California Low Carbon Fuel Standard Regulatory Update

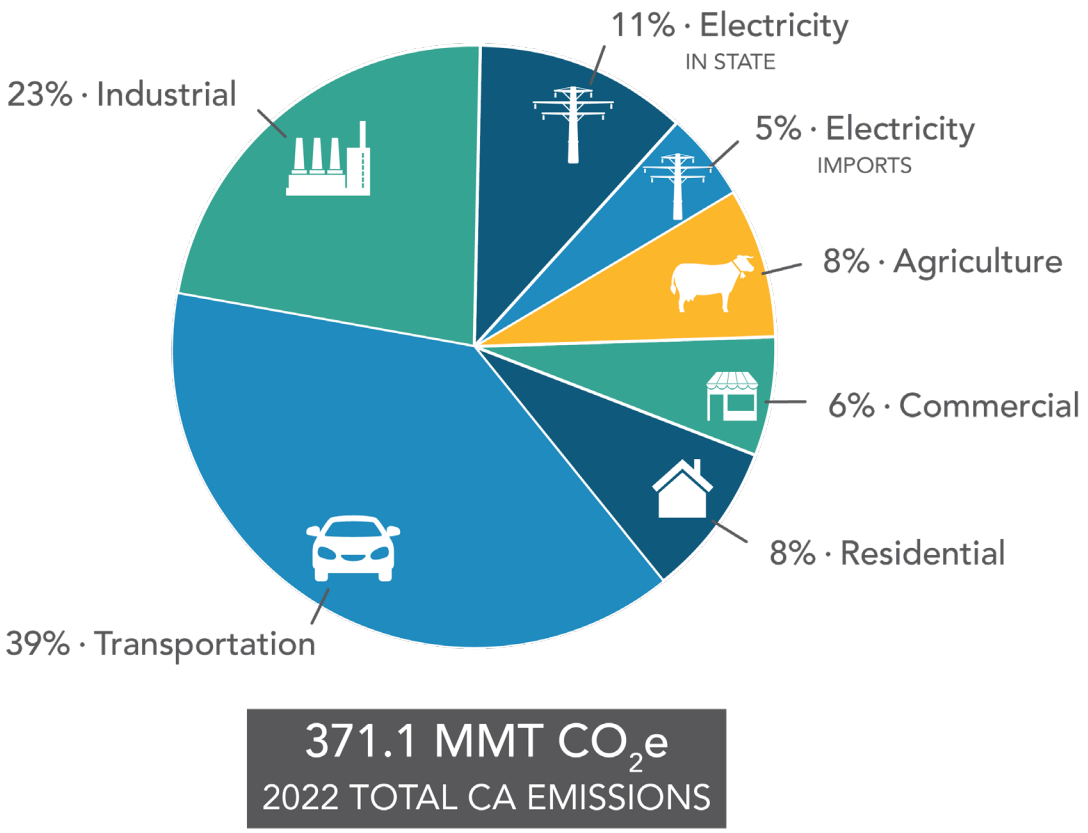
NOVEMBER 8, 2024

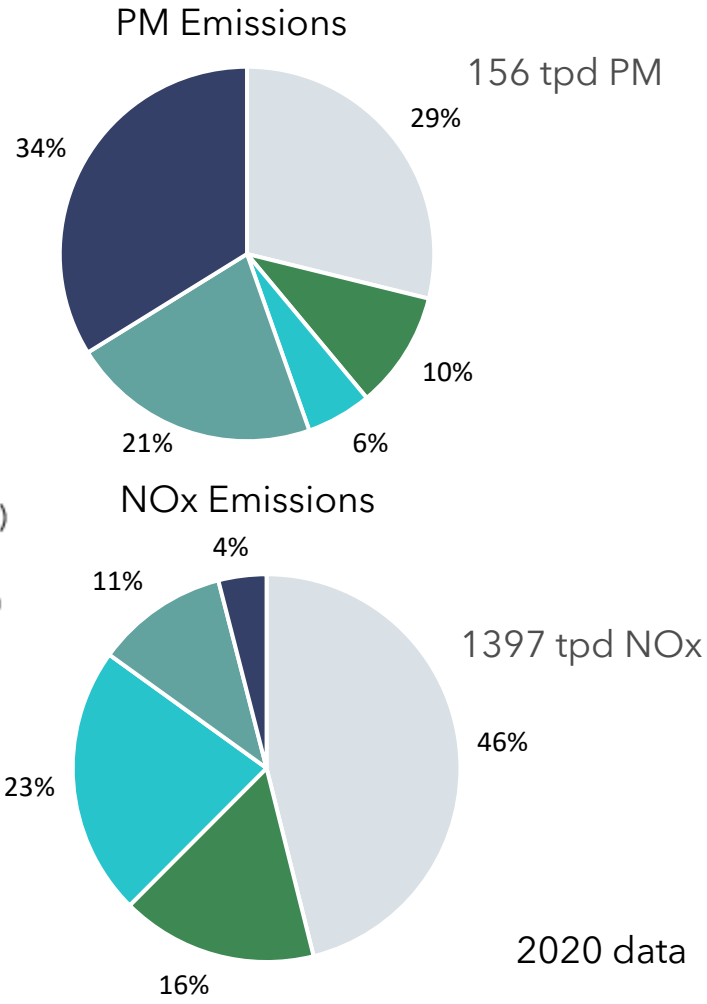
CALIFORNIA
AIR RESOURCES BOARD

Agenda

- Policy Context
- Program Status
- Public Process
- Proposed Amendments
- Next Steps
- Staff Recommendation

Air Pollution from Transportation





The Road
to Zero Emissions

CARB has put a roadmap in place to drastically reduce our dependence on petroleum in the transportation sector by 2045.

AB 32

Requires we cut GHGs.

To reach goals, fuel use must be cut by 94%.

How cuts happen?

Zero emission cars, trucks and fuels.

ACT **ACC** **ACF**

CARB rules that make that possible:

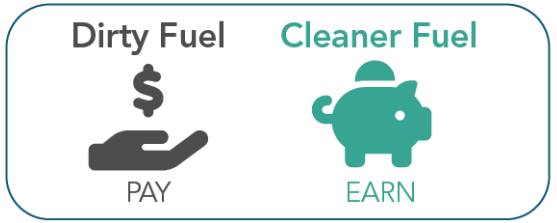
Advanced Clean Trucks, Advanced Clean Cars, Advanced Clean Fleets

- ACT: Phases out sale of most fuel-powered trucks by 2035
- ACC: 100% ZEV sales requirement by 2035
- ACF: Requires that trucks in CA be zero emissions by 2045

LCFS

Makes fuel less polluting and encourages production of cleaner alternatives

How it works:



All together, these actions will help us build a cleaner, healthier California for current and future generations.

Governor Newsom creates new oversight committee to monitor oil companies

CARB

Amendments Align with Plans and Regulations

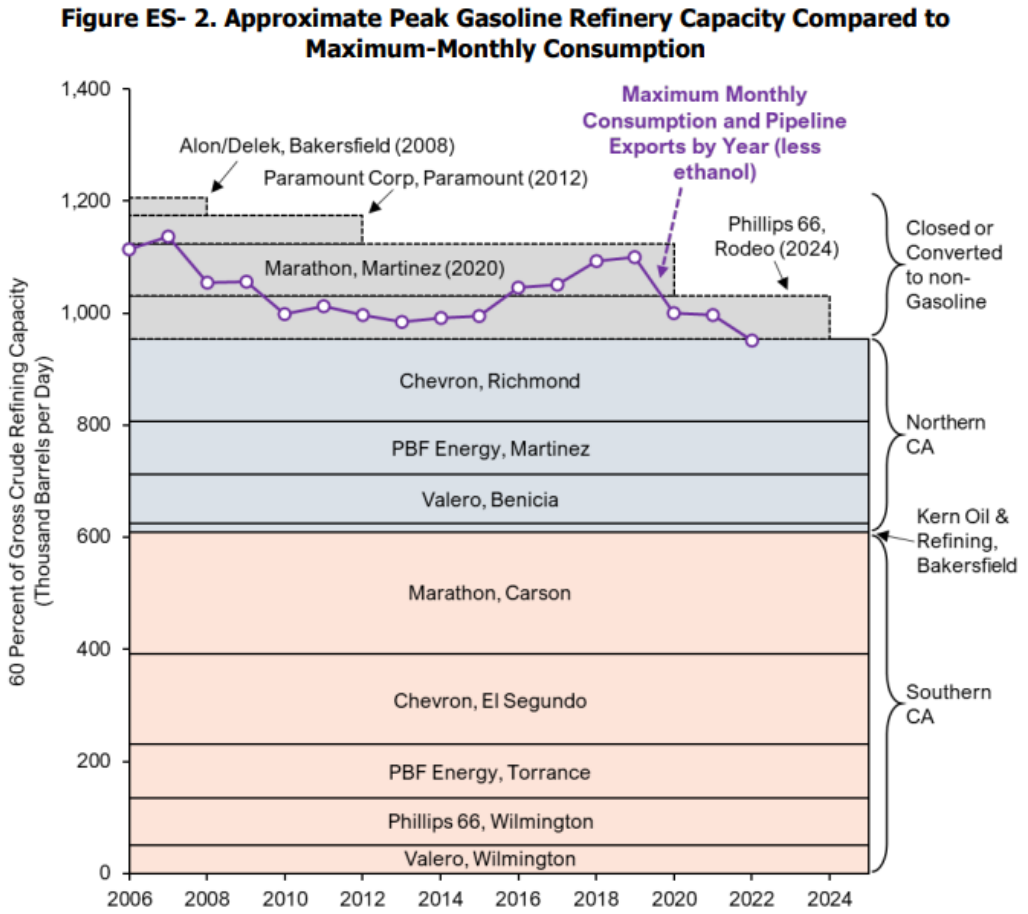
- CARB's Core Long-term Planning Documents
  - State Implementation Plan (SIP) to achieve federal and state air quality goals
  - AB 32 Scoping Plan to achieve state climate targets
    - 2022 Scoping Plan Update builds on existing SIP to ensure alignment with air quality related actions
- ZEV regulations implement SIP and Scoping Plan
  - LCFS is included in analyses for ZEV regulations as part of economic support for ZEV deployment and operation
  - LCFS amendments proposed in 15-day package designed to support recently adopted ZEV regulations

LCFS Supports Implementation of ZEV Regulations

- LCFS reduces costs of zero emission fuels, contributing to lower total cost of operation for ZEVs
  - Advanced Clean Cars II
  - Advanced Clean Trucks
  - Advanced Clean Fleets
- Other zero emission regulations
  - Shore power, cargo handling, forklifts, and transportation refrigeration units

CA is Leading The Transition From Fossil

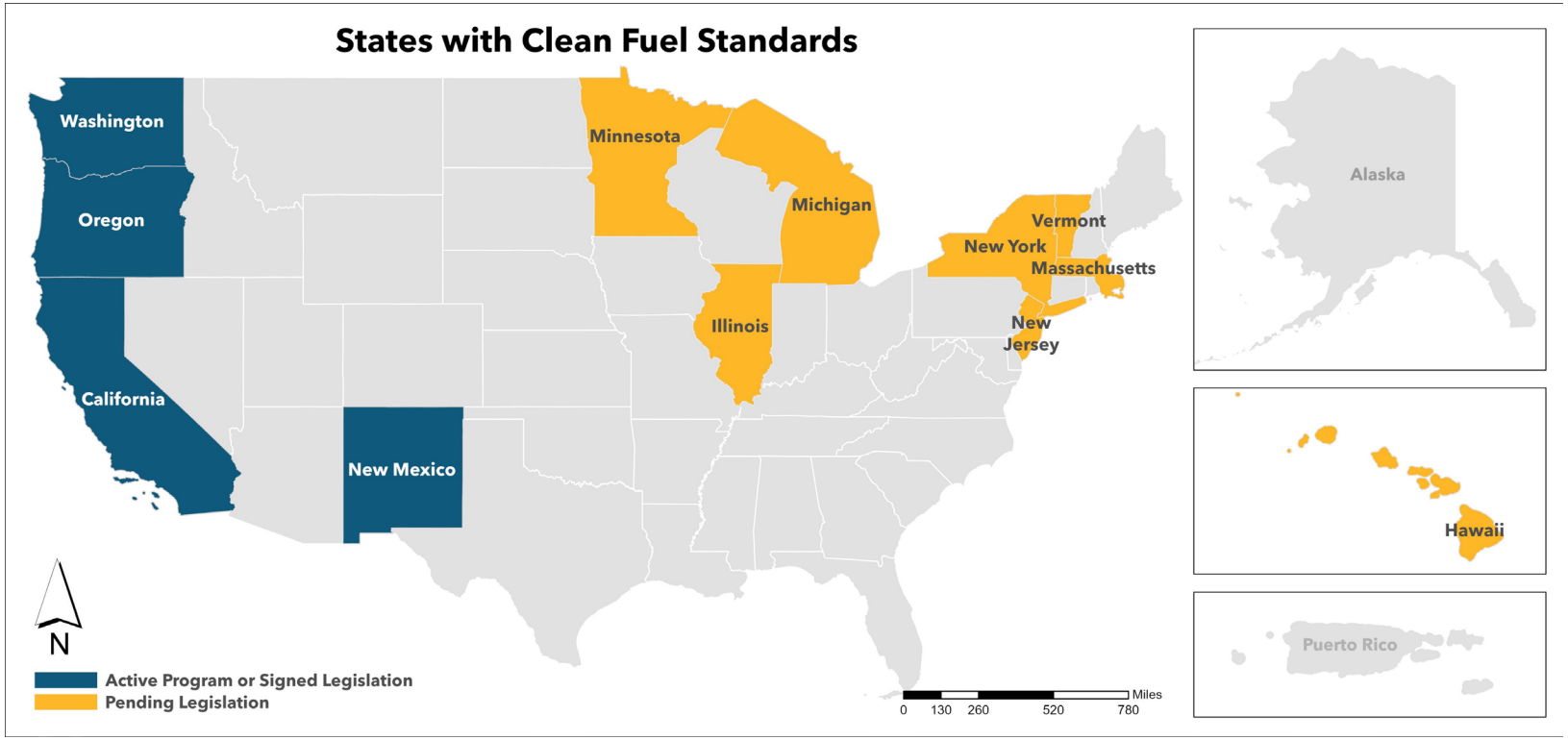
- California undergoing a transition away from fossil fuels toward ZEVs and clean alternatives
- SB X1-2 (2023) established reporting requirements for refiners and commissioned two reports:
  - Transportation Fuels Assessment
  - Transportation Fuels Transition Plan
- Focus on ensuring that the supply of transportation fuels is **affordable, reliable, equitable, and adequate**
- Having adequate fuel supplies has emerged as a key theme



