



Proposed Advanced Clean Fleets (ACF) Regulation Workshop

May 2, 2022

Today's Outline

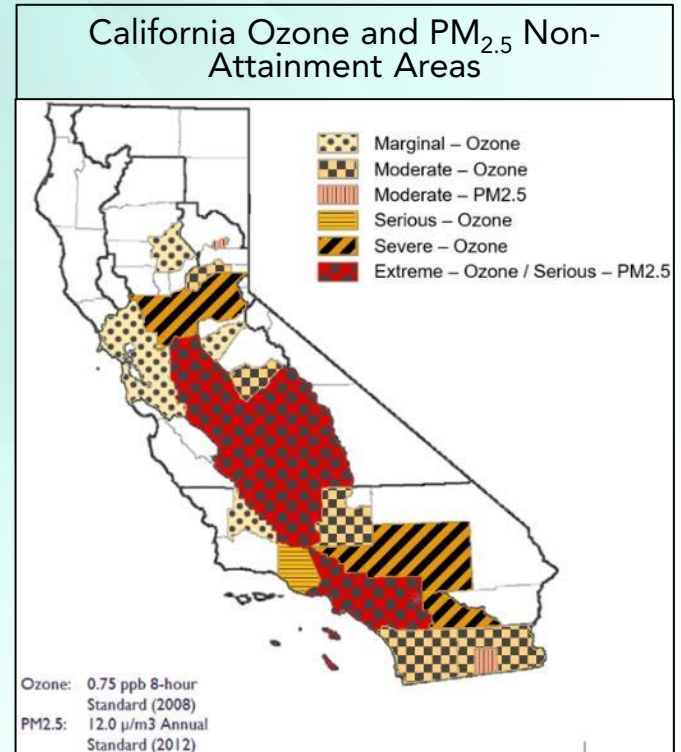
- Introduction and background
- Zero-emissions vehicle (ZEV) market outlook
- Regulation overview
 - High priority and federal fleets 5/2/2022
 - 100 Percent ZEV sales by 2040 5/2/2022
 - State and local government fleets 5/4/2022
 - Drayage trucks 5/6/2022
- Emissions and next steps

Today's Meeting Materials

- On "Meetings and Events" 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)
 - Informal comment docket available until formal comment docket opens early September
 - Early feedback on proposal is welcome

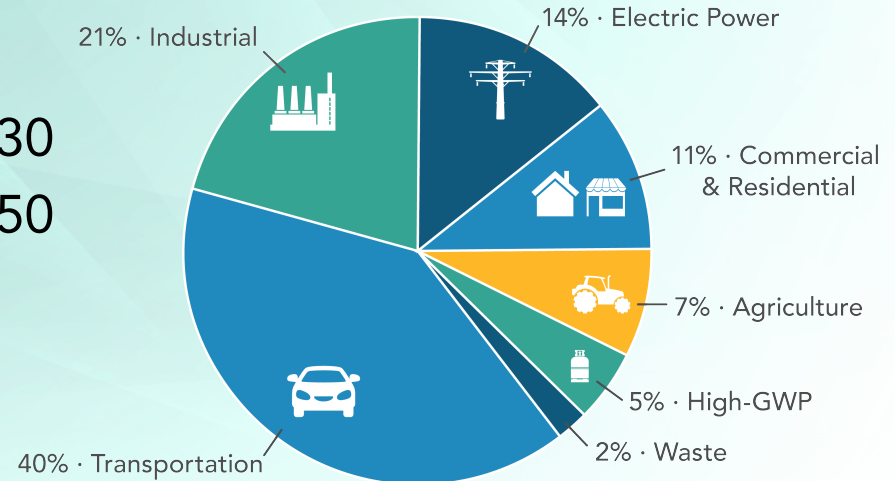
Major Oxides of Nitrogen (NO_x) and Fine Particulate Matter (PM_{2.5}) Emissions Reductions Needed

- 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





418.2 MMT CO₂e
2019 TOTAL CA EMISSIONS

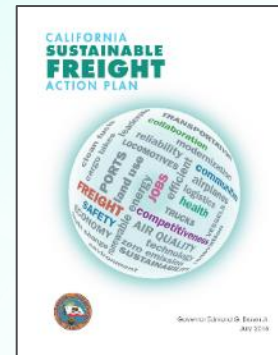
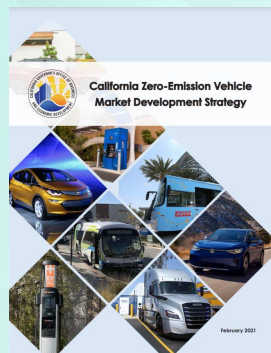
California Leading the Way for a Sustainable Future

