



Proposed Advanced Clean Fleets (ACF) Regulation Second Board Meeting

April 27, 2023

Overview

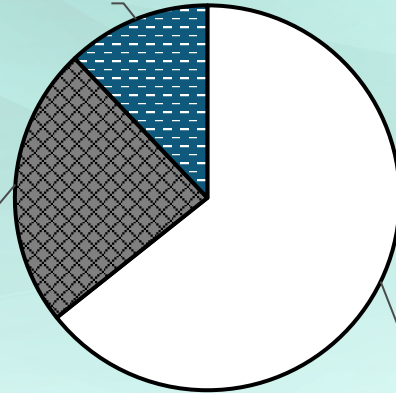
- Background
- Board direction from October 2022 hearing
- Regulation summary
- Next steps

Biggest Trucks Have Highest Emissions

Daily Truck Population



Class 7-8 Tractors
219,000 (12%)



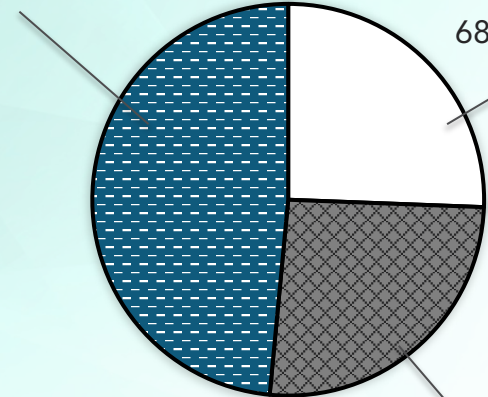
Class 4-8 Straight
Trucks and Buses
427,000 (24%)



Class 2b-3 Trucks
and Vans
1,164,000 (64%)

Daily NOx Emission

Class 7-8
Tractors
129.7 tpd (48%)



Class 2b-3
Trucks and
Vans
68.5 tpd (26%)

Class 4-8
Straight
Trucks and
Buses
69.3 tpd
(26%)

Source: California Air Resources Board (CARB) Emissions Inventory EMFAC2021, (<https://arb.ca.gov/emfac/>)
Calendar Year 2021, including California International Registration Plan (IRP) and out-of-state IRP trucks;
excludes motor homes, transit buses, and school buses.

Measures to Clean Up Heavy-Duty Vehicles



2018
Innovative Clean
Transit



2020
Advanced
Clean Trucks



2021
Heavy-Duty
Inspection and
Maintenance



Future
Zero-Emission
Truck Measure

2019
Zero Emission Airport
Shuttle



2020
Heavy-Duty
Omnibus



2023
Advanced
Clean Fleets



Lower Combustion Truck Standards Already Adopted

- Criteria pollutants
 - Existing diesel trucks already upgraded to 2010 engines
 - Heavy-duty Inspection and Maintenance approved 2022
 - Heavy-duty Omnibus regulation begins 2024 model year
 - Engine standards, test procedures and other controls
 - Averaging, banking, and trading program
- Greenhouse gas emissions
 - Phase 1 and 2 Greenhouse Gas Standards
 - Low Carbon Fuel Standard lowers carbon intensity of transportation fuels