Credit: CEC Staff

Increasing Number of Clean Fuels Programs

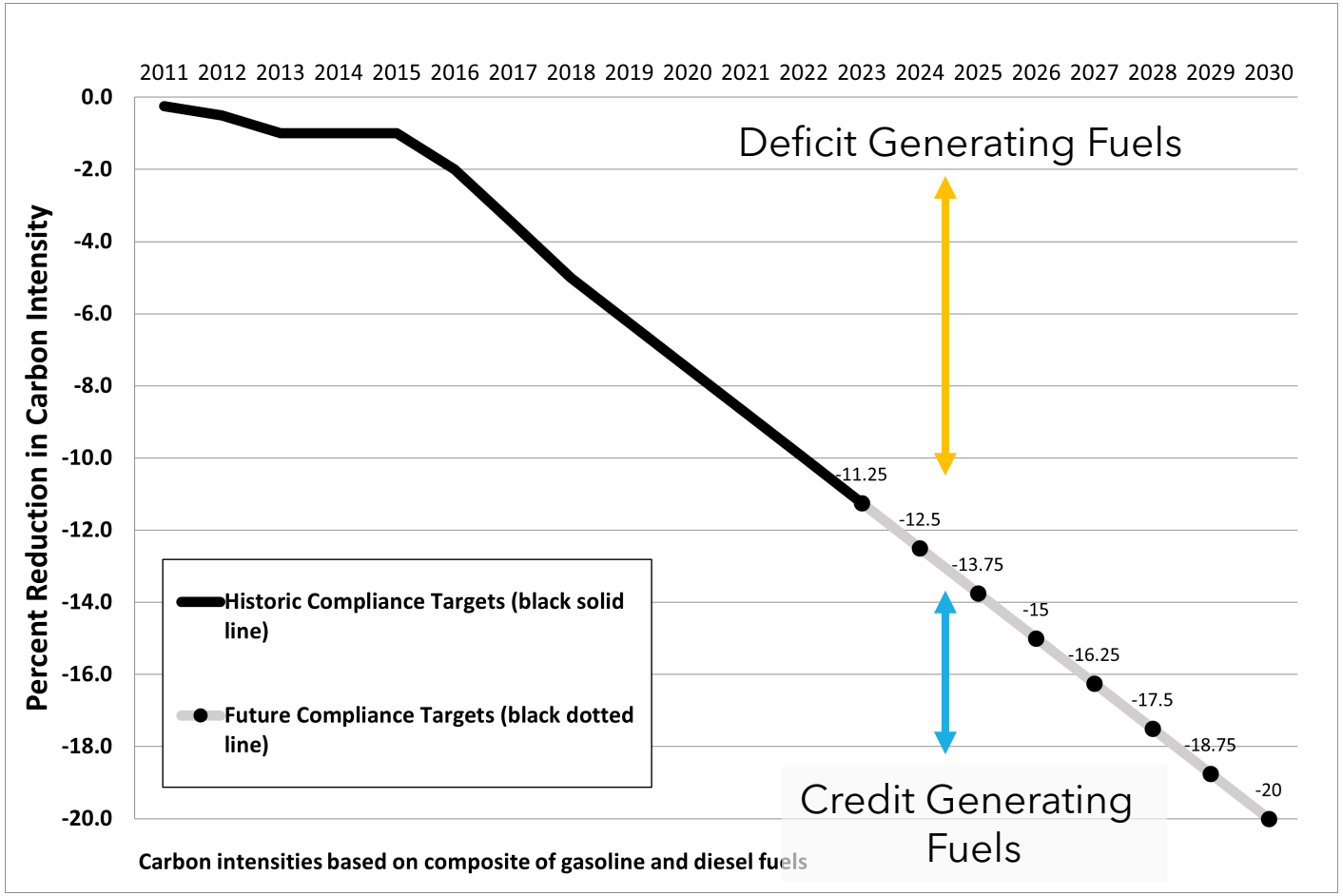
- Growing incentives and pricing support for alternatives to fossil fuel is a successful and important tool for the transition



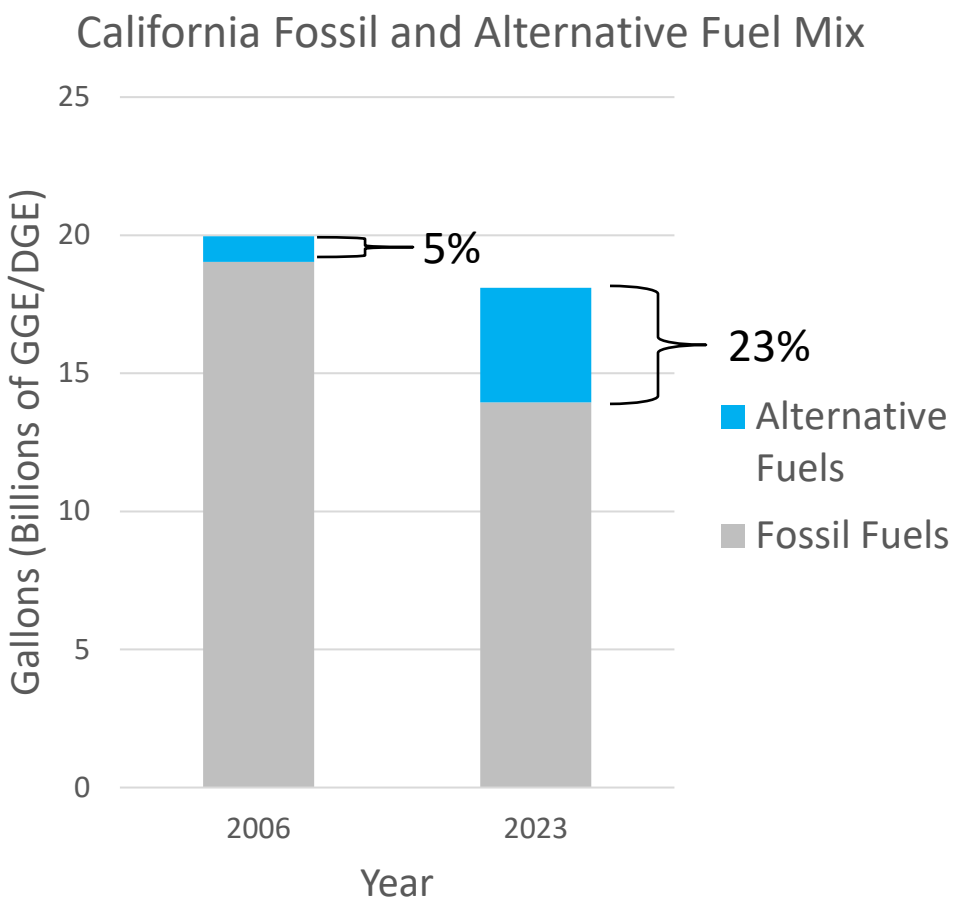
McCullough et al., "Revving Up: Eight States in Gear with Low-Carbon Fuel Standard Legislation," *Pillsbury Law,* 2024. https://www.pillsburylaw.com/en/news-and-insights/eight-states-low-carbon-fuel-standard-legislation.html

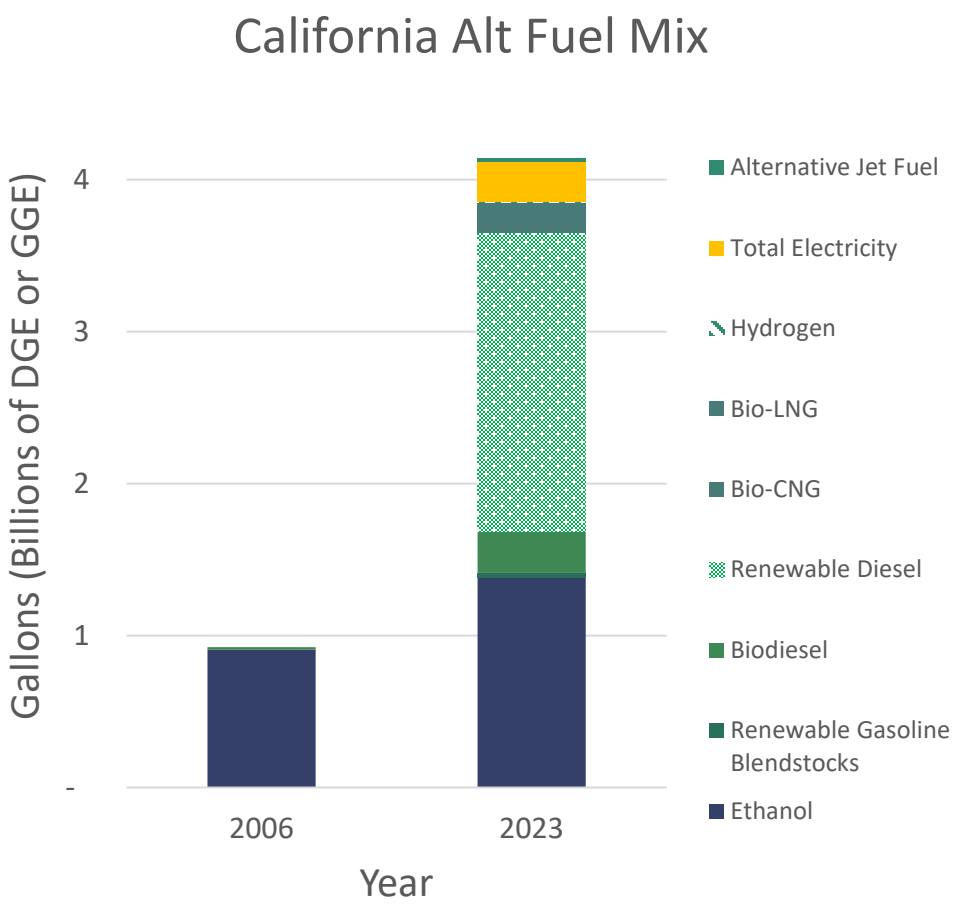
How the LCFS Works

- Establishes an annual, declining carbon intensity (CI) target for transportation fuels used in California
- Carbon intensity is the measure of life cycle GHG emissions
- The lower carbon a fuel is, the more credits can be generated
- Program increases cost of high-carbon fossil fuels and supports low-carbon fuels



California Fuel Mix Is Evolving





And LCFS is Accelerating the Evolution

15.3% reduction in the carbon intensity of California's transportation fuels

Over 31 billion gallons of petroleum fuels displaced by low-carbon fuels

75% of fossil diesel displaced by biomass-based diesel in 2024, resulting in PM and NOx benefits

$4 billion annually to support low-carbon investments and $341M cumulative for public transit

Supports many State programs and goals, including cars and trucks going to zero-emission vehicles

Financial assistance for vehicle purchases at the state and local level

LCFS Program Transparency

- Regulatory requirements on fuel data
  - Quarterly and annual reporting
  - Detailed information on alternative fuel production, including production process, feedstocks, emissions, and others
  - Third-party verification requirements

- Detailed information made publicly available
  - Quarterly fuel transaction data, including fuel volumes and credits
  - Data dashboard on credit prices and transactions, fuel volumes, feedstocks volumes, carbon intensity values, and more
  - Annual emissions inventory to track progress towards climate goals

