



# **Proposed Advanced Clean Fleets (ACF) Regulation Workshop**

May 4, 2022

# Today's Outline

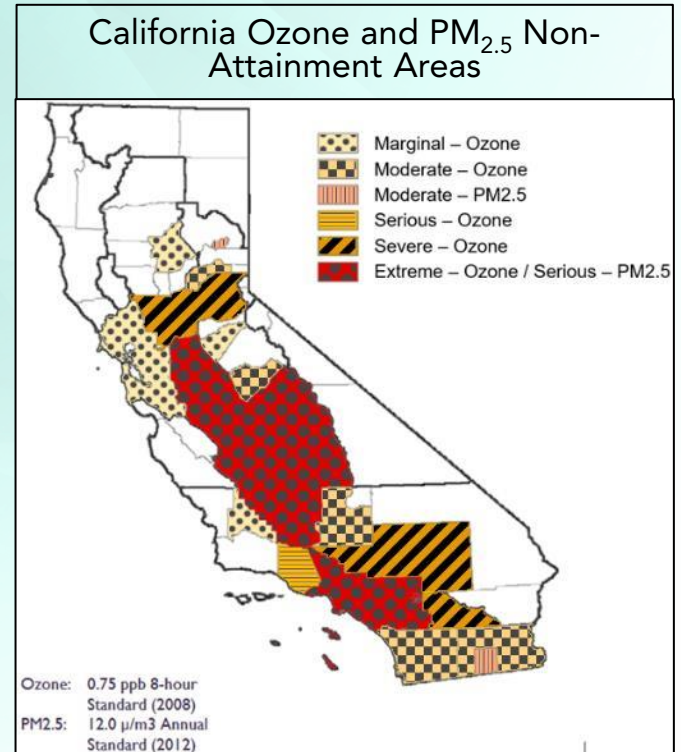
- Introduction and background
- Zero-emissions vehicle (ZEV) market outlook
- Regulation overview
  - High priority and federal fleets 5/2/2022
  - 100 % ZEV sales by 2040 5/2/2022
  - State and local government fleets 5/4/2022
  - Drayage Trucks 5/6/2022
- Emissions and next steps

# Today's Meeting Materials

- On "[Meetings and Events](https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events)" page on Advanced Clean Fleets (ACF) webpage (<https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events>)
- Submit comments to [informal comment docket](https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=acf-comments-ws&comm_period=1) ([https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=acf-comments-ws&comm\\_period=1](https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=acf-comments-ws&comm_period=1))
  - Informal comment docket open late summer
  - Formal comment docket opens September 2

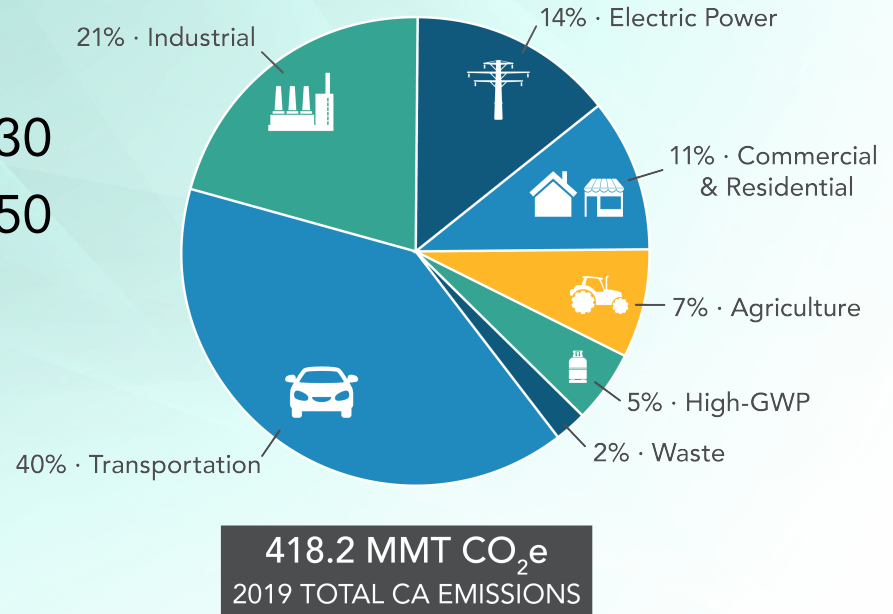
# Major Oxides of Nitrogen (NO<sub>x</sub>) and Fine Particulate Matter (PM<sub>2.5</sub>) Emissions Reductions Needed

- California has the worst air quality in the nation
- Unique challenges in San Joaquin Valley and South Coast
- Heavy-duty trucks and federal sources\* remain largest contributors
- More reductions needed to meet 2031 and 2037 attainment
  - Nearly all heavy-duty trucks to have 2010 model year engines by 2023



# Greenhouse Gas (GHGs) Goals


- California's climate change targets
  - 40% below 1990 levels by 2030
  - 80% below 1990 levels by 2050
  - Carbon neutrality by 2045
- Clean electricity
  - 33% renewable by 2020
  - 60% renewable by 2030
  - Zero-carbon by 2045




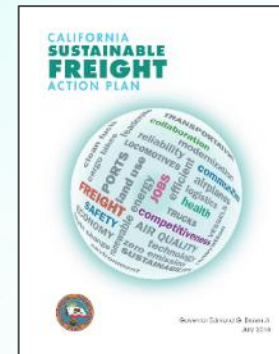
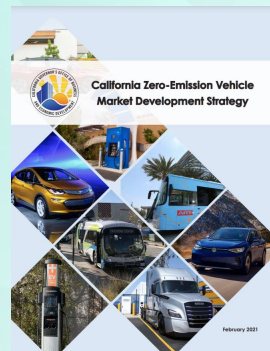
# California Leading the Way for a Sustainable Future

Governor Executive Order N-79-20

 **100% ZEV sales** by 2035

Full transition to **ZEV short-haul/drayage trucks** by 2035 

Full transition to **ZEV buses & heavy-duty long-haul trucks** by 2045\* 

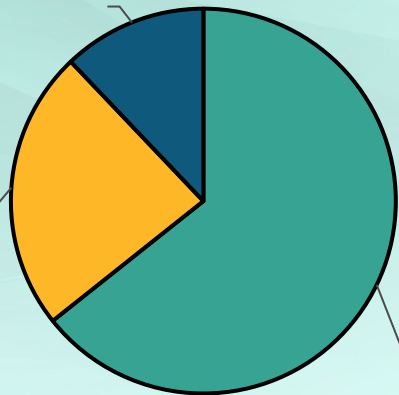


# Biggest Trucks Have Highest Emissions

## Daily Truck Population



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



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

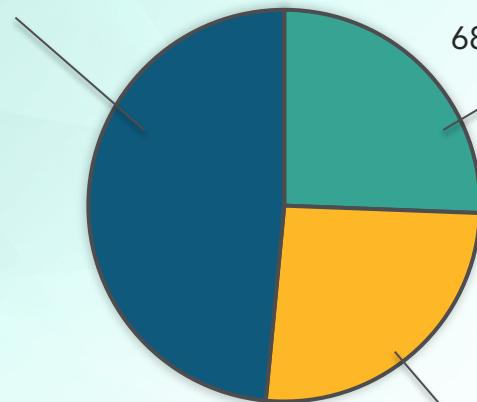


Class 2b-3 Trucks  
and Vans  
1,164,000 (64%)