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*

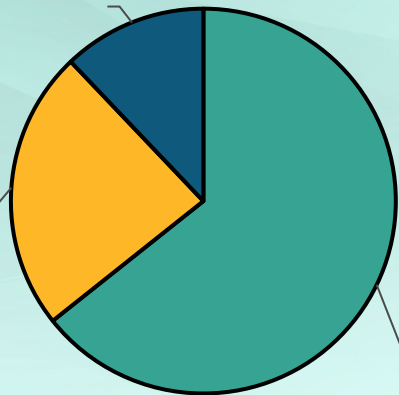


Biggest Trucks Have Highest Emissions

Daily Truck Population



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



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

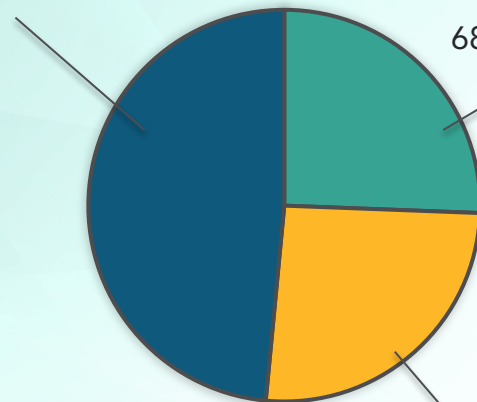


Class 2b-3 Trucks
and Vans
1,164,000 (64%)

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/>)
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)

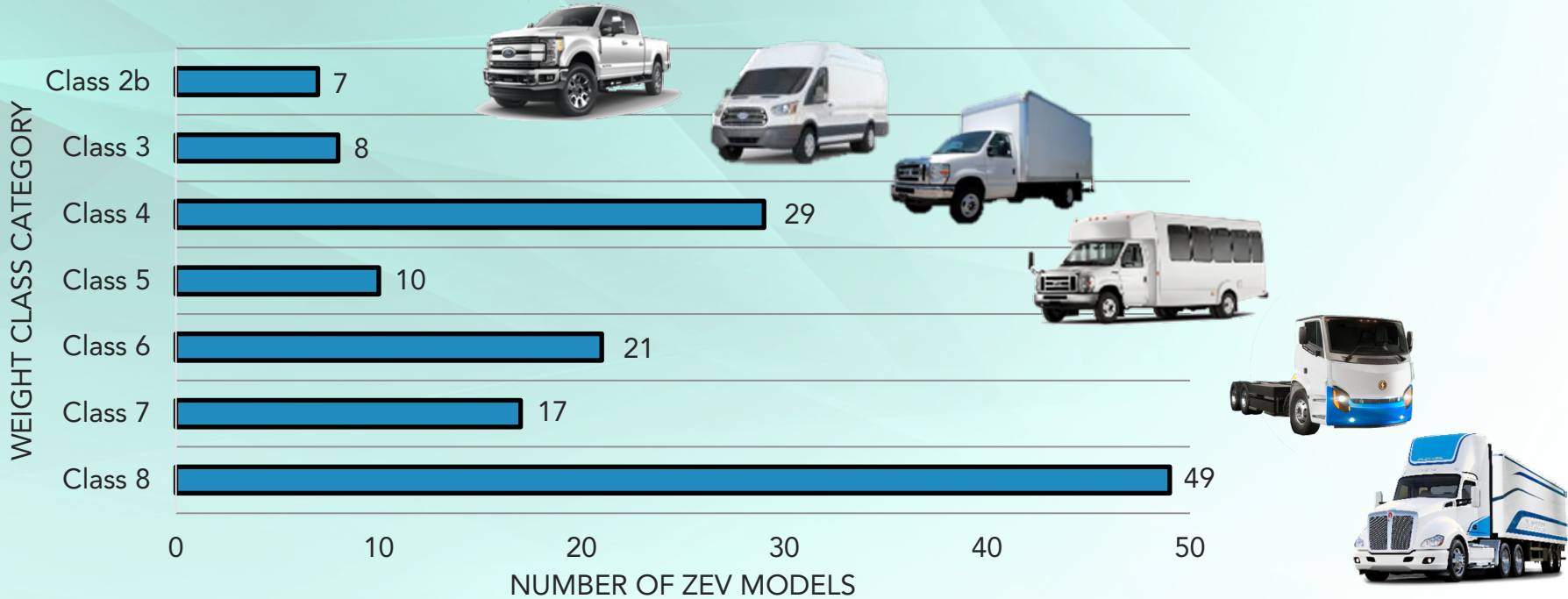
- Manufacturers must sell ZEVs as a percentage of sales*
- Approved June 2020
- Begins with 2024 model year
- Credit for sales start in 2021
- Minimum tractor sales
- Flexibility to shift sales between categories
- One-time fleet reporting