LCFS Program Transparency

- LCFS Data Dashboard and Quarterly Data Updates
  - CI reduction progress and future targets
  - Historical alternative fuel volumes and credit generation
  - Total credits and deficits generated per quarter, and credit bank size
  - Monthly credit price and transactions (prices from CARB and two third-party reporting sources)
  - Average carbon intensity by fuel type
  - Feedstock details for biomass-based diesel
  - Sources of crude oil supplied to California
  - Information about credit holdings
  - Share of alternative fuels produced in-State and out-of-State

LCFS Program Transparency

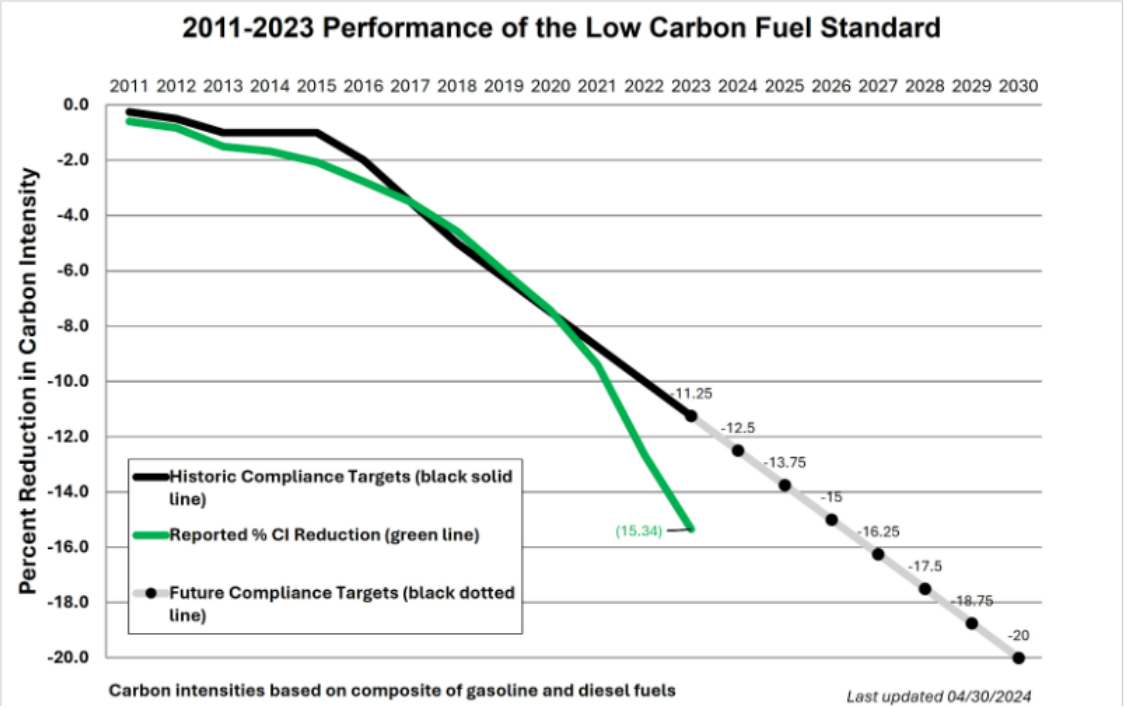
LCFS Data Dashboard

CATEGORIES

Programs Low Carbon Fuel Standard

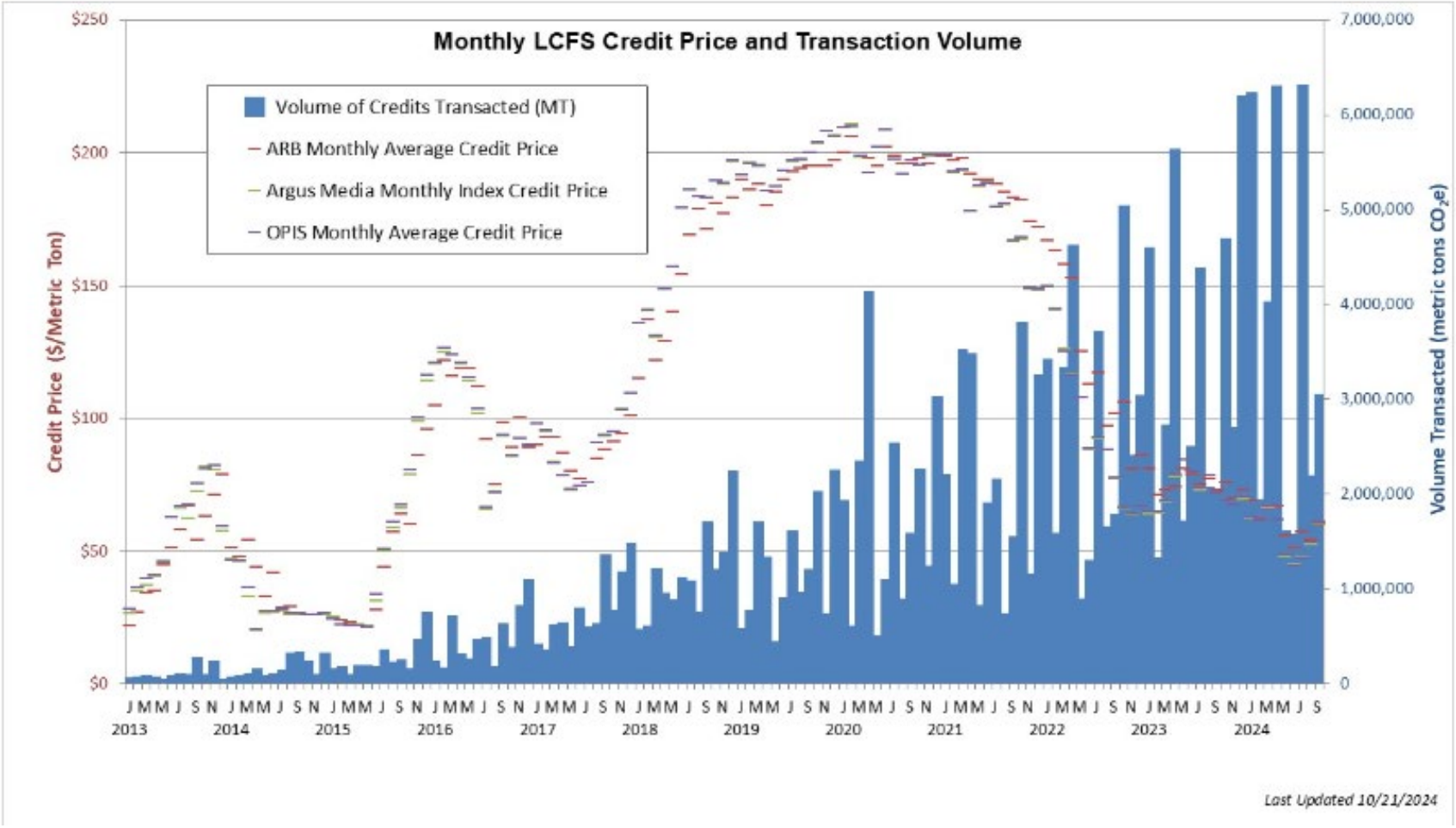
Please note to download any underlying excel spreadsheets, right click on the hyperlinked "Figure #". For figures without a hyperlink, the underlying data is considered business confidential.

Figure 1



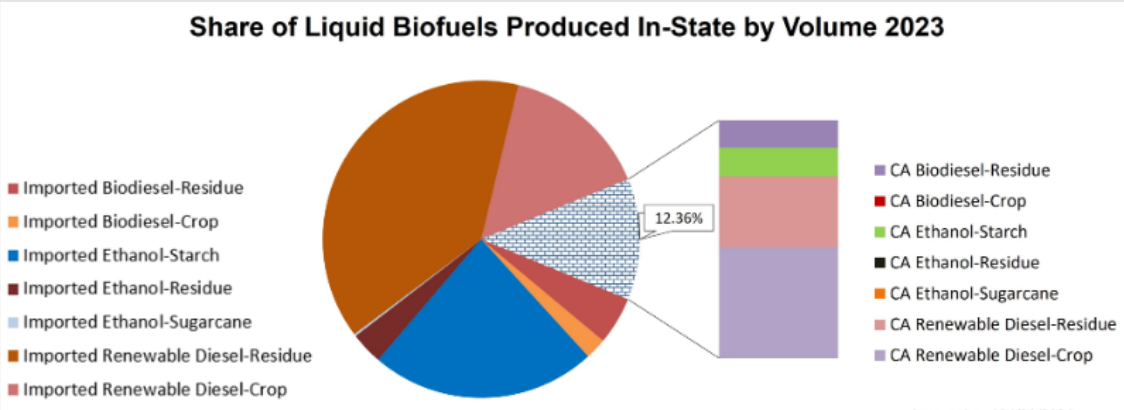
LCFS Program Transparency

Figure 4



LCFS Program Transparency

Figure 10a

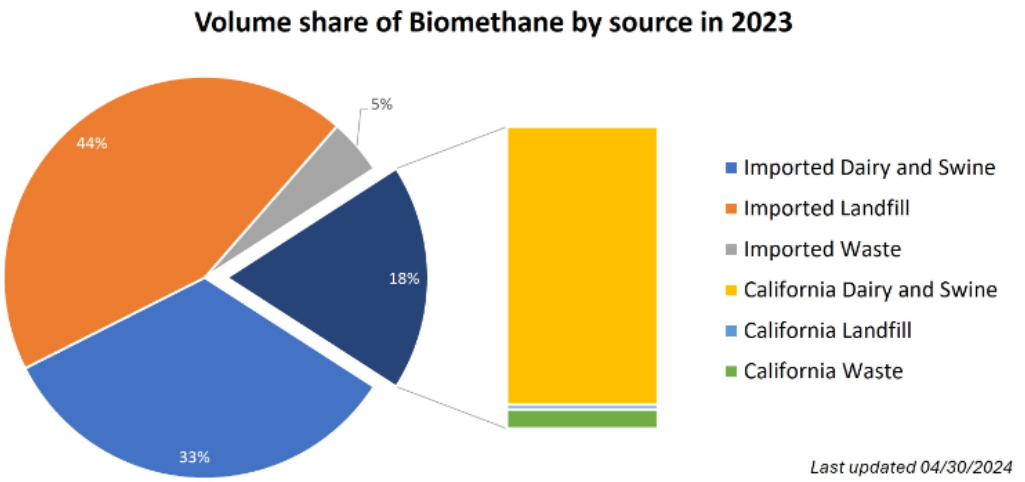


Year	2011	2012	2013	2014	2015	2016	2017
Share of Total Reported Liquid Biofuel Volume that was Produced in State	11.00%	12.46%	11.81%	14.61%	13.11%	13.15%	13.59%
Total Instate Volumes (GGE)	120,255,488	137,919,350	141,779,135	176,105,168	180,521,451	210,600,765	229,035,384

2018	2019	2020	2021	2022	2023
13.50%	11.29%	8.38%	10.59%	10.59%	12.36%
236,297,969	227,902,552	156,307,939	250,976,069	305,333,125	428,141,384

The Low Carbon Fuel Standard attracts the cleanest fuels from around the world to California. In-State production capacity has kept up with growing biofuel consumption – the share remains relatively flat as both in-state production and total supply of liquid biofuels increase proportionally.

Figure 10b



Year	2021	2022	2023
Share of Total Reported Biomethane Volume that was Produced in State	6.74%	16.00%	18.23%
Total Instate Volumes (DGE)	10,947,399	29,847,515	37,544,319

LCFS Program Transparency

	A	B	C	D	E	F	G	H	I	J
2	**Total Volume**					2021				2022
3	Fuel - Feedstock	Units	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4	Ethanol - Corn	gal	255,070,842	349,706,229	301,898,029	295,752,869	288,691,395	311,667,752	312,395,934	292,545,221
5	Ethanol - Fiber	gal	25,934,325	35,362,962	37,017,616	42,239,029	46,078,311	37,457,488	42,391,071	41,859,641
6	Ethanol - Sorghum		-	-	-	-	95,871	-	437,236	3,620,394
7	Ethanol – Sugarcane / Molasses	gal	-	12,874,110	35,892,538	10,741,492	10,703,462	10,688,242	21,493,198	10,676,833
8	Ethanol - Wheat	gal	4,924,792	4,521,495	4,377,479	5,241,447	5,212,728	6,393,435	6,969,377	5,673,396
9	Ethanol – Other	gal	(283,177)	(393,538)	(109,211)	79,406	86,612	68,709	118,839	114,923
10	BD-Canola	gal	31,618	-	2,190,767	1,059,115	3,236,463	3,625,020	6,251,085	10,679,716
11	BD-Corn Oil	gal	29,749,624	32,492,361	29,316,204	22,458,404	34,878,837	12,508,989	19,825,789	20,777,689
12	BD-Soy	gal	38,694	294,918	-	4,331,846	3,362,087	2,095,108	1,498,018	2,001,397
13	BD-Tallow	gal	9,612,083	20,369,410	18,904,890	9,677,862	8,045,158	24,420,189	20,904,215	16,783,223
14	BD-UCO	gal	16,983,652	22,564,242	26,693,620	35,350,380	21,359,198	24,600,969	22,814,059	20,388,494
15	BD – Other	gal	5,006,355	2,432,664	514,121	(1,150)	(2,783)	(55,015)	1,013,735	602,132
16	RD – Corn Oil	gal	24,110,480	33,295,373	48,004,593	40,948,018	74,389,828	64,876,703	85,958,683	59,465,241
17	RD – UCO	gal	80,800,501	59,225,747	57,459,087	89,164,045	75,947,990	94,964,524	94,011,535	128,171,054
18	RD – Tallow	gal	48,680,629	73,708,925	64,277,113	60,285,079	88,019,352	107,619,798	65,064,766	87,236,011
19	RD – Soy	gal	-	-	74,895,320	74,757,273	70,879,632	58,936,820	60,788,652	53,723,484
20	RD – Other	gal	45,498,151	52,555,692	5,616,364	7,724,450	4,664,696	20,544,053	46,423,957	43,543,499
21	NG - AD Wastewater Sludge/ High-Solids Anaerobic Digestion (HSAD/Food Waste	dge	105,479	86,771	197,527	206,194	195,716	330,044	296,165	198,936
22	NG - Dairy and Swine Manure	dge	7,002,990	9,848,975	12,608,252	13,388,271	14,232,258	17,915,147	20,509,376	23,087,312

LCFS Program Transparency

Figure 9. Trends in Heavy-Duty Diesel Vehicle Emissions.