## 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/), (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.



# ZEV Market Overview



# Advanced Clean Trucks (ACT)

- Manufacturers must sell ZEVs as a percentage of sales\*
- Approved June 2020
- Begins with 2024 model year
- Credit for sales start in 2021
- Minimum tractor sales
- Flexibility to shift sales between categories
- One-time fleet reporting

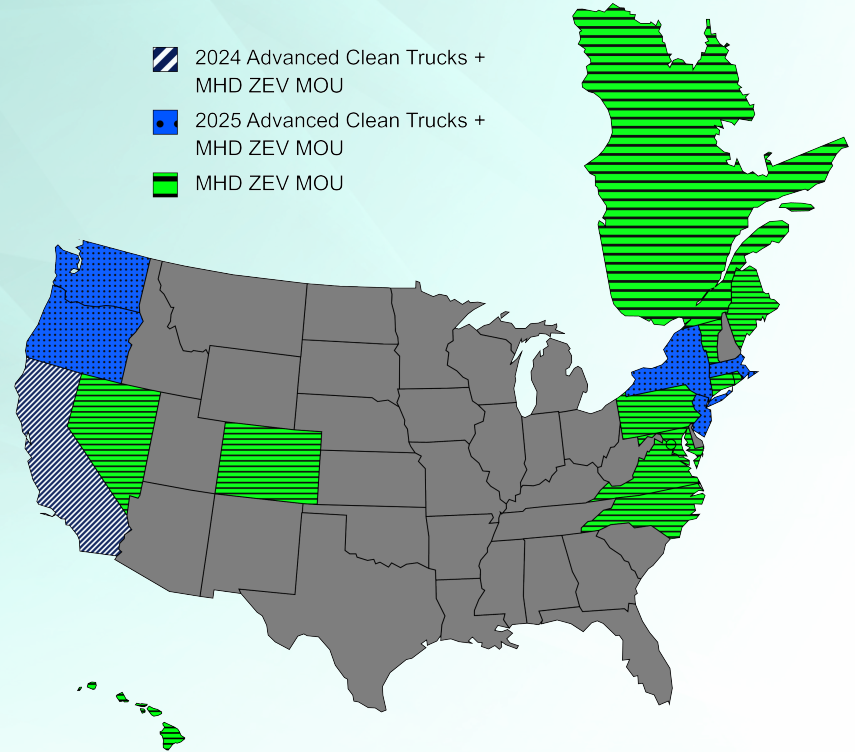
Model Year (MY)	Class 2b-3	Class 4-8	Class 7-8 Tractors
2024	5%	9%	5%
2025	7%	11%	7%
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035+	55%	75%	40%

# ACT One-time Fleet Reporting Summary

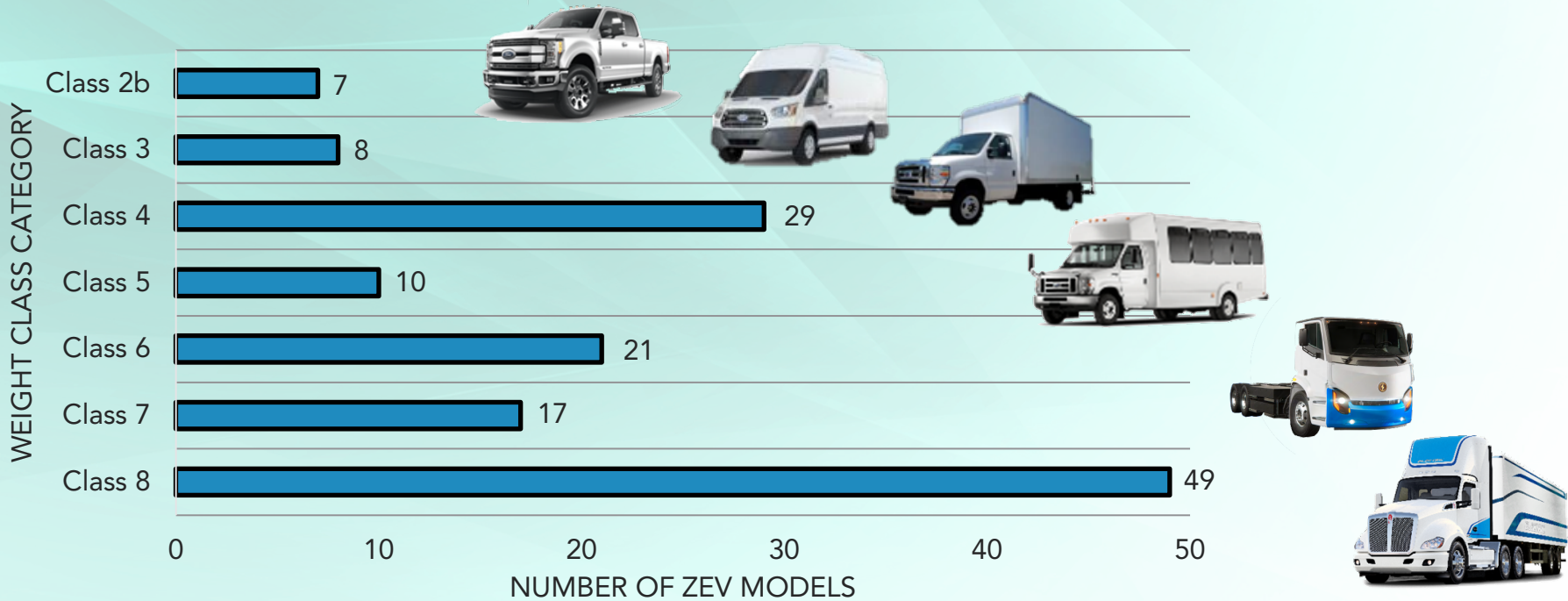
- Truck and fleet operations survey collected in 2021
- Results posted online in aggregated formats
  - 1,866 entities
  - 7,767 facilities
  - 386,286 vehicles
- [Large Entity Reporting Data](https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks/large-entity-reporting)  
(<https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks/large-entity-reporting>)