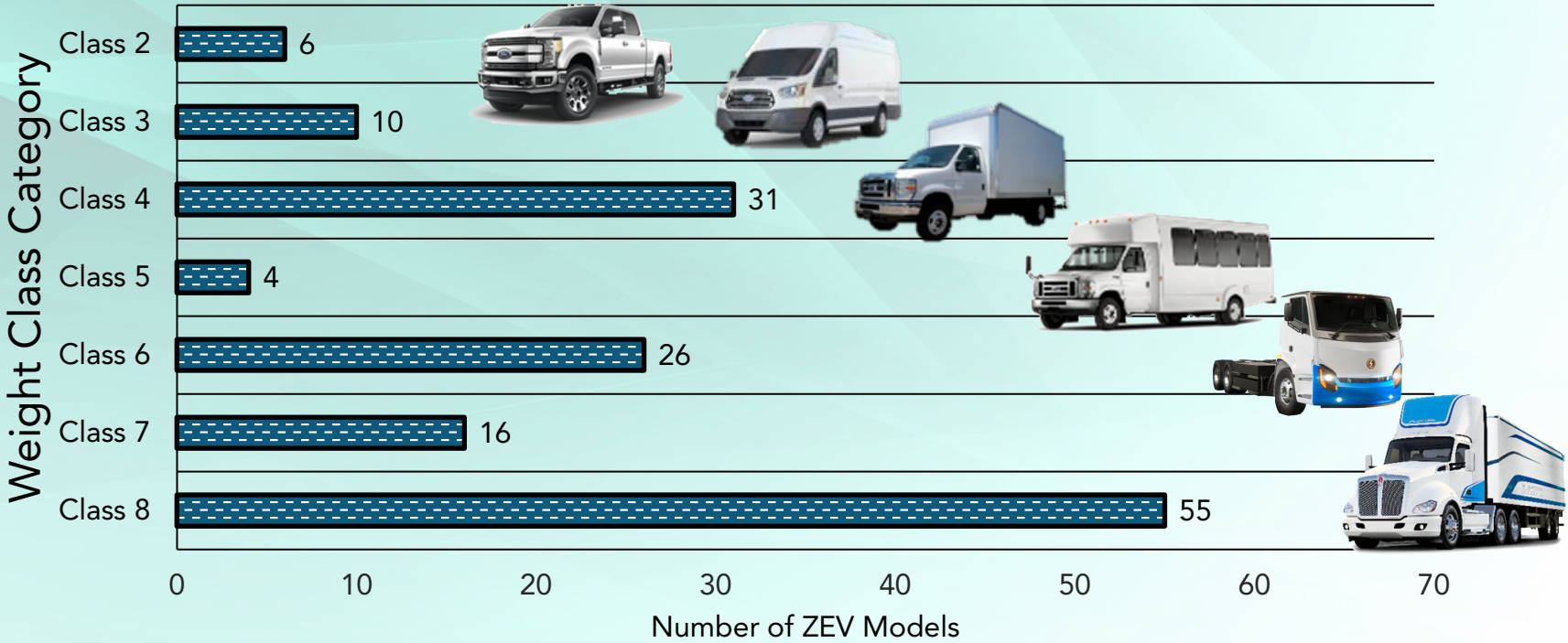
Significant Funding to Advance Technology

- Heavy-duty funding accelerates cleanest technologies
- About \$2 billion in funding to get cleaner engines
 - Carl Moyer, HVIP, Prop 1B, Volkswagen

Fuel	2022 Vehicle Population ¹	2022 Sales ²
Diesel	61.4%	58.6%
Gasoline	37.4%	34.8%
Natural Gas	1.1%	1.3%
ZEV	<0.1%	5.2%

