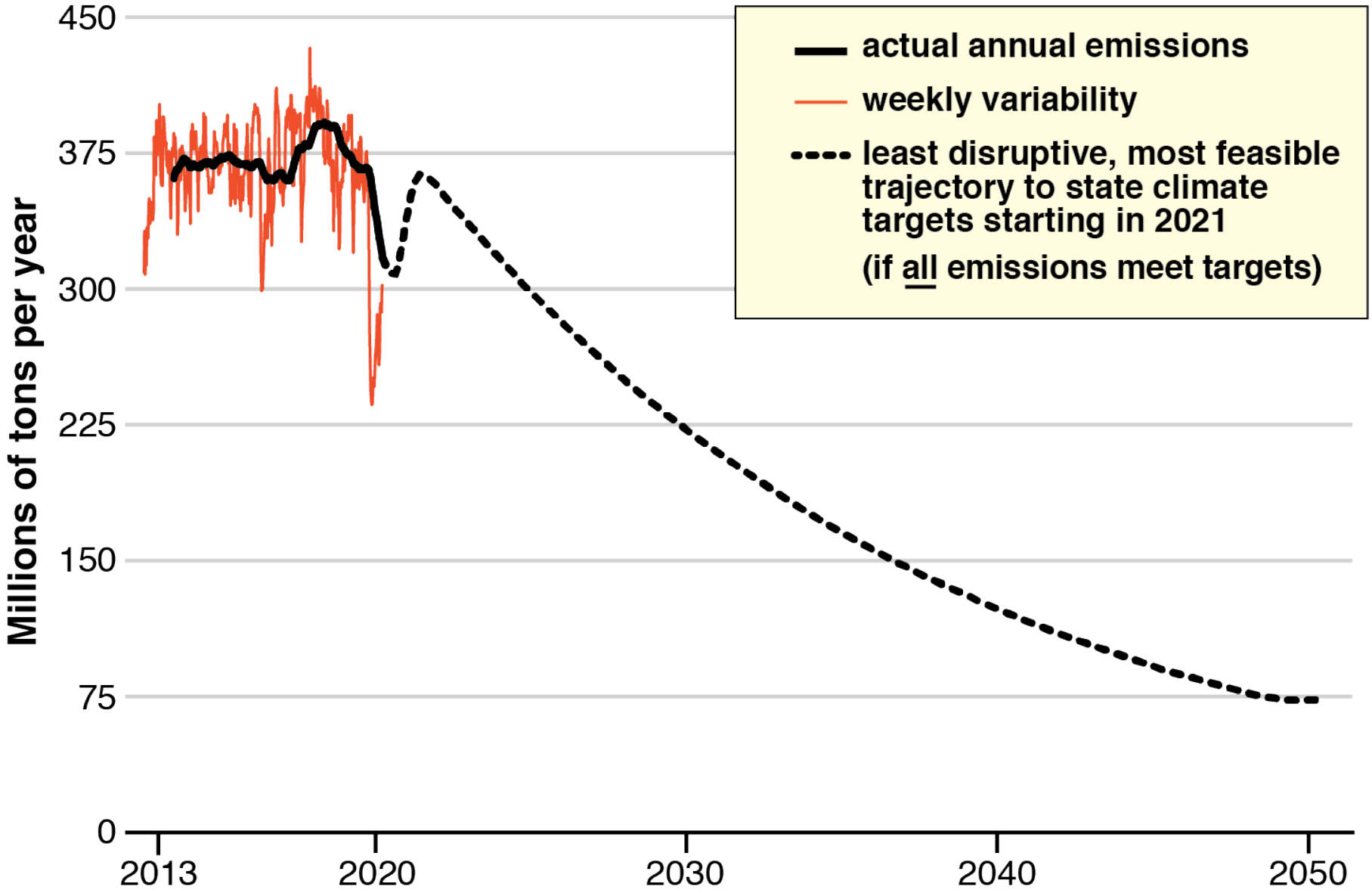
AGENDA: 18D

Climate and Health Paths in an Oil State