# California is not Alone...

- Section 177 of the Clean Air Act allows states to adopt California motor vehicle standards
- Adopted ZEV regulations
  - Advanced Clean Cars - 12 states
  - Advanced Clean Trucks - 6 states
- Medium- and heavy-duty ZEV commitments
  - 17 states and DC
  - Province of Quebec, Canada



# 140 ZEV Models Commercially Available in US



More than 500 ZEV models available worldwide

# ZE Tractor Commercial Availability

Available Today

- BYD 8TT
- Freightliner eCascadia
- Kenworth T680E
- Lion Electric LION8
- Nikola TRE
- Peterbilt 579
- SEA Cascadia
- Volvo VNR Electric



2022

- Hyundai XCIENT



2023

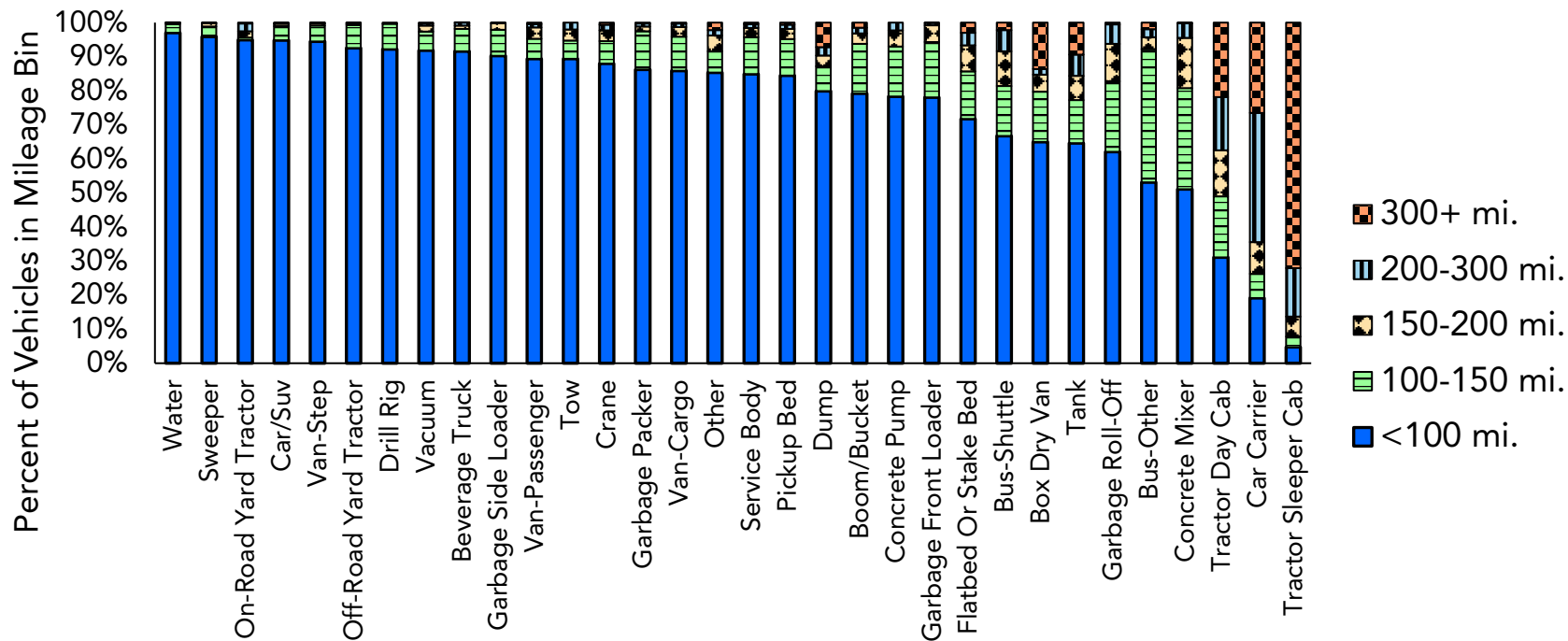
- Nikola One/Two
- Tesla Semi



# Same ZEV Chassis with Multiple Configurations



# Most Trucks Travel <100 Miles Per Day





# **Updated Draft Language for State and Local Government Fleets Section 2013**



# Scope and Applicability

- State and local government agencies that own, lease, or operate a vehicle with a manufacturer's gross vehicle weight rating (GVWR) greater than 8,500 pounds
  - City, county, public utility, special district, or an agency of the State of California, and any department, division, public corporation
  - Excludes federal agencies

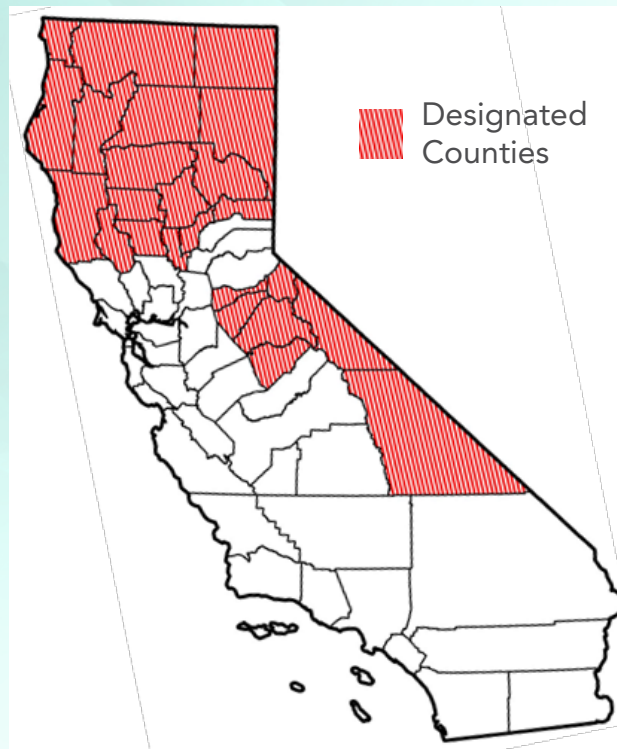
# Exempt from the Regulation

- School buses as defined in California Vehicle Code (CVC) section 545(a)
- Military tactical vehicles as described in title 13, California Code of Regulations (CCR) section 1905
- Vehicles awaiting sale
- Emergency vehicles as defined in CVC section 165
- Historical vehicles
- Dedicated snow removal vehicles
- Two-engine vehicles
- Heavy cranes as defined in title 13, CCR section 2021(b)(16)
- Transit vehicles subject to the Innovative Clean Transit regulation commencing with title 13, CCR section 2023



# ZEV Additions When Replacing Vehicles

- ZEVs required when adding vehicles to the fleet
  - 50 percent of additions in 2024-2026
  - 100 percent of additions starting 2027
- Three-year exemption in designated counties until 2027
- Until 2035, may purchase NZEV if no ZEV is available



# Public Fleet Exemptions, Extensions, and Provisions

- Early ZEV additions (New)
- Backup vehicles
- ZEV or NZEV unavailability (New)
- Mutual aid assistance (New)
- Infrastructure construction delay (New)