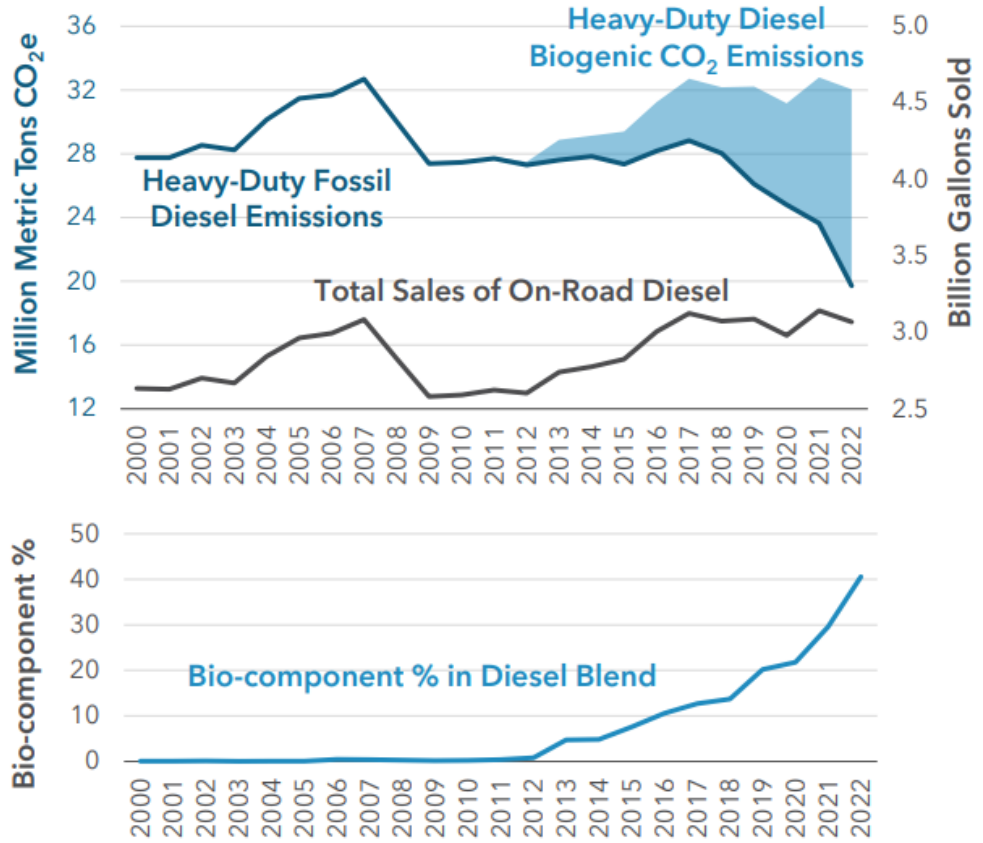


Figure 9: In the top panel, the blue shaded region represents CO_2 emissions from the biogenic component (biodiesel and renewable diesel) of the diesel fuel blend. The dark blue line includes all GHG emissions from

Figure 6. Transportation Sector Emissions by Sub-Sector.

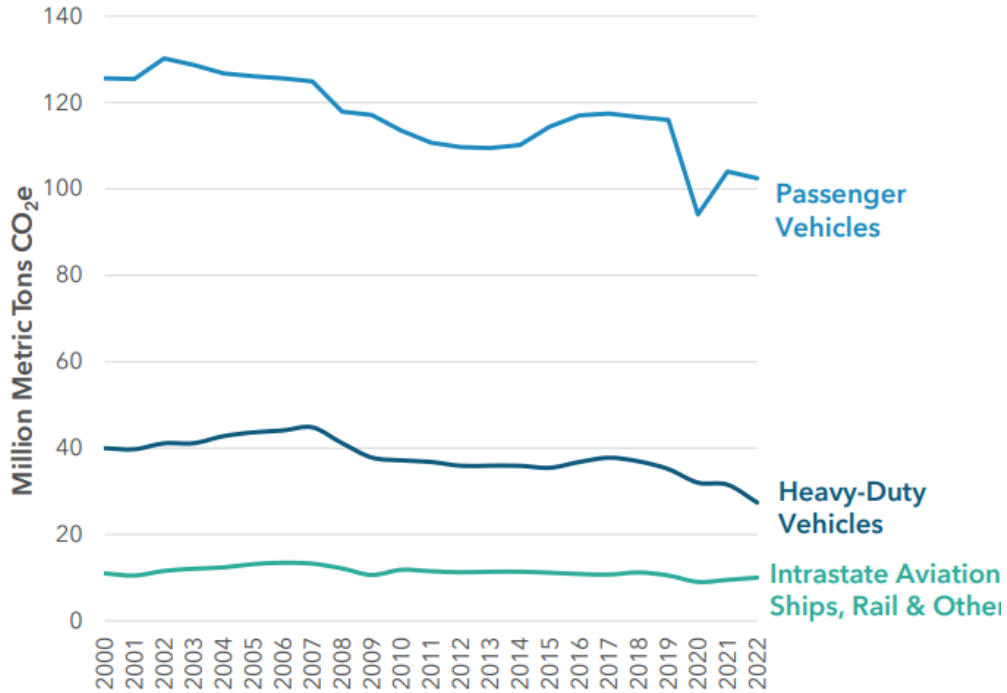
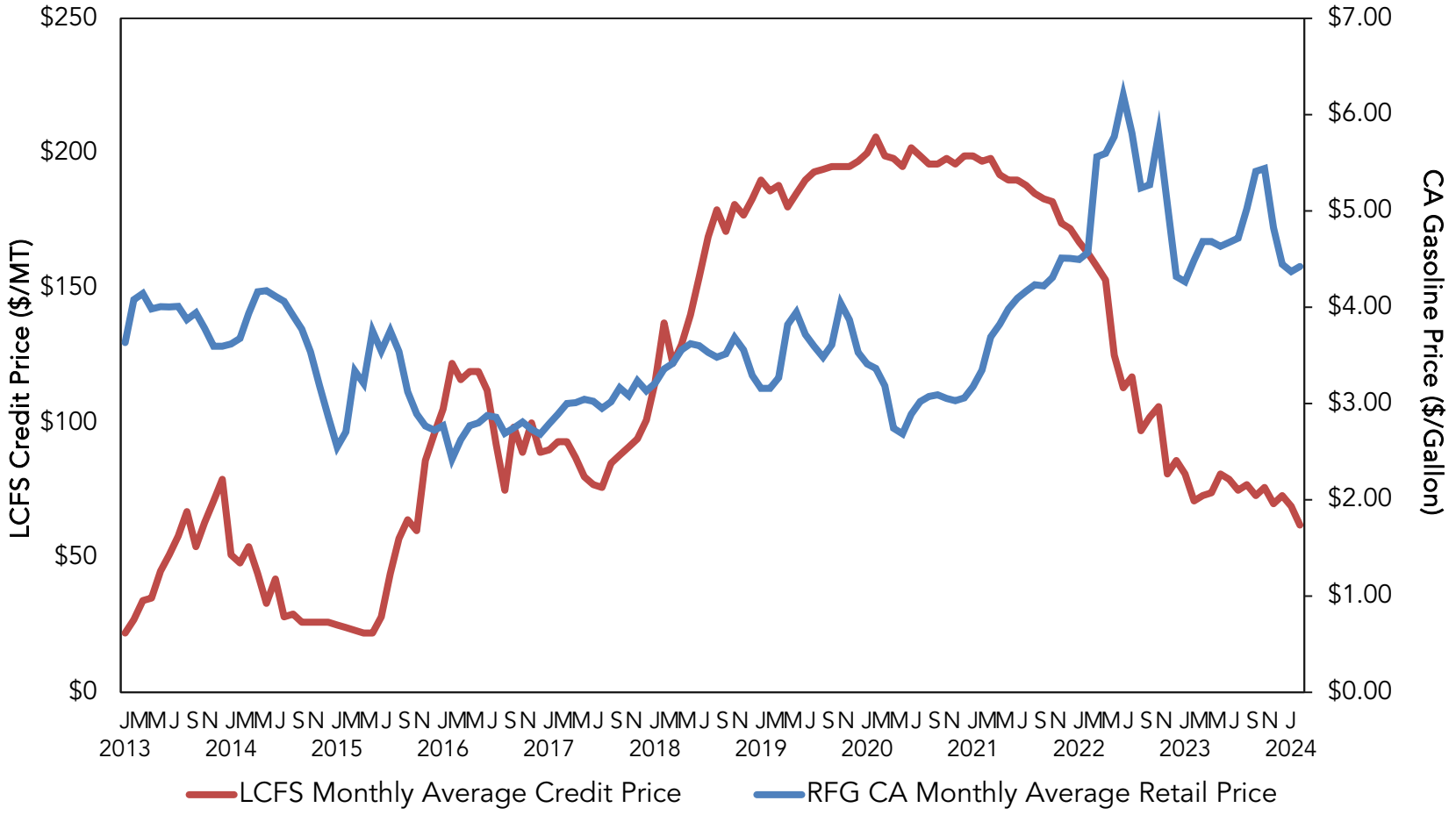


Figure 6 shows emissions by transportation sub-sector. "Passenger Vehicles" include passenger cars, light-duty trucks, medium-duty trucks, motorcycles, and natural gas-powered vehicles. "Heavy-Duty Vehicles" include

Historical LCFS Credit and Retail Fuel Prices Counters Fossil Industry Narrative

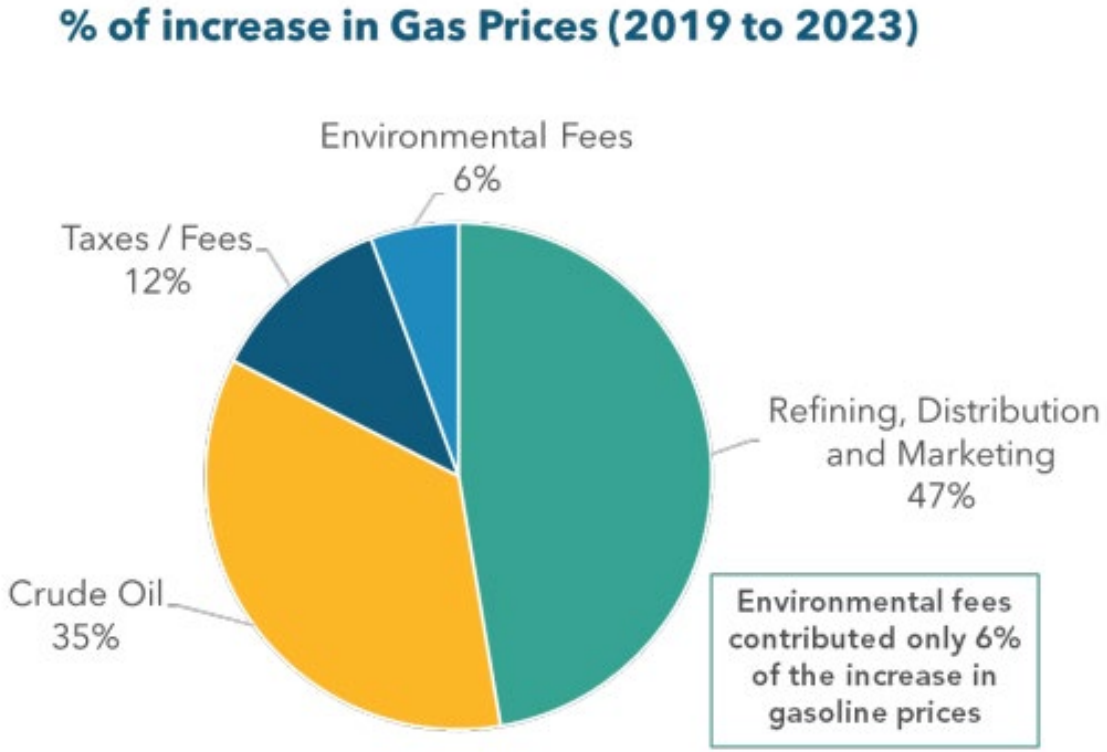


"An assessment of observed market prices shows conclusively that the LCFS program price effect at the pump is not a significant driver of retail fuel prices in California."