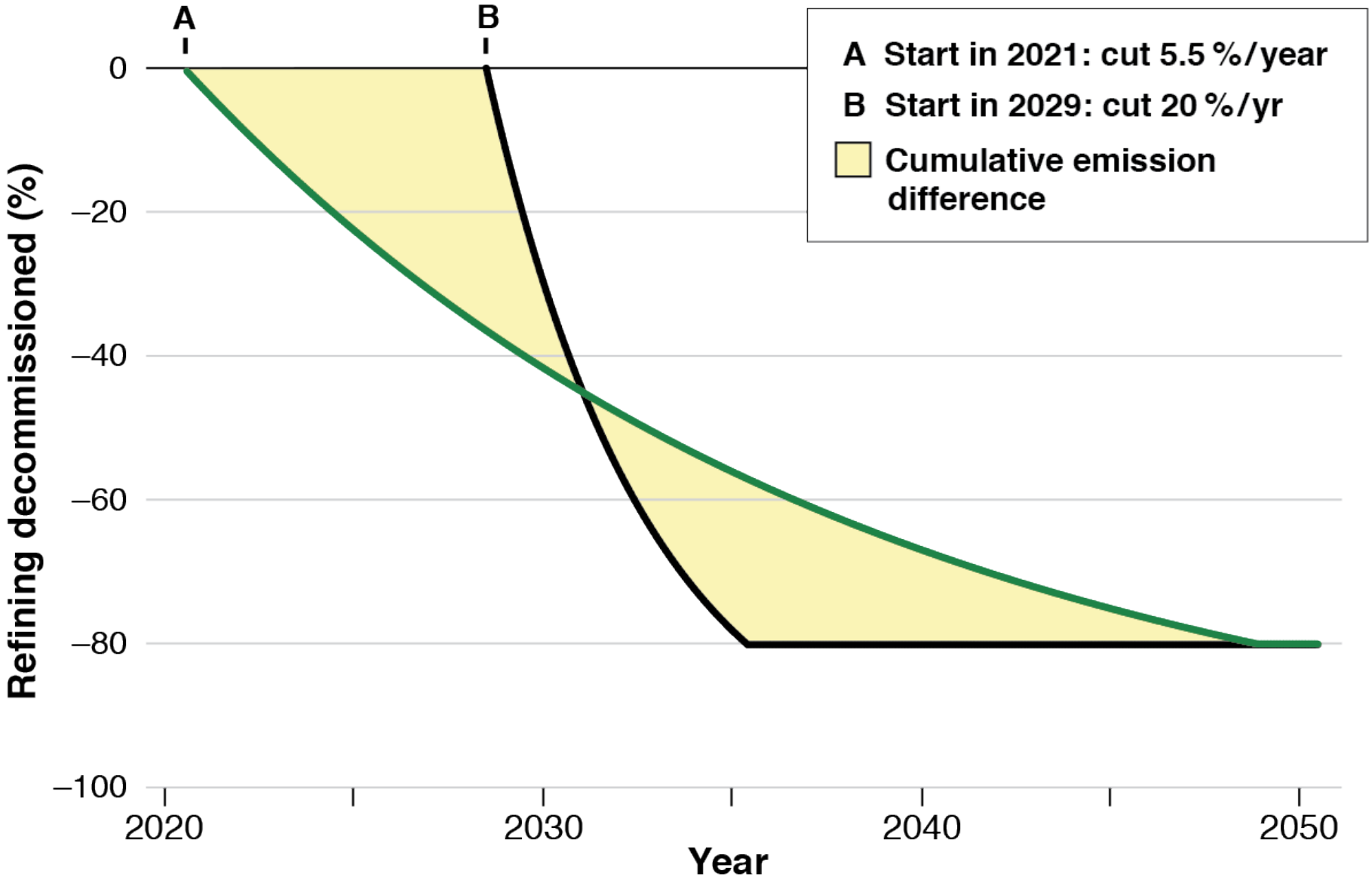
Update presented to the
Bay Area Air Quality Management District