# Early ZEV Additions

- Early ZEV purchases count towards future requirements
  - ZEVs purchased prior to 2024
  - ZEVs purchased beyond 50 percent addition requirement
- ZEV must remain in the fleet when claiming credit
- Each vehicle added may only be counted once

# Backup Vehicle Exemption

- Must operate less than 1,000 miles annually
  - Exception for emergency miles
- Report vehicle as a backup during open reporting and submit odometer reading
- Report odometer reading annually
- May purchase an ICEV to designate as backup

# ZEV or NZEV Unavailability Exemption

- CARB to maintain a list online of any ZEVs that are not commercially available
  - Does not apply to pickups, buses, box trucks, vans, or any tractors
  - Documentation may be submitted to add/remove vehicles from list
    - Grouped by weight class (Class 4-6 and Class 7-8)
    - Listed by configuration for primary intended function
  - 6-month grace period for a vehicle to be removed from the listed
- Fleet owner may purchase ICEVs on the list and report vehicle when it is delivered

# ZEV or NZEV Unavailability Exemption Criteria

- All of the following must be true for ZEVs or NZEVs:
  - The vehicle configuration is available as an ICEV
  - No new complete ZE vehicles are sold in equivalent configuration
  - No new ZE chassis is available to be equipped in configuration
  - No new ZE chassis conversion can be installed on vehicle equipped in configuration
- Report to claim exemption during open reporting and submit photos of vehicle purchased



# Infrastructure Construction Delay Extension

- Addresses ZEV construction delays that are beyond fleet owner's control for charging and hydrogen stations
  - Infrastructure construction must have begun 1 year prior to next compliance deadline
  - Eligible reasons include change of a general contractor, delays for obtain power from a utility, delays obtaining construction permits, delays due to unexpected safety issues, discovery of resources described in the California Environmental Quality Act, or natural disasters
- Submit request to Executive Officer for review
- Delay taking delivery of ordered ZEVs

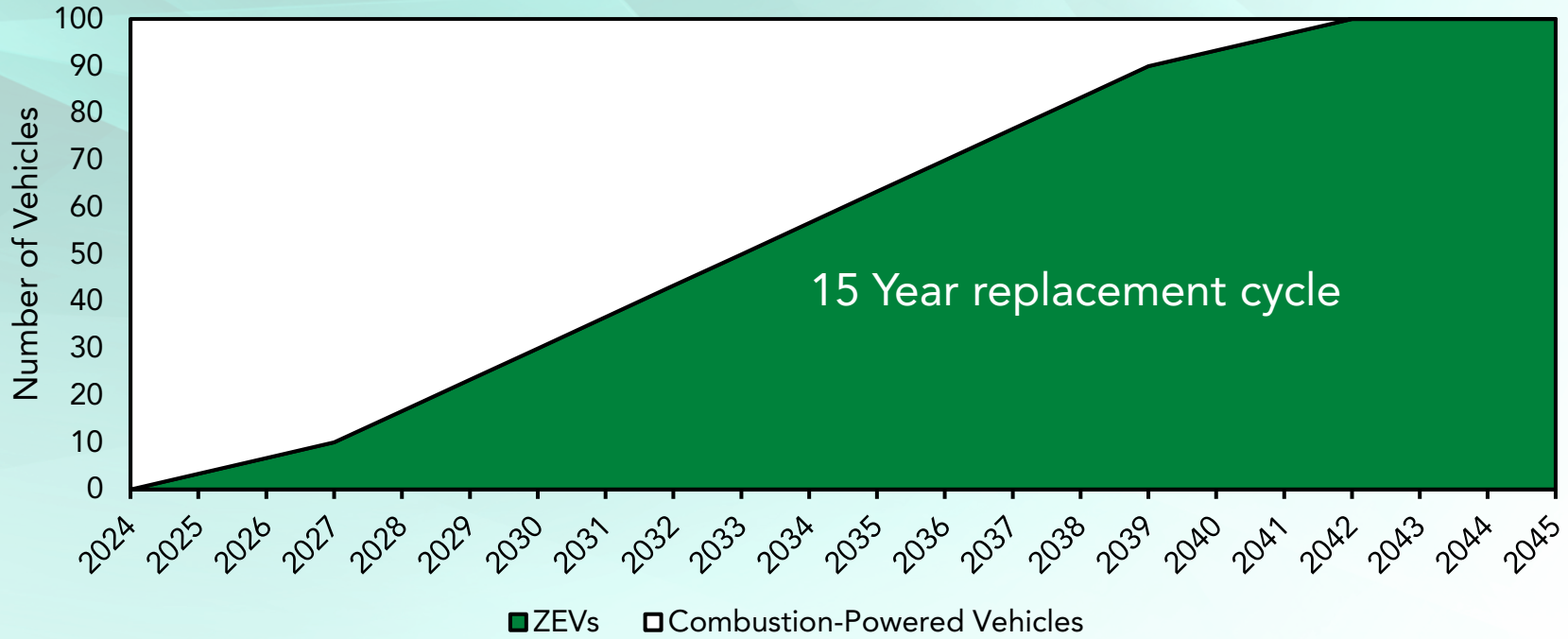
# Mutual Aid Exemption

- For entities with signed agreements to send vehicles to assist in declared emergencies
- Eligibility criteria
  - 75 percent of total fleet must be ZEVs
  - Cannot be used for vehicles where mobile fueling can return vehicle to 80 percent of capacity in one hour
  - Does not apply to pickups, buses, box trucks, vans, tractors, or any vehicle configurations available as NZEVs
- Allows for purchase of Class 4-8 ICEV
- Submit request to Executive Officer for review

# Public Fleet Reporting

- Report fleet annually by April 1 (New)
- General agency information
- Vehicle information
  - VIN, make, model, model year, weight class, body type
  - Fuel and drivetrain type
  - Date purchase made, date vehicle received
- Records to be provided upon request
  - Registration, vehicle information, purchase documents, etc.