Executive Summary (bateswhite.com)

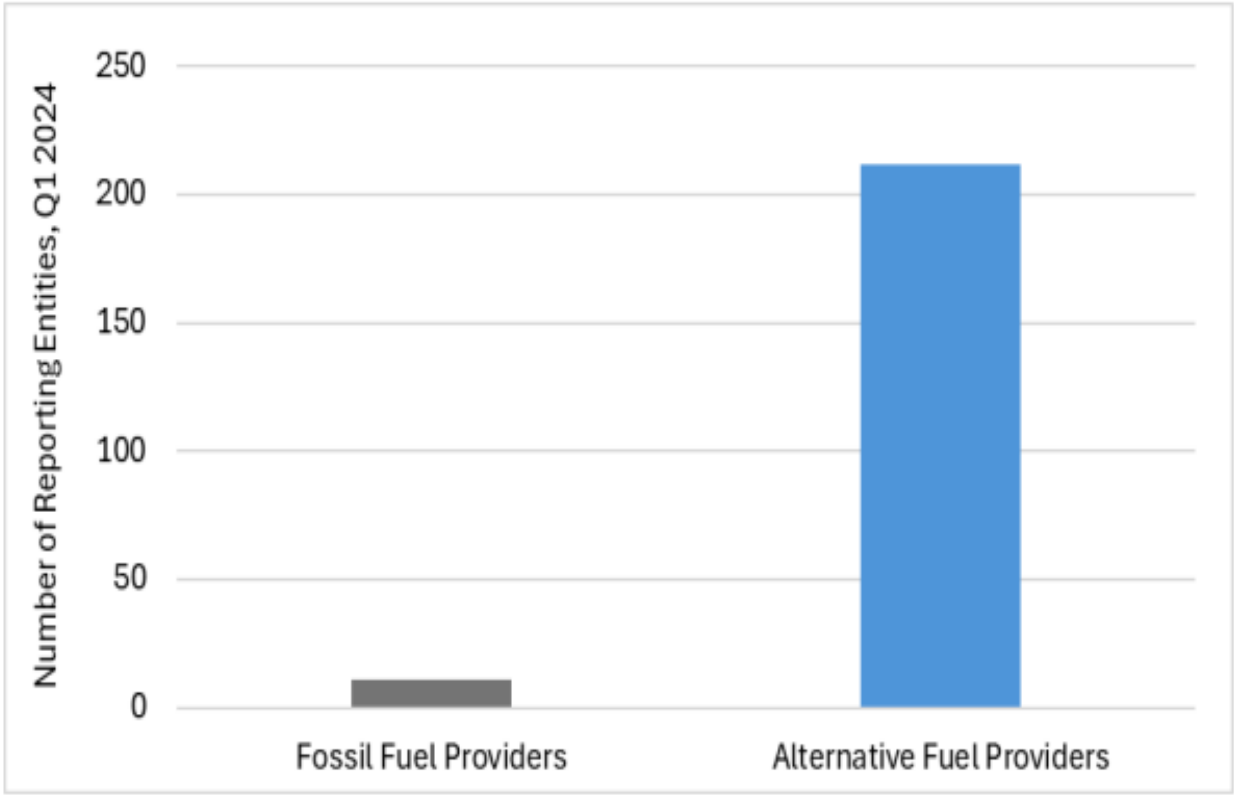
Fuel Pricing Affected By Many Variables

- 80%+ of the increase in prices due to pricing policies by oil refiners.
  - Federal, State and local taxes and fees account for 12%,
  - Environmental requirements are the smallest fraction (6%) of the total.
- LCFS, and other climate action, will have impacts to the cost of pollution sources, but the exact cost is unknown.
  - Third party and industry data indicates about a $0.08 to $0.10 per gallon current pass through
- No model can accurately predict future credit prices, future transportation fuel prices, or passthrough cost for retail gasoline or diesel.



LCFS Increases Competition in Fuels

- The LCFS creates price-mitigating effects by inducing diversification and expansion of fuel supply.
  - For example, electricity, renewable diesel, and ethanol currently provide affordable alternatives to petroleum diesel and gasoline.
- The LCFS provides a market for a significantly greater number of clean fuel producers, allowing for greater competition and lower fuel rates



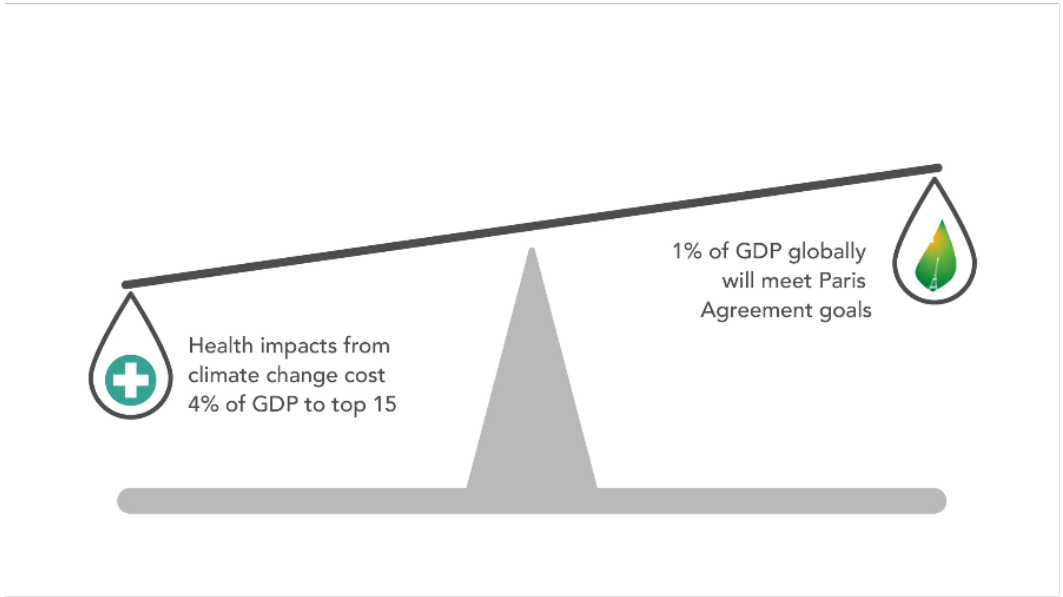
Industry Cost Pass-Through to Consumers

- Preliminary economic analysis released in September 2023
  - Initial analysis of potential costs and benefits
  - Represented maximum cost pass-through at high credit prices
- Did not reflect the price-mitigating effects of LCFS on fuels
  - Diversification of supply, credit revenue for alternative fuels, and investments by oil companies in alternative fuels
- Regulatory proposal has evolved since that time - current proposal differs from proposal used in SRIA
- Based on recent historical cost reporting and credit prices, 47 cent estimate is an unlikely outcome
- CARB does not control individual company decisions on pricing

"Predicting how LCFS credit price changes impact these complex pricing strategies is beyond the scope of this work."
9/23 LCFS SRIA:

Status Quo Comes at a Cost

Costs of Inaction Outweigh Costs of Action for World's Largest 15 GHG Emitters

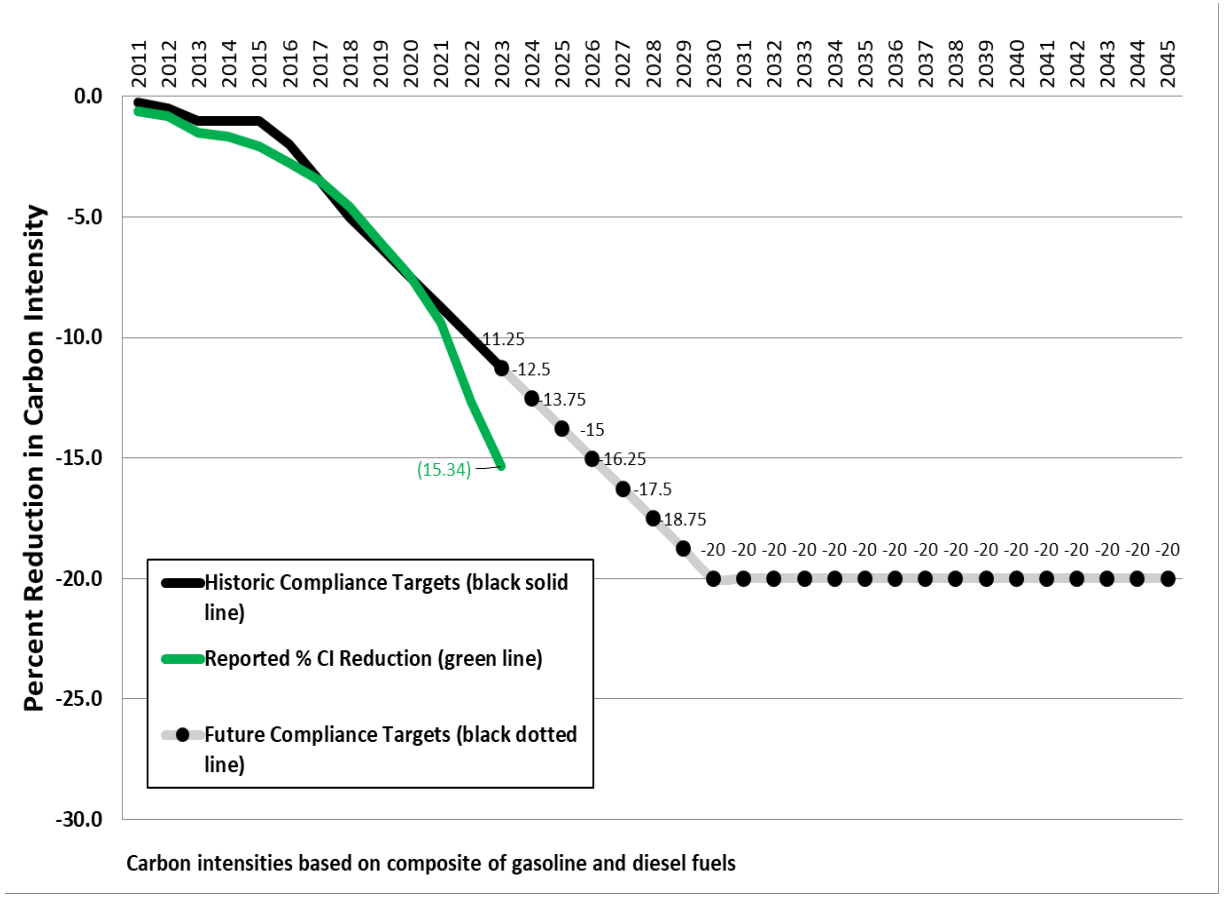


Exposure to air pollution causes 7 million deaths worldwide every year and costs an estimated US$5.11 trillion in welfare losses globally. In the 15 countries that emit the most greenhouse gas emissions, the health impacts of air pollution are estimated to cost more than 4% of their GDP. Fossil fuel combustion contributes to both air pollution and climate change. Actions to meet the Paris goals would cost about 1% of global GDP.

https://www.who.int/news/item/05-12-2018-health-benefits-far-outweigh-the-costs-of-meeting-climate- change-goals.

Why Update the Program Now?