Greg Karras
Community Energy reSource

September 16, 2020



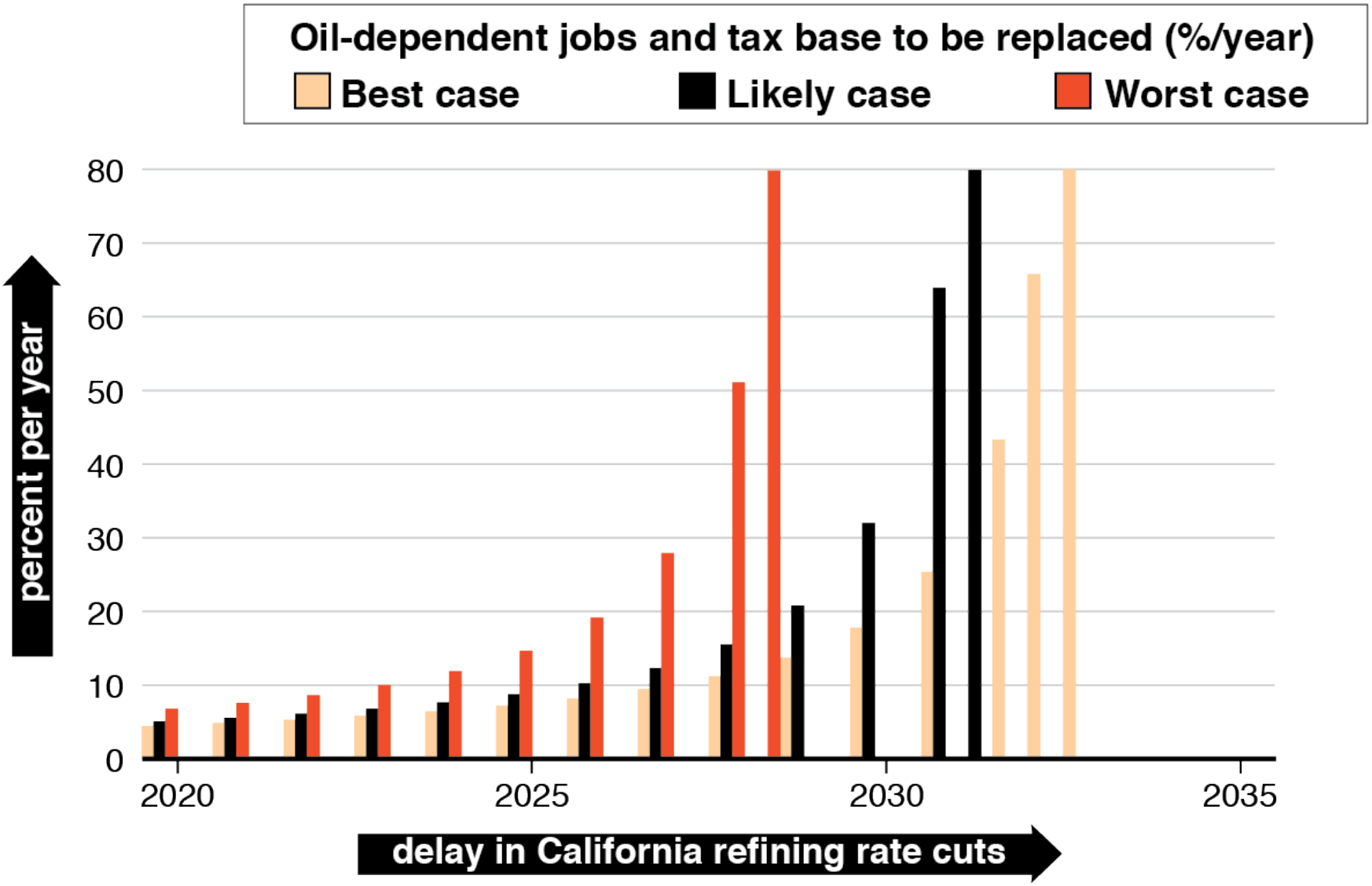
Trajectories for CO_2e emission from extracting, refining, and burning the oil refined in California. Data: CEC and CARB. www.Energy-re-Source.com