# Fleet Example for 100 Truck Fleet



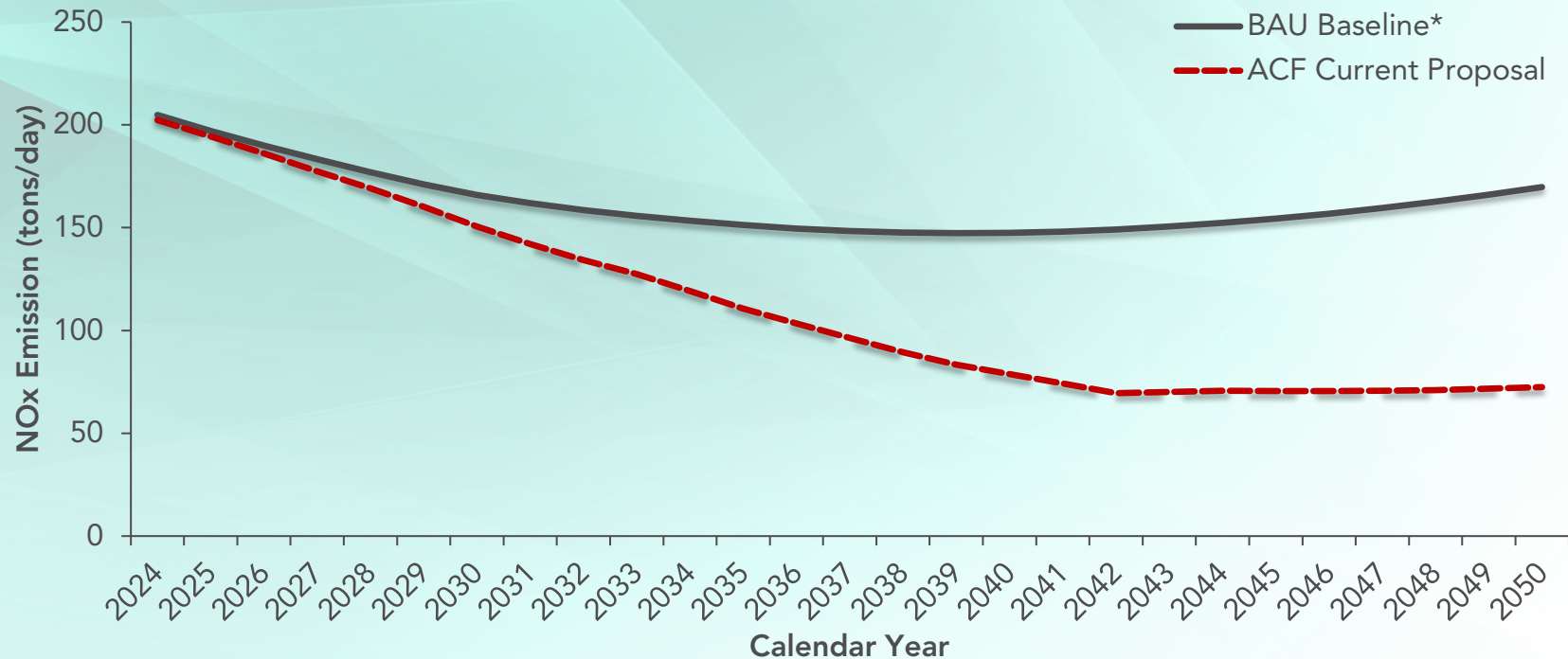


# Emissions, Outreach, Next Steps

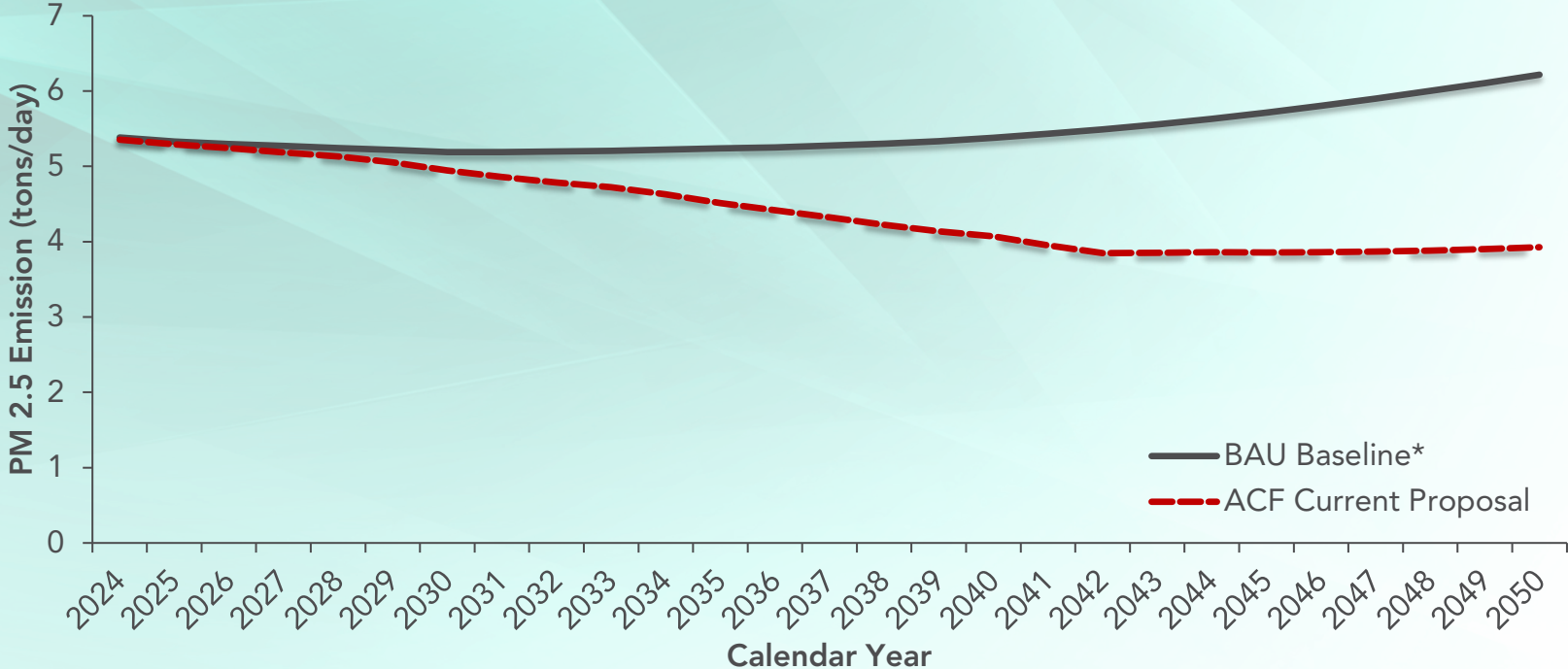
# Emissions Overview, Outreach, and Next Steps

- Emissions
- Outreach
  - ACF regulation
  - Infrastructure and funding
  - ZEV resources for fleets
- Next steps