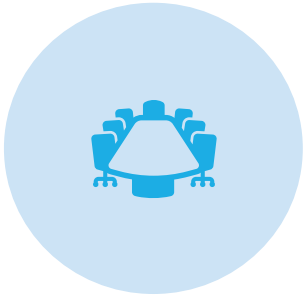
- To reach carbon neutrality, 2022 Scoping Plan identifies need to reduce GHG emissions 48% below 1990 levels by 2030
- The **current LCFS requires** a 20% reduction in carbon intensity of transport fuels by 2030, with **no increase in stringency after 2030.**
- LCFS and cleaner fuels also support other air quality, short lived climate pollutant goals, and ZEV regulations
- Other needs, based on the Scoping Plan, include:
  - Accelerating pace of clean energy infrastructure and clean technology deployment
  - Increase in hydrogen supply to meet future demand
  - Continued role for liquid biofuels to address legacy transport engines and hard-to-decarbonize sectors
  - Decreasing role for biomethane as a transport fuel



Key Concepts for Rulemaking

- Increase the stringency of the program to displace fossil fuels in support of achieving air quality and climate targets
- Align with previous Board action on ACT/ACF and direction
  - Expand crediting for clean fuel production and infrastructure
  - Send market signals to align with the transition to ZEVs and pivot away from low carbon combustion fuels
- Strengthen equity provisions and increased funding to promote investment in disadvantaged, low-income, and rural communities
- Leverage federal incentives and avoid investment disruptions

Robust Public Process

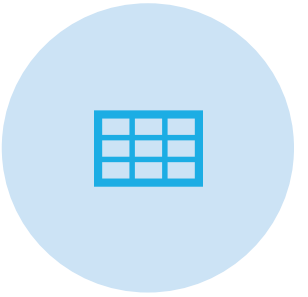


10 PUBLIC WORKSHOPS OVER PAST THREE YEARS

2 COMMUNITY MEETINGS

3 BOARD HEARINGS

OVER 1000 COMMENT LETTERS RECEIVED & DOZENS OF MEETINGS WITH STAKEHOLDERS



SUPPLEMENTAL MODELING INFORMATION POSTED PUBLICLY

We Received A Diverse Set of Comments

- Strengthen carbon intensity targets and provide long-term price signals
- Maximize crediting opportunities
- Incentivize development of innovative fuels
- Reduce use of combustion fuels
- Eliminate biomethane from the program
- Continue support for biomethane and prevent stranding assets
- Limit or cap crop-based biofuels
- Expand the use of crop-based biofuel crediting
- Concentrate health and economic benefits in communities burdened by current transportation system
- Provide a mix of low-carbon transportation incentives to communities

Rulemaking Proposal supported by Transparent and Open Public Process

Underlying Data from ISOR Figures (3/7/24)

Modeling Input Sheets from ISOR

- Baseline Scenario (4/9/24)
- Proposed Scenario (4/9/24)
- EJAC Scenario (4/9/24)
- Accelerated Decarbonization Scenario (
- Alternative 1 (4/9/24)
- Alternative 2 (4/9/24)

Modeling Output Sheets from ISOR

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Air Quality Analysis Workbooks from ISOR

- Proposed Scenario (4/9/24)
- EJAC Scenario (4/9/24)

Greenhouse Gas Emissions Analysis Workbook from ISOR

- All scenarios (5/10/24)

New Technology Diesel Engines (NTDE) and Non-NTDE populations in ISOR modeling

- NTDE and N

Modeling Input Sheets from April 10, 2024 Workshop

- Updated Proposed Scenario with 5% step-down (4/9/24
- Updated Proposed Scenario with 5% step-down and 2 A (4/9/24)
- Updated Proposed Scenario with 7% step-down (4/9/24
- Updated Proposed Scenario with 9% step-down (4/9/24

Modeling Output Sheets from April 10, 2024 Workshop

- Updated Proposed Scenario with 5% step-down (4/9/24
- Updated Proposed Scenario with 5% step-down and 2 A (4/9/24)
- Updated Proposed Scenario with 7% step-down (4/9/24
- Updated Proposed Scenario with 9% step-down (4/9/24

Modeling Input Sheets from 15-day Package

- Baseline Scenario (8/12/24)
- Proposed Scenario (8/12/24)
- Uncertainty Scenario 1: Proposed Scenario with AAM trigger (8/12/24)
- Uncertainty Scenario 2: 75% ZEV Deployment (8/12/24)
- Uncertainty Scenario 3: Less Renewable Diesel (8/12/24)
- Uncertainty Scenario 4: 75% ZEV Deployment and Less Renewable Diesel (8/12/24)

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Air Quality Analysis Workbook from 15-day Package

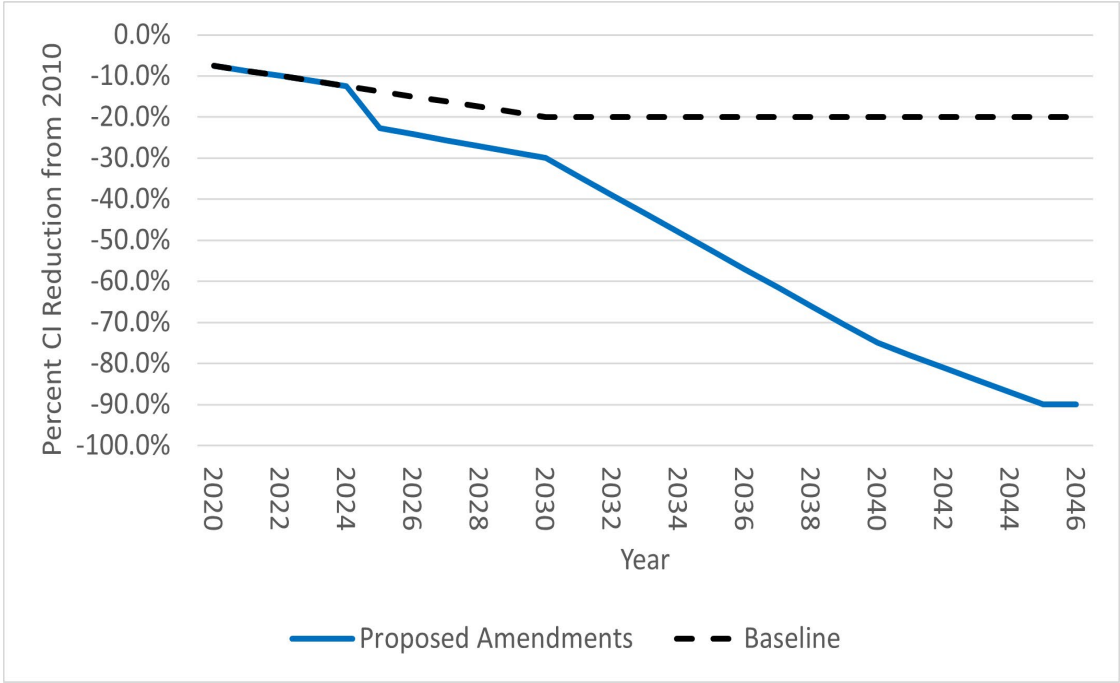
- Proposed Scenario (8/12/24)

Greenhouse Gas Emissions Analysis Workbook from 15-day Package

- Proposed Scenario (8/12/24)

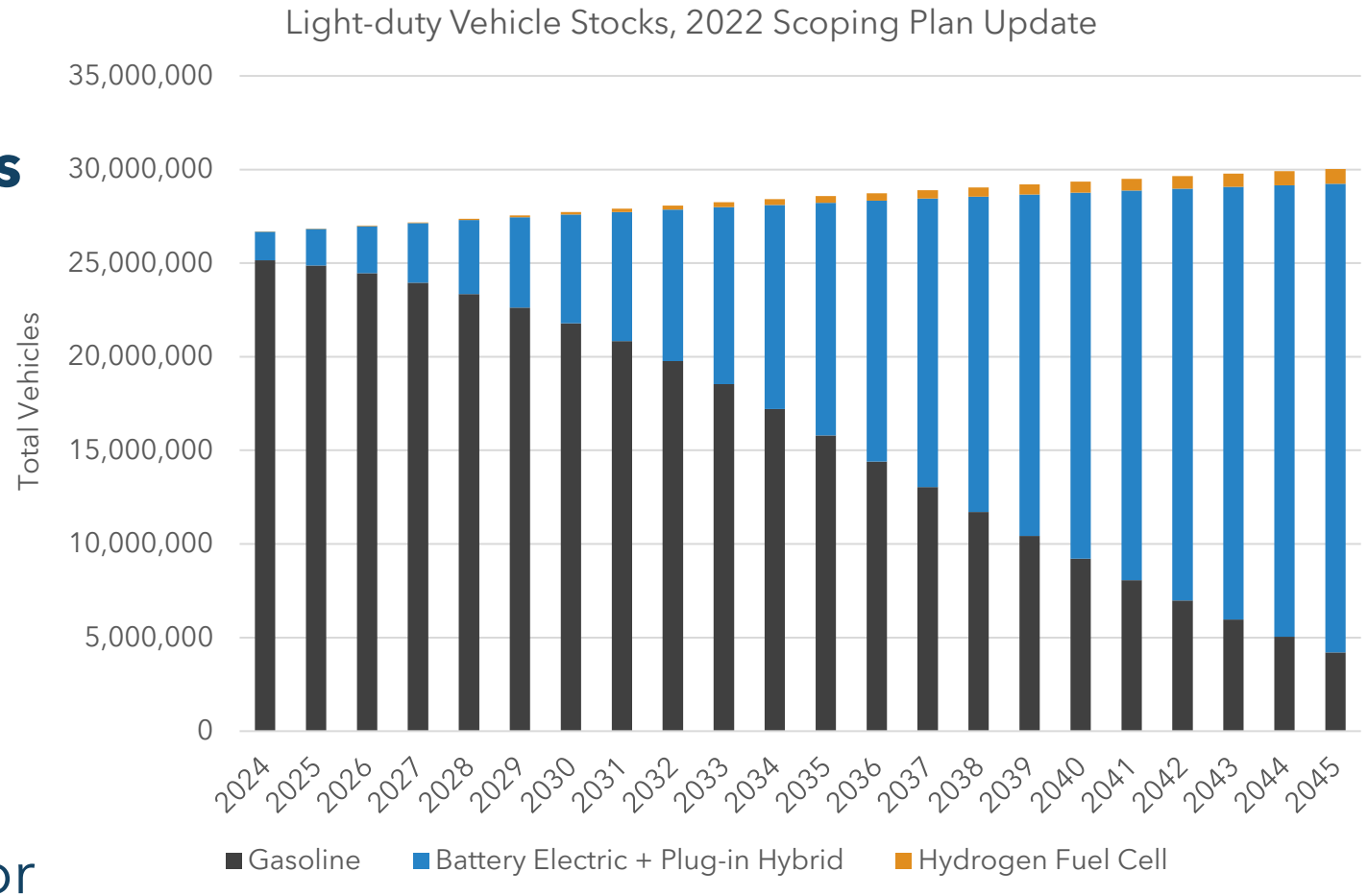
Increasing Stringency

- Rapid growth in renewable diesel and electricity crediting shows support for faster decarbonization
- Credit bank is above 25 million credits, roughly equal to 4.5 quarters of deficits
- 2030 target increased from 20% to 30% decarbonization
- Automatic Acceleration Mechanism (AAM) added to increase stringency of targets if market significantly overperforms
- Cost-containment mechanism available to prevent credit cost exceeding a maximum price



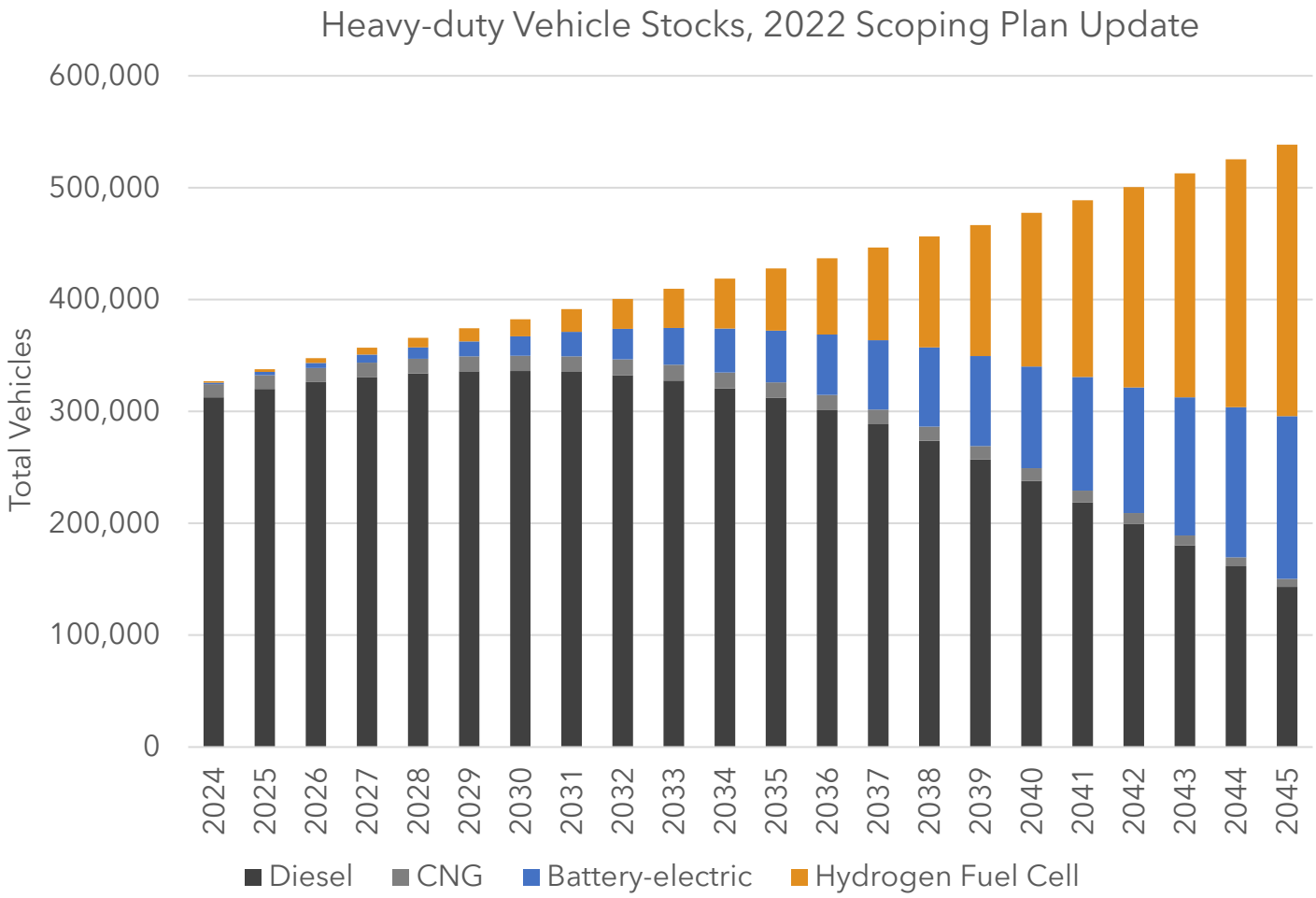
LDVs - Fuel Demand based on Vehicle Population