- Now is the time to move to zero-emissions

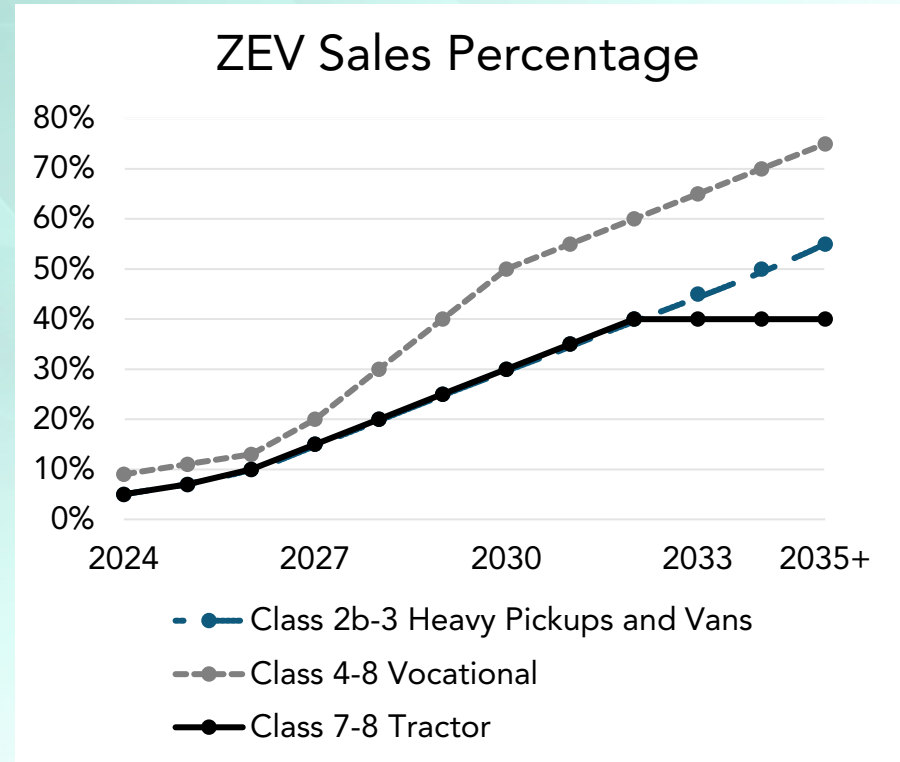
ZEV Models in United States



135 models already delivered to fleets, 148 different models are available to be ordered/pre-ordered,

Advanced Clean Trucks Regulation

- Manufacturers to sell ZEVs in all vehicle classes as a percentage of total sales*
- Credit for pre-2024 sales
- 320,000 ZE trucks to California by 2035
- Board resolution setting 2035, 2040, and 2045 fleet goals



Development of the Proposal

Engagement

- 27 public events
 - 4 community listening sessions
 - 17 on regulation
 - 7 on infrastructure

475+ stakeholder meetings

Workgroups led by Board member Kracov and Vice Chair Berg

Border roundtable with Supervisor Vargas, Asm. Garcia, and Asm. Alvarez

Outreach

Webpages and factsheets

Social media and blog posts

Radio interviews

Regulatory training to about 3,100 attendees

Letters to over 11,000 large entities and fleets

Postcards to over 273,000 vehicle owners

Emails to ~100,000 recipients



Infrastructure Coordination

- Agency Principles of coordination and cooperation:
 - Ensure equity
 - Communication
 - Share data and analyses
 - Joint stakeholder engagement
 - Joint planning and solicitations



CalSTA

Caltrans

DGS
GENERAL SERVICES

Statutory Useful Life Requirements

- New regulations or amendments must be consistent with Senate Bill 1 (Beall, Chapter 5, Statutes of 2017) useful life requirements:

Minimum Useful Life is defined as:

- Earlier of 800,000 vehicle miles or 18 years from engine certification
- No less than 13 years