# Projected Statewide NOx Emissions

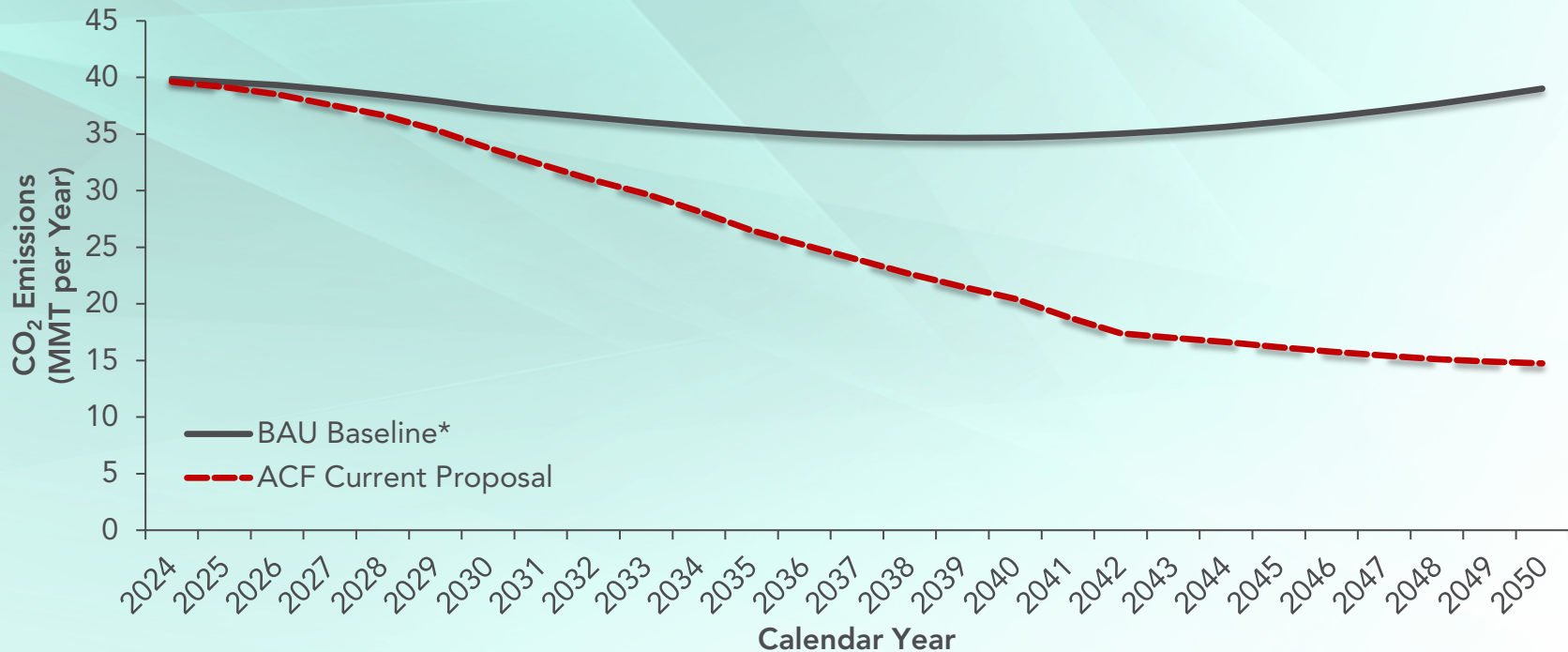


# Projected Statewide PM2.5 Emissions (Exhaust and Brake Wear)





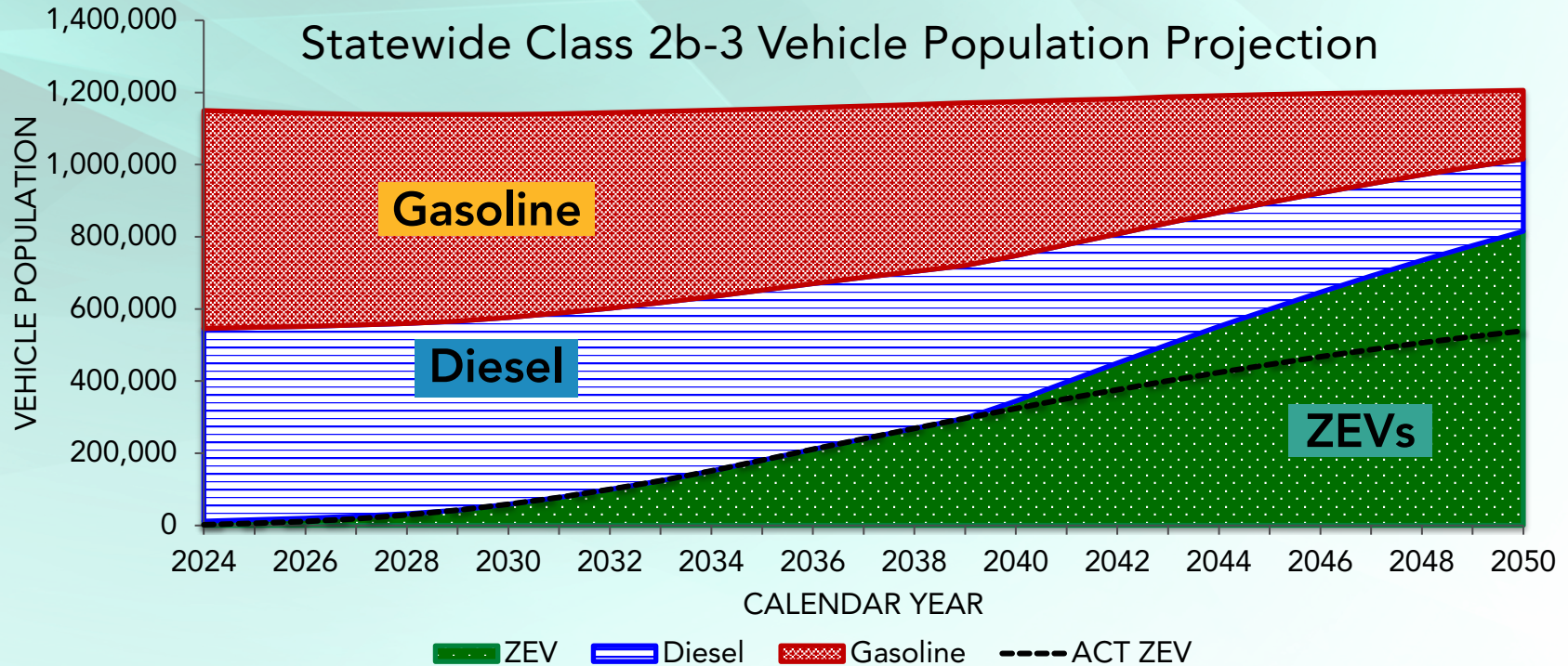
# Projected Statewide Tank-to-Wheel GHG Emissions