- Based on implementation of CARB's ACC II regulation, **existing combustion vehicles persist out to 2045**–keeping demand for fossil liquid fuels
- % of combustion vehicles
  - 2025: 93%
  - 2030: 79%
  - 2040: 31%
  - 2045: 14%
- Faster turnover in light-duty sector than with trucking sector



HDVs - Fuel Demand based on Vehicle Population

- Based on implementation of CARB's ACF/ACT regulations:
  - **Existing combustion engines persist for years** due to slow turnover of heavy-duty trucks
  - **Fossil diesel backfills biofuels when biofuel volumes are limited**
- % of combustion vehicles
  - 2025: 98%
  - 2030: 92%
  - 2040: 52%
  - 2045: 28%



LCFS Support for ZEV Regulations

Historical	Total credits (MT) Q1 2011 - Q3 2023	Value ($) using avg. 2020-22 credit price
Dispensed electricity (non-residential EVSE)	6,595,000	$1.1B
Dispensed hydrogen	190,000	$32M
Sum of dispensed fuel	**6,785,000**	**$1.2B**
Fast Charging Infra capacity credits	234,000	$40M
HRI capacity credits	355,000	$60M
Sum of HRI/FCI*	**589,000**	**$100M (credits even without dispensing fuel)**

Proposed Amendments	Percent of total credits in 2045	Value ($) using avg. 2020-22 credit price
Dispensed electricity	48%	**$3.2B**
Dispensed hydrogen	12%	**$773M**
Dispensed RNG, renewable diesel and biodiesel	0% (generates deficits)	NA

*HRI/FCI credit totals reflect current utilization. If fully utilized at 2.5% caps, ZEV infrastructure credit revenue could be 2-4x larger

LCFS Support for ZEV Infrastructure Near-term aligned with ZEV Regulations

Proposed Amendments	Max credits (MT) at 5% each of deficits	Value ($) using avg. 2020-22 credit price
HD HRI/FCI credits in 2030	4,260,000	**$721M**
HD HRI/FCI credits in 2035	5,160,000	**$874M**

Infrastructure crediting for light- and medium-duty vehicles available anywhere in California; for heavy-duty, anywhere in California within 5 miles of any Alternative Fuel Corridor, or an overnight truck parking spot, or a project that has received federal/state/local funding.

LCFS Long-term support for Alternative Fuels Aligned with ZEV Regulations

Proposed Amendments	Total Credits (net credits/deficits) 2025-2046	Value ($) using avg. 2020-22 credit price
Dispensed electricity	615,000,000	**$105B**
Dispensed hydrogen	48,000,000	**$8B**
Dispensed renewable diesel and biodiesel	(4,500,000)	**-$766M**

Fossil fuels (gasoline and diesel) are deficit generators and do not generate credits in the LCFS. **Liquid non-fossil drop-in fuels pay more in deficits than they earn in credits between 2025 and 2045.**

LCFS Supports Transit & Clean Technology & Aligns with Other CARB Regulations

Historical	Total credits (MT)	Value ($) using yearly average credit prices
Transit credits 2022	302,000	**$38M**
Total transit credits (Q1 2011 through Q3 2023)	2,750,000	**$341M**

Historical	Total credits (MT) Q1 2011 through Q3 2023	Value ($) using avg. 2020-22 credit price
Fixed guideways	1,780,000	**$303M**
Shore power for ocean going vessels at berth	1,100,000	**$188M**
Cargo handling equipment	200,000	**$34M**
Forklifts	5,900,000	**$1B**
Transport Refrigeration Units	122,000	**$21M**

Fast Charging and Hydrogen Infrastructure

- Light/Medium Duty- extension of existing provision
  - 5% of previous quarter's deficits available
  - Anywhere in California, public/private
  - FCI – 20% of up to 350 kW per charger (max 2.5MW site)
  - HRI – 100% of up to 1,200 kg/day
- Heavy Duty- new crediting opportunity
  - 5% of previous quarter's deficits available
  - Public/private within 5 miles of an Alternative Fuel Corridor, on/next to existing overnight truck parking, or sites funded through a competitive grant program with location-based criteria
  - FCI - 20% of up to 2,000 kW per charger (max 40MW site)
  - HRI – 50% of up to 6,000 kg/day station

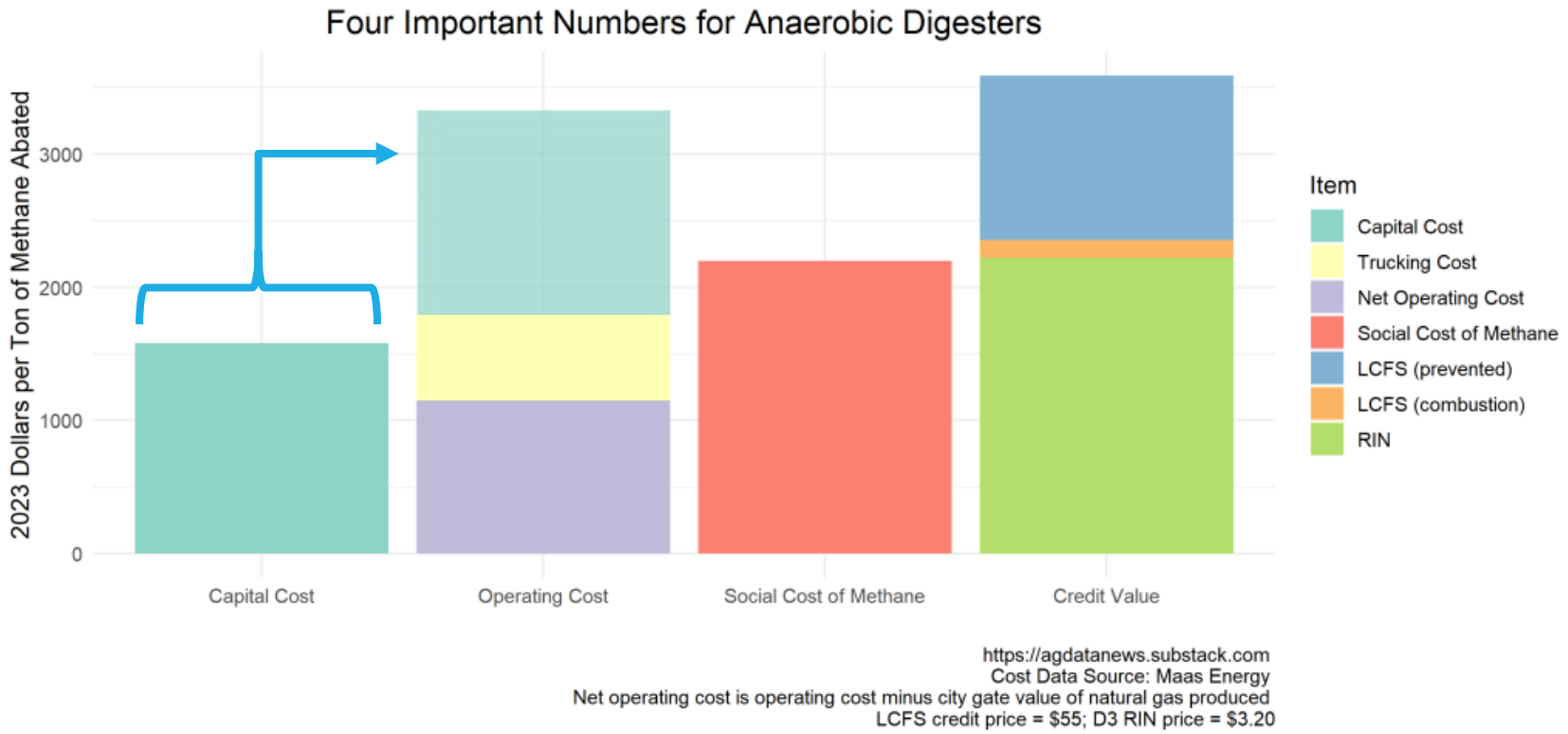
Holdback Changes and Equity

- $8.2 billion – est. dollar value at $100/credit through 2035
  - $4.8 billion for equity and transportation electrification projects from holdback credits
  - Equity projects must be used to support transportation electrification for the primary benefit of disadvantaged and/or low-income communities
    - Examples: electrification of drayage trucks, multifamily residence EV charging infrastructure, EV sharing, additional EV purchase rebates, EV workforce development, grid-side distribution infrastructure investments
- Streamlined reg language and broadened spending categories to simplify implementation
- Projects funded by holdback credits are subject to CARB & CPUC oversight

Biomethane Considerations

- Methane reductions needed to meet California's methane reduction targets (SB 1383)
- More methane reduction projects needed in California this decade, and current incentive environment has thus far successfully supported rapid build-out of projects in California and outside of California
- Need to avoid stranded assets that risk backsliding on GHG reductions
- Biomethane can displace fossil fuels on path to carbon neutrality, but long-term CNG demand in transportation is limited and declines

Biomethane Incentives



https://energyathaas.wordpress.com/2024/10/14/how-much-should-dairy-farms-get-paid-for-trapping-methane/

- Digesters provide cost-effective reductions
- Haas analysis shows incentives align with total project costs
- Dairy won't receive 100% of the credit revenue, it's shared across the farm, developer, fuel retailer, and others
- Small dairies and other future projects will have higher total costs

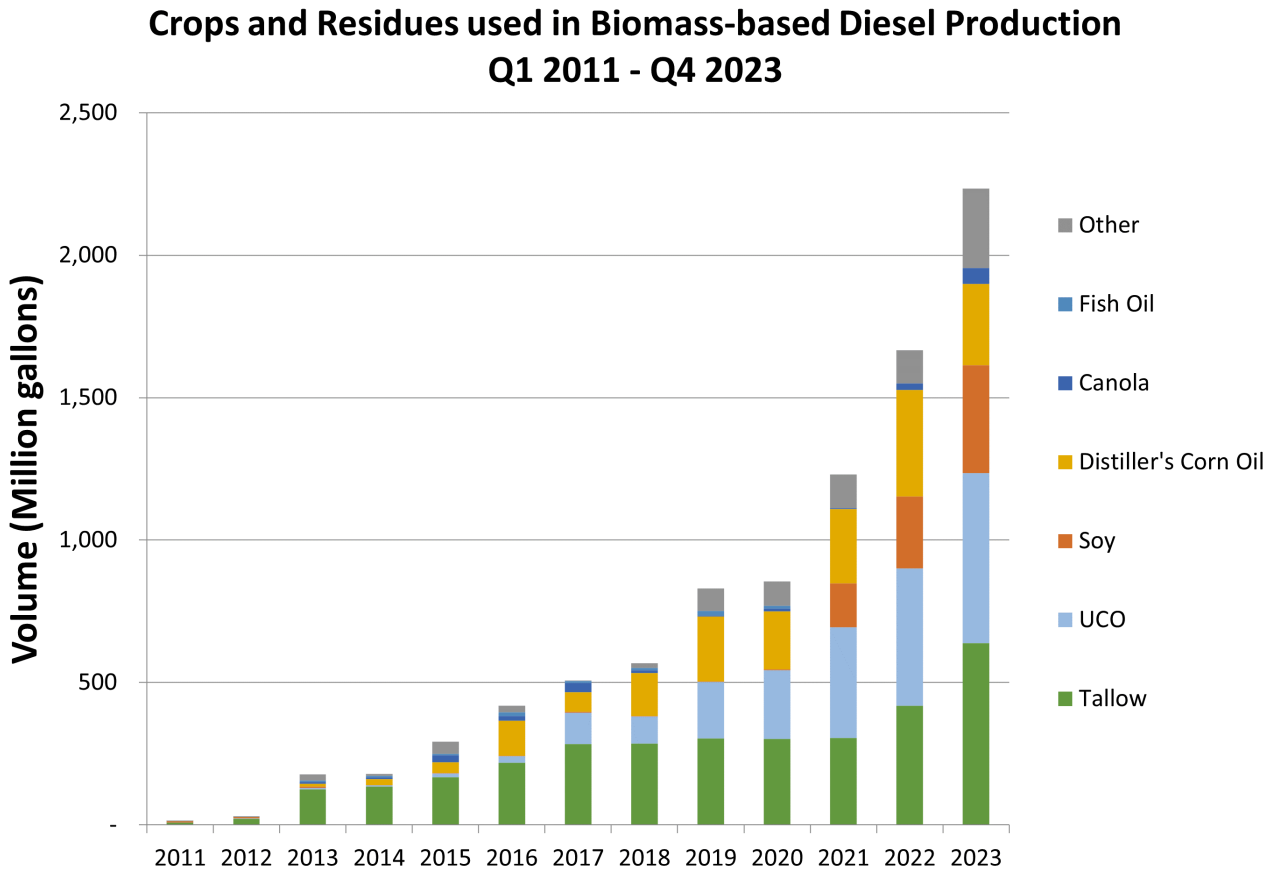
Proposal Reduces Biomethane Incentives for CNG Combustion

- Current LCFS Regulation:
  - Avoided methane crediting for up to 30 years
  - No deliverability requirements

- Staff Proposal
  - Avoided methane crediting reduced from 30 years to either 20 years or 10 years for new projects, depending on project start.
  - Deliverability requirements starting as soon as 2037, depending on pace of ZEV truck deployment.