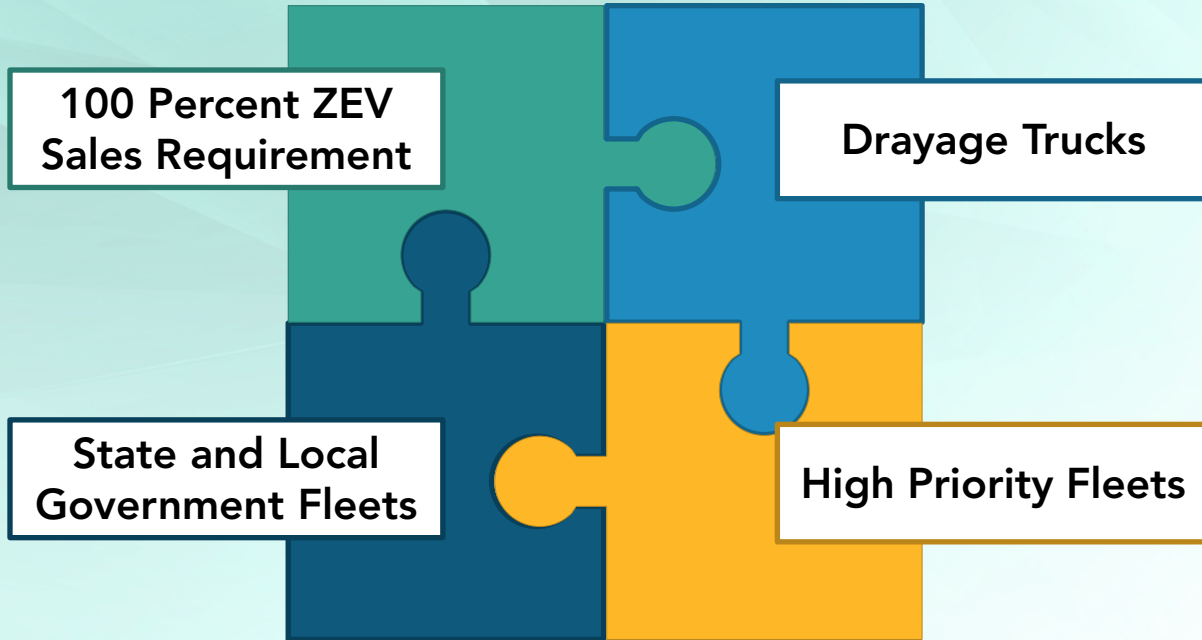
Board Direction from First Hearing

- Move up the 100 percent ZEV sales requirement
- Give public fleets more flexibility
- Provide more time for waste and wastewater fleets using biomethane
- Expand and improve fleet extensions and exemptions
- Evaluate effects of lowering the High Priority Fleet size
 - Memo to Board sent February 10



Regulation Summary

Advanced Clean Fleets Regulation Components



100 Percent ZEV Sales Requirement

Starting 2036 instead of 2040, all Class 2b-8 vehicles sold into California must be ZEVs

- Provides certainty to the market and supply chain for manufacturers, fleets, infrastructure providers, service technicians, partner agencies, and local governments
- Expands market choice

Drayage Trucks Requirements

Applies to Class 7-8 on-road trucks operating at California's seaports and intermodal railyards

December 31, 2023

Registration required
for legacy trucks

January 1, 2024

Newly added
drayage trucks
must be ZEVs

January 1, 2025

Must annually
report mileage
for trucks over
12 years

January 1, 2035

All drayage
trucks must be
ZEVs

- Legacy trucks may operate until the end of their useful life
- Must visit a regulated seaport or railyard at least once a year
- May use limited extensions

High Priority and Federal Fleets

Affected businesses

Fleets with 50+ vehicles, including common ownership and control

Fleets with >\$50 million in annual revenue

Federal government fleets

Entities that hire or dispatch fleets

Affected vehicles

Class 2b-8 vehicles

Off-road yard tractors

Light-duty delivery vehicles



Model Year Schedule Summary

January 2024

Registration required for legacy trucks

January 1, 2024

Newly added trucks must be ZEVs or NZEVs

January 2025

Must annually report mileage for tractors over 12 years

January 1, 2025

ICE vehicles removed after useful life exceeded

- Legacy trucks may operate until the end of their useful life
- May use certain exemptions and extensions
- ICE vehicle removals begin January 2025



Model Year Schedule Example

Legacy Truck Engine Year	18 years
2010	2028
2011	2029
2012	2030
2013	2031
2014	2032
2015	2033
2016	2034
2017	2035
2018	2036
2019	2037
2020	2038
2021	2039
2022	2040
2023	2041
2024	2042

- California fleet
 - All additions must be ZEVs
 - Legacy trucks removed after end of useful life
- Tractors
 - Earlier of 18 years or
 - End of year when odometer exceeds 800,000 miles
 - No less than 13 years
- Yard trucks and all other vehicles
 - 18 years

State and Local Government Requirements

2024-2026

January 1, 2027

50 percent of purchases must be ZEV or NZEV

All purchases must be ZEV or NZEV

- Agencies in designated counties and divisions with 10 or fewer trucks exempt until 2027
- May use exemptions and extensions



Optional ZEV Milestone Phase-in

- Open to High Priority and State and Local Government fleets
- Must meet ZEV milestones as a percent of total fleet
- Flexibility to add new ICE vehicles that are California certified or used ICE vehicles with 2010 or newer model year