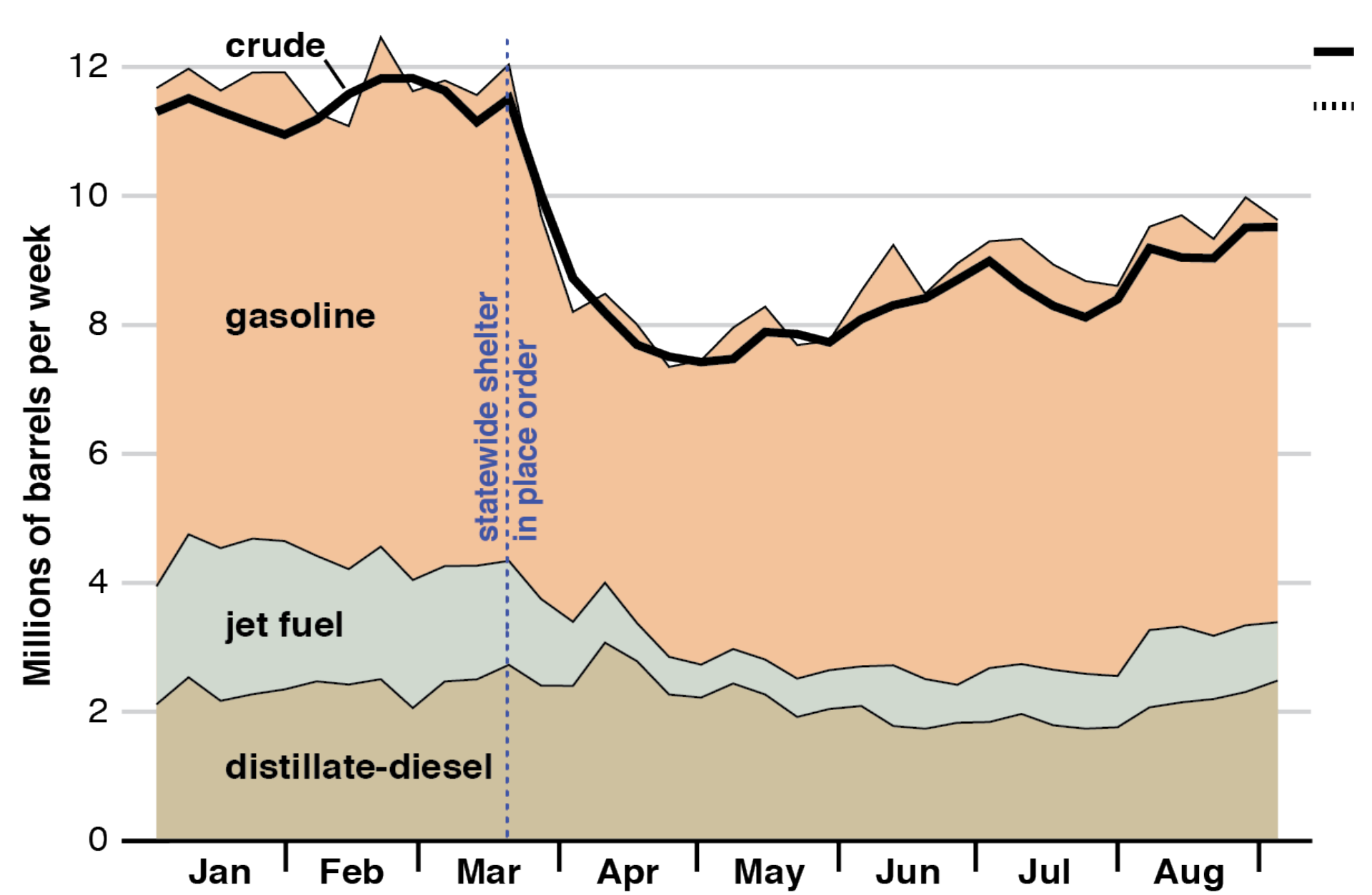
Emission impact of delay on refining cuts to state climate targets.

Example: two S1-C1 trajectories from Karras, 2020.

www.Energy-re-Source.com



Transition impacts of delayed refining cuts to state climate targets.
Assumes all non-petroleum emissions cut to their share of state climate targets and 20% refining capacity reserve. Data: Karras, 2020. www.Energy-re-Source.com



California oil refining rates in 2020 through September 4.

Data from California Energy Commission Fuel Watch

www.Energy-re-Source.com