Tailpipe CO<sub>2</sub> emissions Only

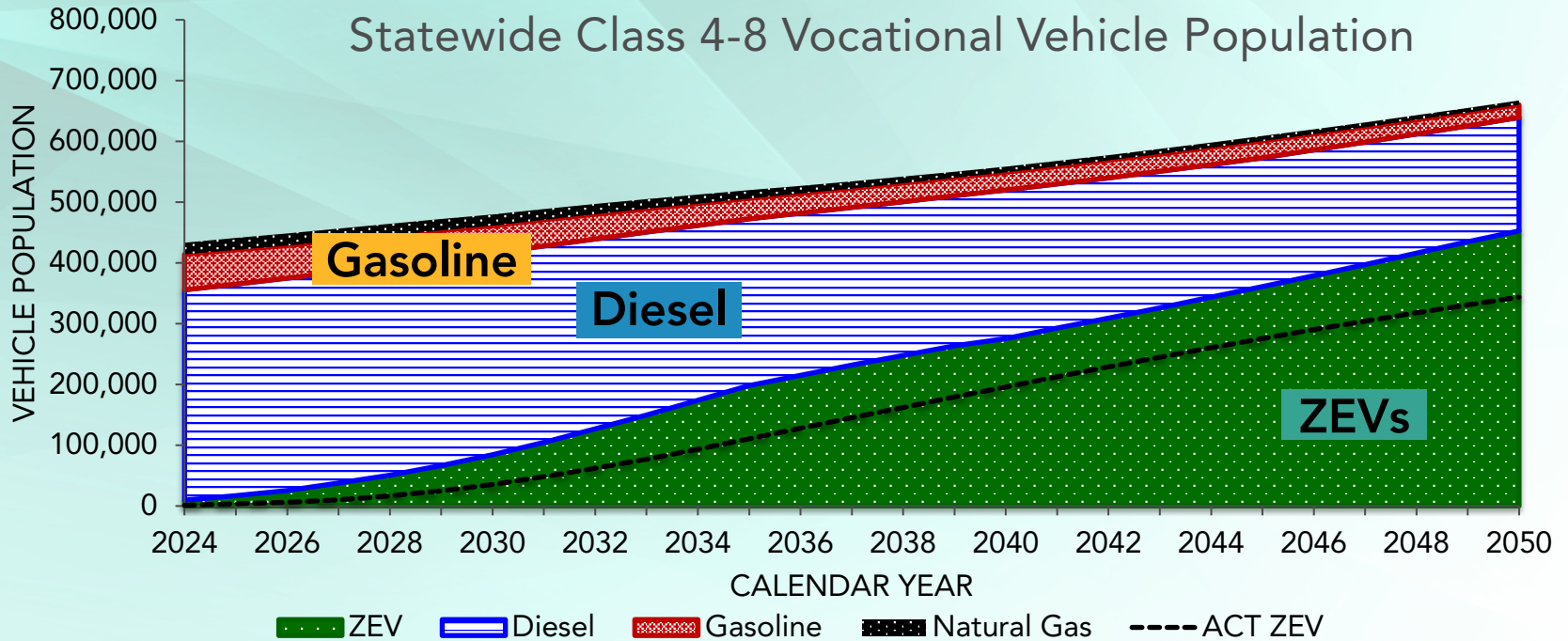
\* BAU baseline includes the impacts of ACT and HD Omnibus.

# Projected Technology Distribution Under ACT and ACF Proposal



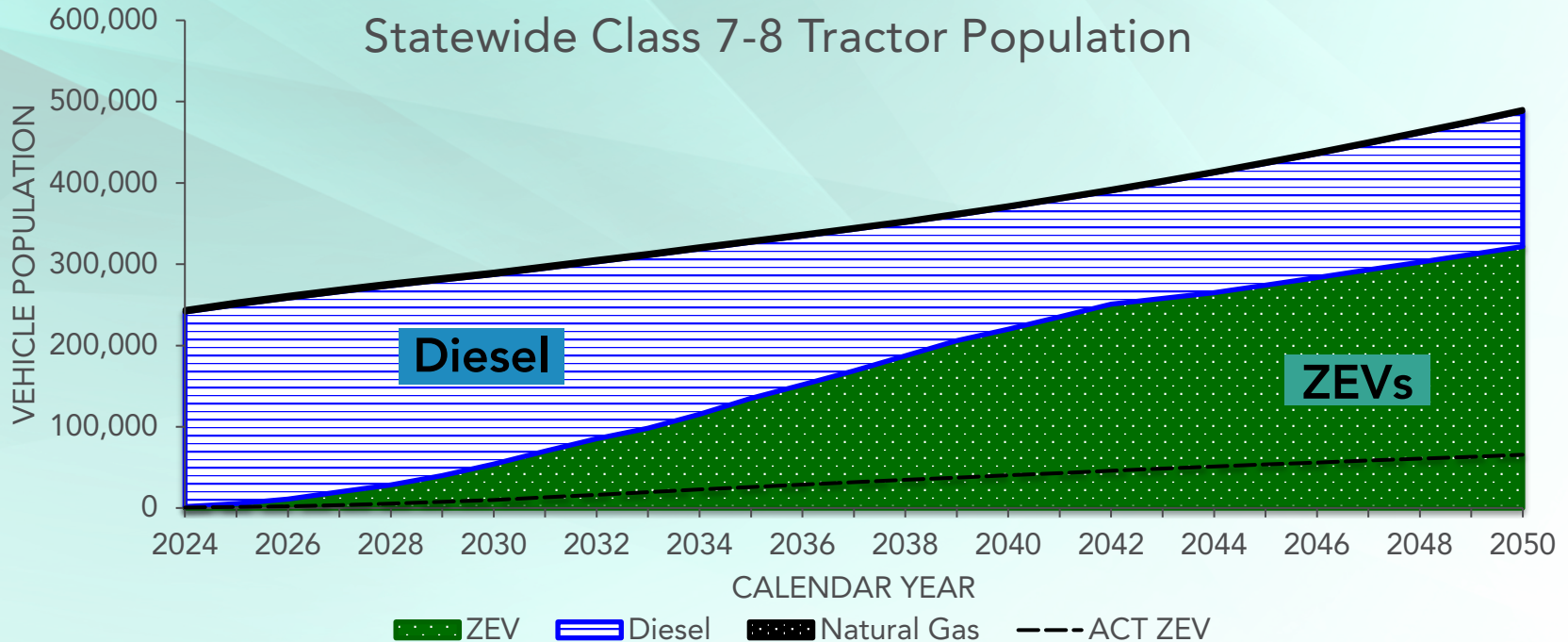
# Projected Technology Distribution Under ACT and ACF Proposal