Zero-Emission Fleet Percentage	10%	25%	50%	75%	100%
Group 1: Box trucks, vans, 2-axle buses, yard trucks, light-duty package delivery vehicles	2025	2028	2031	2033	2035
Group 2: Work trucks, day cab tractors, 3-axle buses	2027	2030	2033	2036	2039
Group 3: Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042

New Provisions

Provision	Summary
Waste and Wastewater Fleets	More time for CNG trucks supporting waste diversion and biomethane production
Five-Day Pass	Temporary pass to operate non-compliant trucks up to 5 days per year
Non-Repairable Vehicle	Flexibility to purchase used replacement ICE vehicle in case of accident
Intermittent Snow Removal Vehicle	May purchase ICE vehicles until 2030
Transit Agency Exemption	Excludes transit agencies and their maintenance vehicles until 2030

Updated Provisions

Provision	Summary
Vehicle Delivery Delay Extension	Remain compliant if ZEV order delayed
Infrastructure Delay Extension	Up to 5 years for onsite ZEV infrastructure delays
ZEV Purchase Exemption	Can buy ICE vehicle from CARB list or apply if not available in configuration needed
Daily Usage Exemption	Can buy ICE vehicle if mileage or hours of ZEV not suitable for placement in the fleet
Mutual Aid Assistance	Reserve 25% of fleet for use in mutual aid agreements
Rental Vehicle Provision*	Flexibility to address transient rental fleet vehicles
Backup Vehicle Exemption*	Excludes vehicle operated less than 1,000 miles per year

ZEV Purchases Exemption Summary

- CARB to list truck types that are exempt from ZEV purchase requirement if not available as a ZEV or NZEV
 - Must be ZEP Certified
 - Must be available within next two model years
- Vehicles on list can be purchased as an ICE vehicle without application
- Fleet-specific exemptions available if specific body configuration is not available as a ZEV
 - CARB to approve within 45 days

Infrastructure Delay

- Construction delay
 - Up to two years
 - Includes delays in fueling equipment
- New site electrification delay
 - Up to five years
 - Based on utility timeline to deliver power to site
 - Fleet will deploy maximum ZEVs site can support
- Both require fleets to begin planning one year ahead

Specific Fleet Concerns Addressed

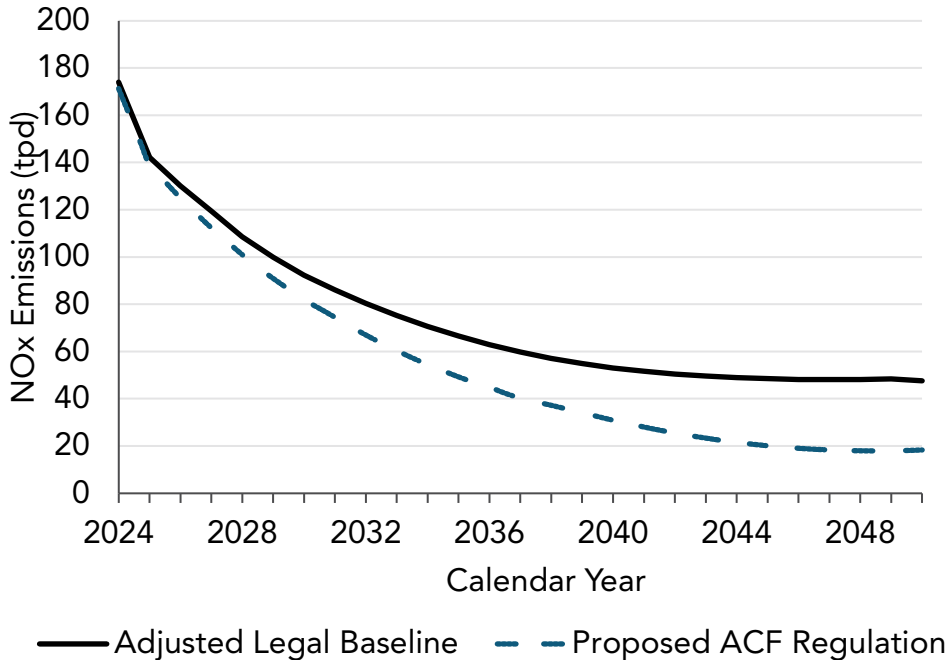
- Waste and wastewater fleets
 - 10% ZEV targets start 2027 or 2030 for most trucks
 - Existing CNG trucks deferred to 2030
- Rental vehicle fleets
 - Flexibility to use quarterly snapshots to address transient trucks
 - Option to deploy NZEVs instead of ZEVs
- Multistate fleets
 - ZEV milestones delay requirements until 2027 or 2030
 - Temporary flexibility to operate in California with five-day pass