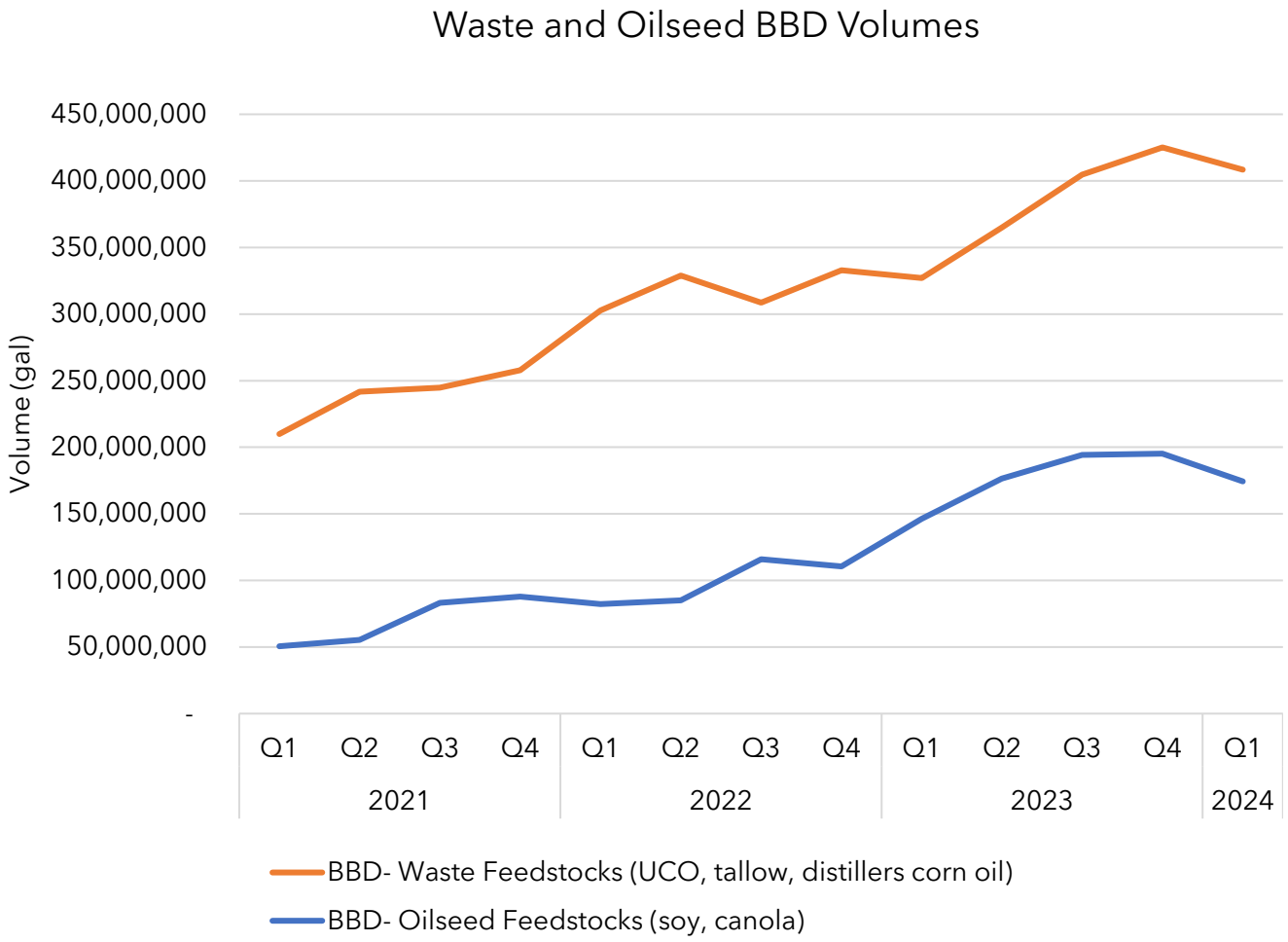
Biomass-based Diesel Feedstocks in LCFS

- Encourage use of waste-based feedstocks
- Biofuel production must not come at the expense of deforestation or food production.
- Opportunity for biofuel feedstock production to also enhance soil carbon and reduce GHG emissions.
- CARB staff solicited feedback on crop-based biofuels sustainability during past workshops
  - July 2022, November 2022, February 2023, April 2024 and at September 2023 Board hearing
- Staff directed to investigate guardrails at the Sept 28, 2023 informational Board hearing



Recent Feedstock Trends in BBD

- Both waste-based and oilseed feedstocks have increased
- Rapid rise in 2021, mainly from increased soy usage
- From 2022-2023, waste-based feedstocks have risen more rapidly than oilseed feedstocks

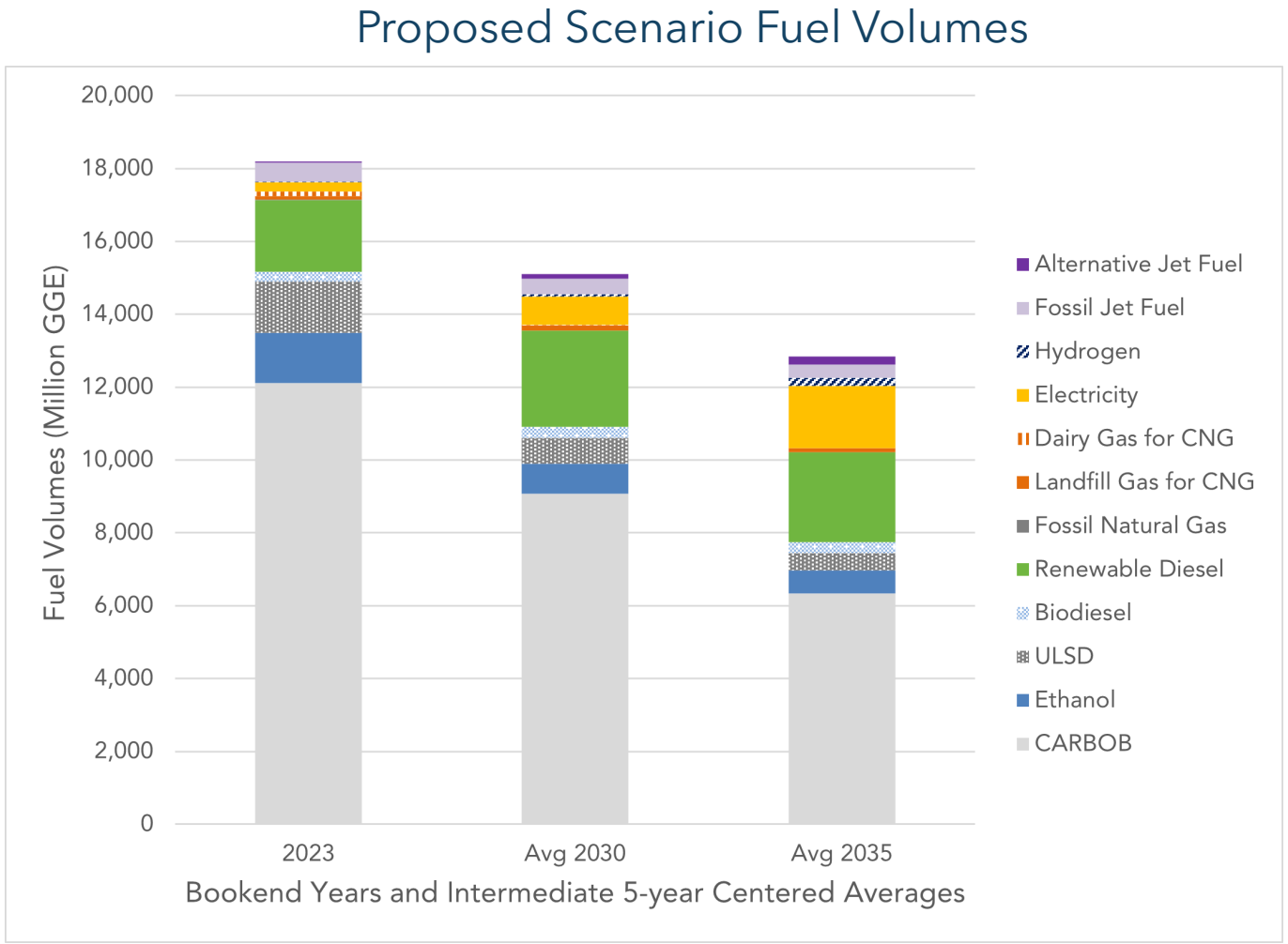


Guardrails for Crop-Based Biofuels

- For BBD, only credit up to 20% of total volume that comes from Soy/Canola/Sunflower
  - Not a volume cap. Does not limit overall RD/BD use in CA – any quantity greater than 20% can still be sold
  - 20% reflects the amount of Soy/Canola feedstocks used in BBD pathways as of 2023.
  - For new pathways, takes effect in 2025. For existing pathways, would take effect January 2028.
- Sustainability Certification for non-waste biomass fuels
  - Phase in - *Attestation* required in 2026, *partial certification* of no deforestation in 2028 and chain of custody documentation for feedstocks, *full certification* by 2031.
  - Include EU RED II certification systems at time of reg adoption for use with initial 2028 partial certification. Must be re-approved by CARB for use in 2031.
- After Dec 31, 2030, no new BBD fuel pathways if MHD ZEV populations achieve needed ACT/ACF levels
  - 132,000 class 3-8 ZEVS of NZEVS reported or registered in CA as of Dec 31, 2030.

Modeling Comparison: Fuel Volumes

- Electricity and hydrogen grow significantly as more ZEVs join the vehicle fleet
- Biomass-based diesel continues to displace fossil diesel in interim years while fleet turns over to ZEVs
- Fuel demand in market is capped by overall demand for any particular fuel, driven by makeup of vehicle population



OEM Base Crediting

- Based credits come from residential EV charging
- The EO may direct up to 45% of base credits to OEMs if 2024 ZEV sales are less than 30% of total new LDV sales for all California OEMs
- OEM base credits are based on the share of total new ZEVs sold in California by that OEM in the previous year
- The number of credits available for holdback equity projects is unaffected by the above provisions.
- If this option is considered for implementation, staff will develop a plan to share with the Board.

SAF Partnership

- Announced October 30, 2024
- Nation's leading passenger and cargo airlines to dramatically accelerate the use of sustainable aviation fuel for flights within the state
- Goal of increasing the availability of sustainable aviation fuel (SAF) for use within California to 200 million gallons by 2035, an amount that would meet about 40% of intrastate travel demand
- Sustainable Aviation Fuel Working Group of government and industry stakeholders that will meet annually to report progress and address barriers to meeting these goals
- Public website that will display the latest information on the availability and use of conventional jet fuel and sustainable aviation fuel within California, as well as details on relevant state and federal incentives and policies

Future Program Implementation

- New and improved tracking system with new metrics on fuel production locations and other data
- Increased transparency
  - Linking to refining/production cost data collected by CEC
  - Providing info on infrastructure investments and base credit uses
- Implementation guidance and public support resources on reg provisions (e.g., sustainability and infrastructure provisions, forest biomass, 4:1 deficits, automatic acceleration mechanism).
- Enhanced feedstock verification and reporting (e.g., UCO fraud detection and enforcement)

Next Steps

- Target submission to OAL by January 3, 2025
  - Statutory timeline to complete current regulatory amendment process
  - Provide market certainty for investment in clean energy and infrastructure while leveraging federal incentives
- Staff follow-up on resolution direction
- Implementation and monitoring – consider need to make major adjustments as part of future Scoping Plan Updates

Environmental Analysis

- Draft Environmental Impact Analysis (EIA) completed
  - Released for public comment January 5, 2024 – February 20, 2024
- Recirculated Draft EIA Completed
  - Released for public comment August 16, 2024 – September 30, 2024
- Potentially significant impacts found for some resource areas
- CARB prepared the Final EIA and written responses to comments received on the Draft EIA and Recirculated EIA
  - Released in November 2024

Staff Recommendation

Approve the Proposed Resolution which includes:

- Certification of the Final EIA, and adoption of the required CEQA findings
- Approval of the Proposed Amendments

Questions?