## Statewide Class 4-8 Vocational Vehicle Population

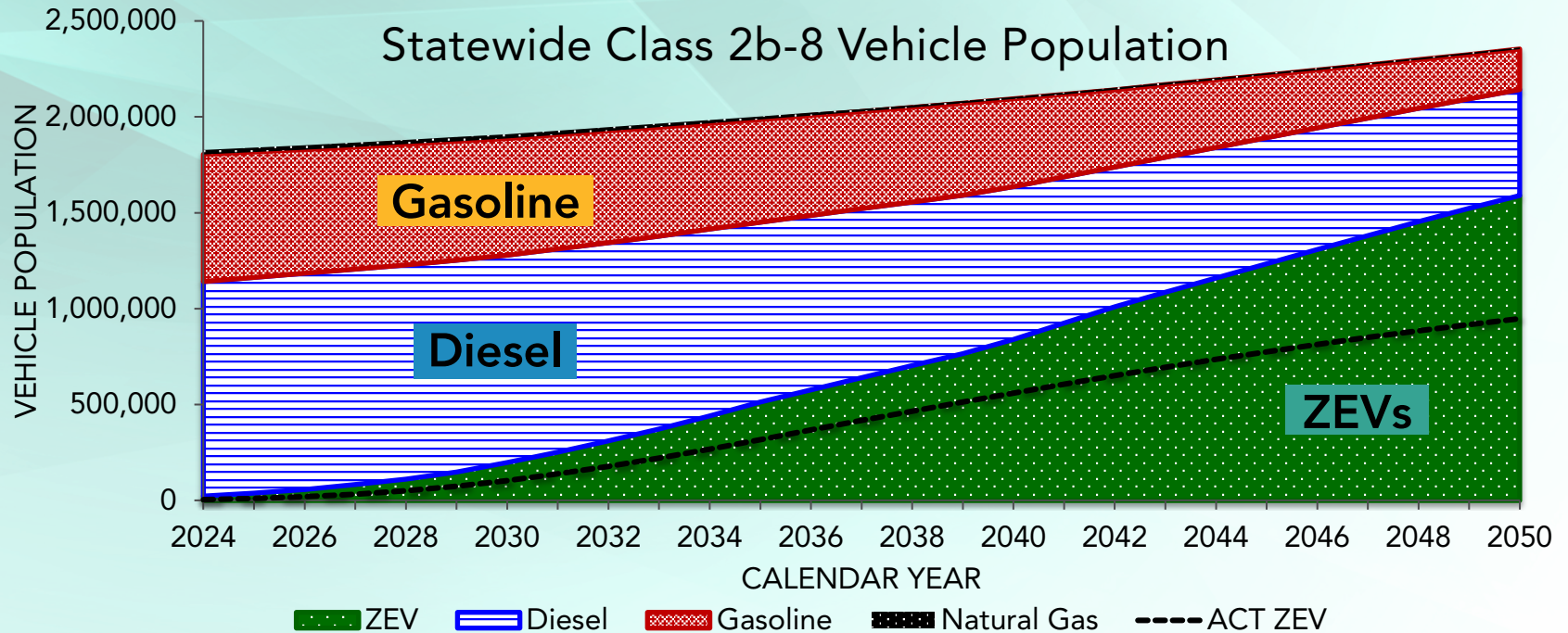


# Projected Technology Distribution Under ACT and ACF Proposal

## Statewide Class 7-8 Tractor Population



# Projected Technology Distribution Under ACT and ACF Proposal



# Over \$8 Billion Dollars Committed to Date

## Community Air Protection Program (AB 617)

Over \$960M since 2017 for criteria, toxics and GHG reductions for community goals



## FARMER Program

Over \$535M since 2017 for criteria, toxics and GHG reductions for the ag sector



## Air Quality Improvement Program (AQIP)

Over \$490M since 2009 for criteria pollutant and toxics reductions



## Low Carbon Transportation

Over \$3.6B since 2014 for advanced technologies to provide GHG reductions and priority populations benefits



## Carl Moyer Program

Over \$1.8B since 1998 for cost-effective, SIP creditable criteria pollutant emission reductions



## VW Mitigation Trust

\$423 million for NOx mitigation and zero-emission



## Prop 1B

\$980M for PM & NOx reductions in goods movement corridors



# Governor's California Blueprint

*Investing in a Zero-Emission Future*



**\$256 million**  
Low-Income ZEVs



**\$545 million**  
Drayage & Transit Buses



**\$600 million**  
Trucks, Buses & Off-Road



**\$250 million**  
Ports



**\$419 million**  
Communities & Clean Mobility



**\$100 million**  
Emerging Opportunities



**CARB Total: \$2.17 B**

**ZEV Package Total: \$6.1 B**

# Stakeholder Outreach on ACF Rulemaking



 CALIFORNIA  
AIR RESOURCES BOARD

## CARB Needs Your Input on Upcoming Regulations

The California Air Resources Board  
is developing regulations that  
may affect you.

For more information & to get involved,  
visit [arb.ca.gov/futuremobileregs](http://arb.ca.gov/futuremobileregs)

Tenemos información disponible  
en español.

- 273 group and individual meetings with over 130 stakeholders
- Listening sessions and briefings to community
- Letters to over 11,000 large entities and fleets
- Postcards to over 273,000 vehicle owners
- Emails to over 100,000 recipients
- CARB trainings to over 800 attendees
- Numerous webpage resources
- Social media and radio interviews
- Attendance at in person events



# Infrastructure

- CARB has key role as regulator, information source, and communication facilitator
- Collaborating closely with agency partners on developing ZEV infrastructure and supporting market
- Continued discussion between agencies, fleets, and infrastructure providers needed



# ZEV Resources For Fleets

- Websites available with helpful resources
  - [CARB TruckStop ZEV Webpage](https://ww2.arb.ca.gov/sites/default/files/truckstop/zev/zevinfo.html) (https://ww2.arb.ca.gov/sites/default/files/truckstop/zev/zevinfo.html) – Overview of regulations, incentives, our partners, market availability, ZEV 101 info to be added soon
  - [HVIP Website](https://californiahvip.org/) (https://californiahvip.org/) – Vehicle catalogue, funding updates, FAQs, planning guides
  - [EnergiIZE Website](https://www.energiize.org/) (https://www.energiize.org/) – Infrastructure Readiness Center, TCO tool, funding finder
  - [Funding Finder Tool](https://fundingfindertool.org/) (https://fundingfindertool.org/) – Filters alternative fuel vehicle and infrastructure programs
  - [CARB Infrastructure Resource Webpage](https://ww2.arb.ca.gov/zero-emission-vehicle-zev-infrastructure-topics) (https://ww2.arb.ca.gov/zero-emission-vehicle-zev-infrastructure-topics) – resource for finding information about zero-emission fueling infrastructure

# Next Steps

- Meeting materials posted on “Meetings and Events” page on CARB’s Advanced Clean Fleets webpage
- Submit comments to [informal comment docket](https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=acf-comments-ws&comm_period=1) ([https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=acf-comments-ws&comm\\_period=1](https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=acf-comments-ws&comm_period=1))
- For more information, please contact CARB staff by [email](mailto:zevfleet@arb.ca.gov) ([zevfleet@arb.ca.gov](mailto:zevfleet@arb.ca.gov)), or by phone at (866) 634-3735
- 45-Day rulemaking package early September 2022
- Board recommendation October 2022