Regulation Summary

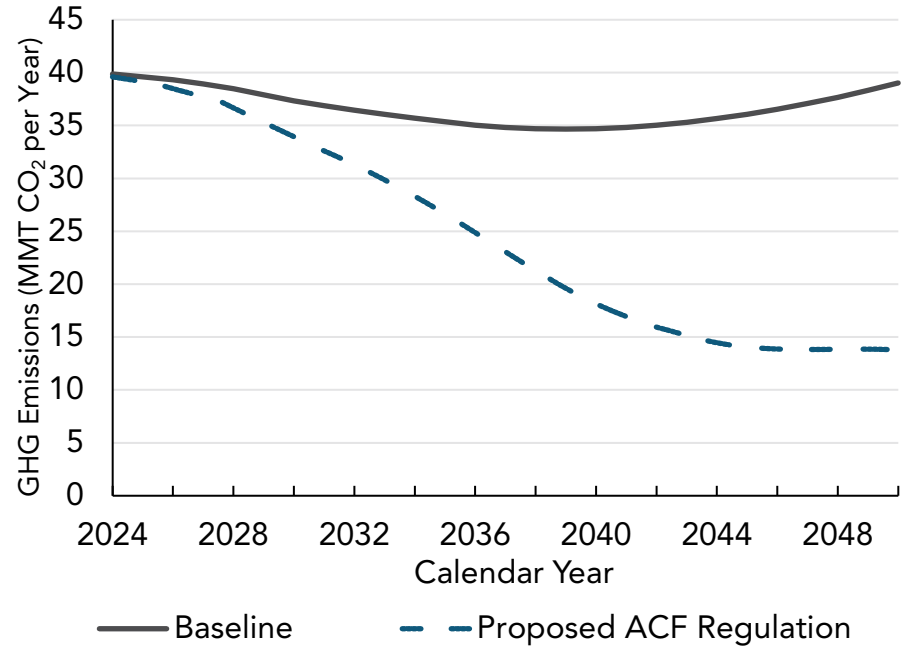
- Requirements phase-in ZEVs over next 10 to 20 years
- Existing vehicles can operate their full useful life
- Public and high priority fleets can use ZEV Milestones option schedule based on ZEV suitability
 - First milestone in 2025 for box trucks, buses and yard trucks
 - Tractors and work trucks start 2027
 - Specialty trucks and sleeper cabs deferred to 2030
- NZEV count same as ZEVs until 2035 (except for drayage)
- Various provisions to address issues as needed
 - Vehicle delivery delays, infrastructure delay, non-repairable vehicle provision, accidents, unexpected events, emergency events
 - ZEV purchase exemptions if ZEVs not available or don't meet duty-cycle

Significant Emission Reductions

NOx Emissions Drop 30% by 2037



GHG Emissions Drop 47% by 2040



ZEVs in Disadvantaged Communities

- All drayage trucks at seaports, railyards, and warehouses by 2035
- 70% of tractors at warehouses and all communities by 2040



Extraordinary Benefits

\$26 billion in health savings

Avoided premature mortality, emergency room visits, lost workdays, and hospitalizations

\$48 billion in reduced direct costs to fleets

Lower fuel and maintenance costs, and LCFS revenue

Decreased exposure in disadvantaged communities adjacent to freight hubs



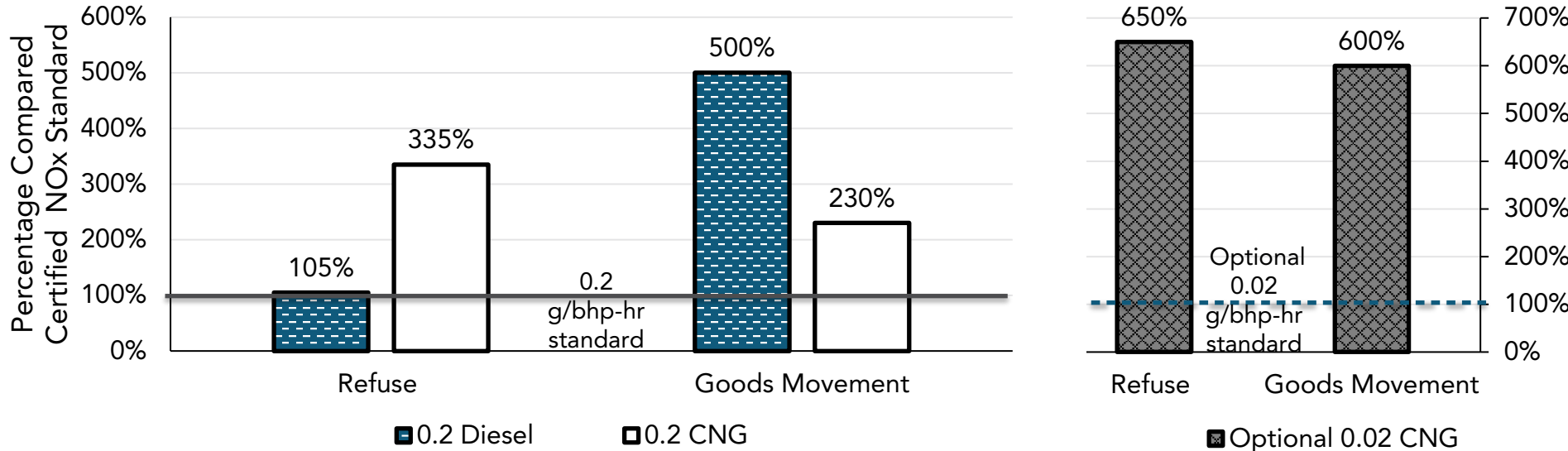
Remaining Stakeholder Concerns

Issue: Prioritize Lowest Certified Engines

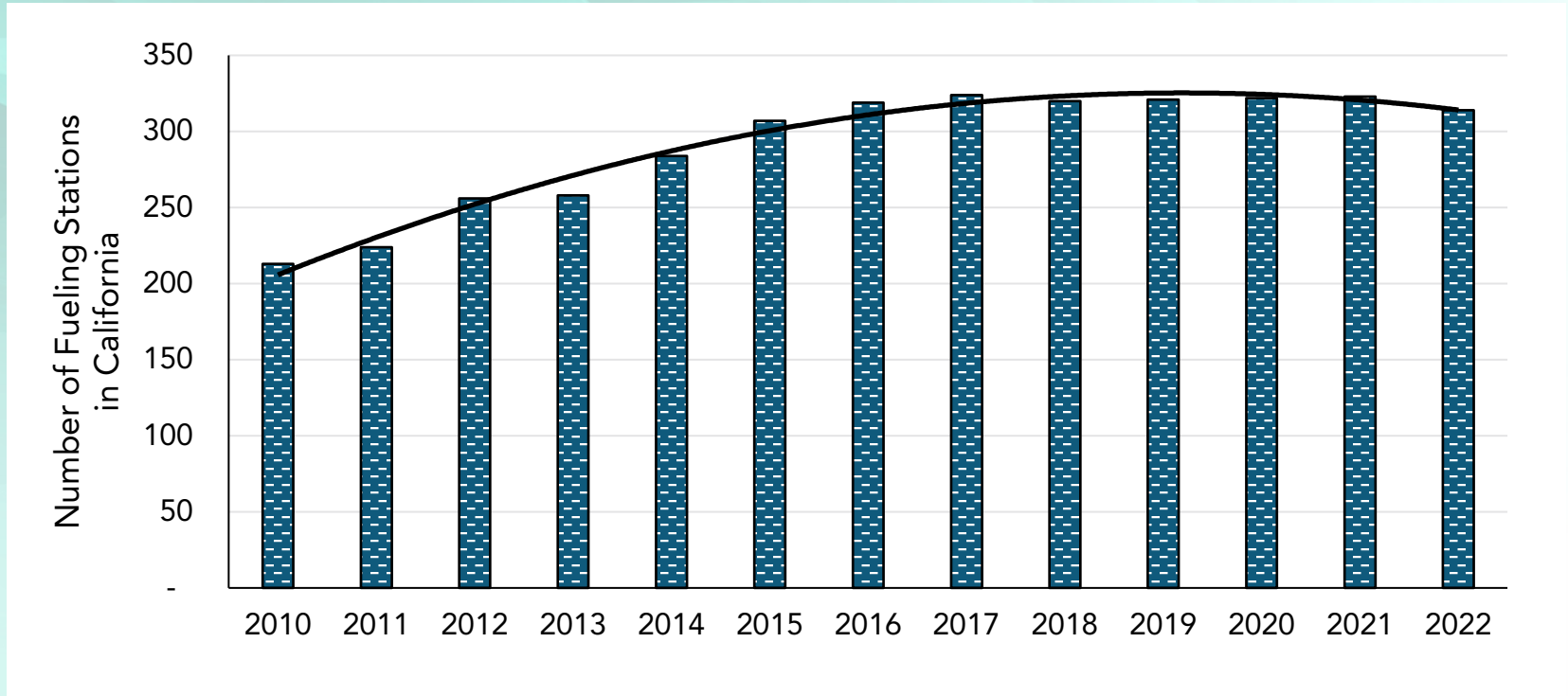
- ACF requires new engines to be California-certified
- Omnibus starts in 2024
 - Has an average, banking, and trading system
 - Offers credit for early certification
- Suggested modifications would effectively set new standard
- No additional emissions benefits with proposal
- Could lead to stranded natural gas infrastructure assets
- Natural gas may not be cleaner than diesel

Real World Exhaust Emissions Higher than Standards

PEMS Daily Emissions Rates Compared to Standard



Number of CNG Stations is Flat



Issue: Utility Fleets Seeking More Flexibility

- Can now use ZEV Milestones option
 - Extends flexibility to continue purchasing ICE vehicles
 - Most trucks would start ZEV phase-in 2027
 - Specialty truck start 2030 ZEV phase-in
- Added complete flexibility to use NZEVs instead of ZEVs
- ZEV Purchase Exemption now addresses fleet-specific needs
- More flexibility in qualifying for the Daily Usage Exemption
- Fleets with mutual aid agreements
 - Can purchase ICE vehicles when fleet still has 75% ICE vehicles
- Extra time to make purchases when granted exemptions

Issue: Get More Emission Benefits

- Added California engine requirement and 2036 100% ZEV requirement
 - Both generate significant emission benefits
 - Similar NOx benefits to reducing fleet size
- Zero-Emission Truck Measure in 2028
 - Approved in State Implementation Plan
- Existing Board direction to update the ACT regulation



Next Steps

Recommendations

- Approve Resolution 23-13 which includes the following:
 - Approve written responses to environmental comments
 - Certify the final Environmental Analysis making the required CEQA findings
 - Adopt the Advanced Clean Fleets regulation and direct the Executive Officer to submit the regulation to U.S. Environmental Protection Agency for inclusion in the California State Implementation Plan

Recommendations (Cont'd)

- Approve Resolution 23-13 which directs staff to transition the remainder of the heavy-duty fleet to ZEVs:
 - Develop the Zero-Emission Truck Measure proposed in the SIP
 - Evaluate alignment between manufacturer and fleet requirements
 - Coordinate with sister agencies to drive policy discussions on the transition of biomethane from transportation to hard-to-decarbonize sectors
- Zero-Emission Infrastructure Joint Agency Statement of Intent outlining significant coordination between agencies
- Consider stakeholder suggestions on resolution language providing guidance for future ZEV measures