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>)

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

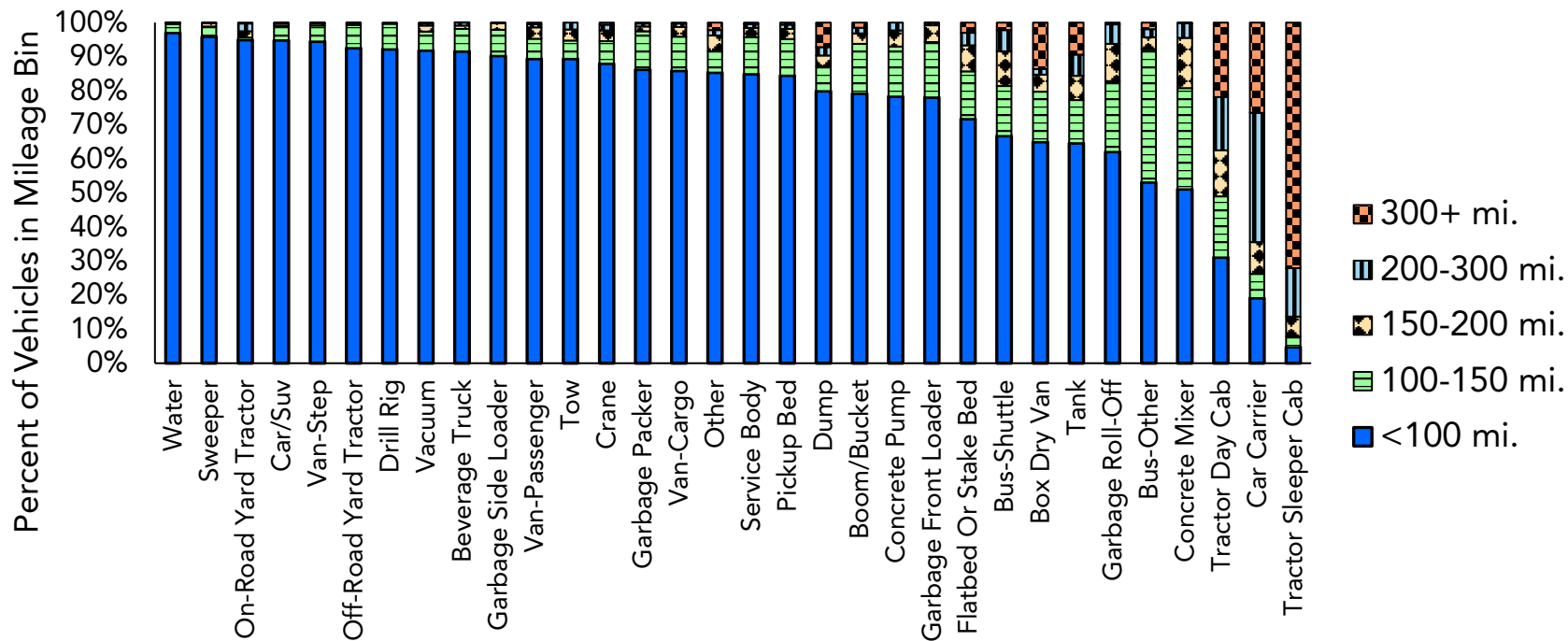
- Nikola One/Two
- Tesla Semi



Same ZEV Chassis with Multiple Configurations



Most Trucks Travel <100 Miles Per Day





High Priority and Federal Fleets Section 2015

Scope and Applicability

- Fleet that operate or direct one or more vehicles* in California and
 - Own, operate or direct 50 or more vehicles under common ownership or control, or
 - \$50 million or more gross annual revenue
- Federal government fleets
- Requirements for entities that hire or dispatch fleets

Vehicles Within Scope

- On-road vehicles with a GVWR above 8,500 lbs.
- Off-road yard tractors
- On-road light-duty vehicles used for package, parcel, or mail delivery (New)



Exempt From Regulation

- School buses
- Military tactical vehicles
- Vehicles awaiting sale
- Emergency vehicles
(California Vehicle Code [CVC] 165)
- Transit vehicles subject to Innovative Clean Transit regulation
- Dedicated snow removal vehicles
- Historical vehicles
- Heavy cranes
- Two-engine trucks and workover rigs
- Vehicles subject to Mobile Cargo Handling Equipment regulation



Overview of General Requirements

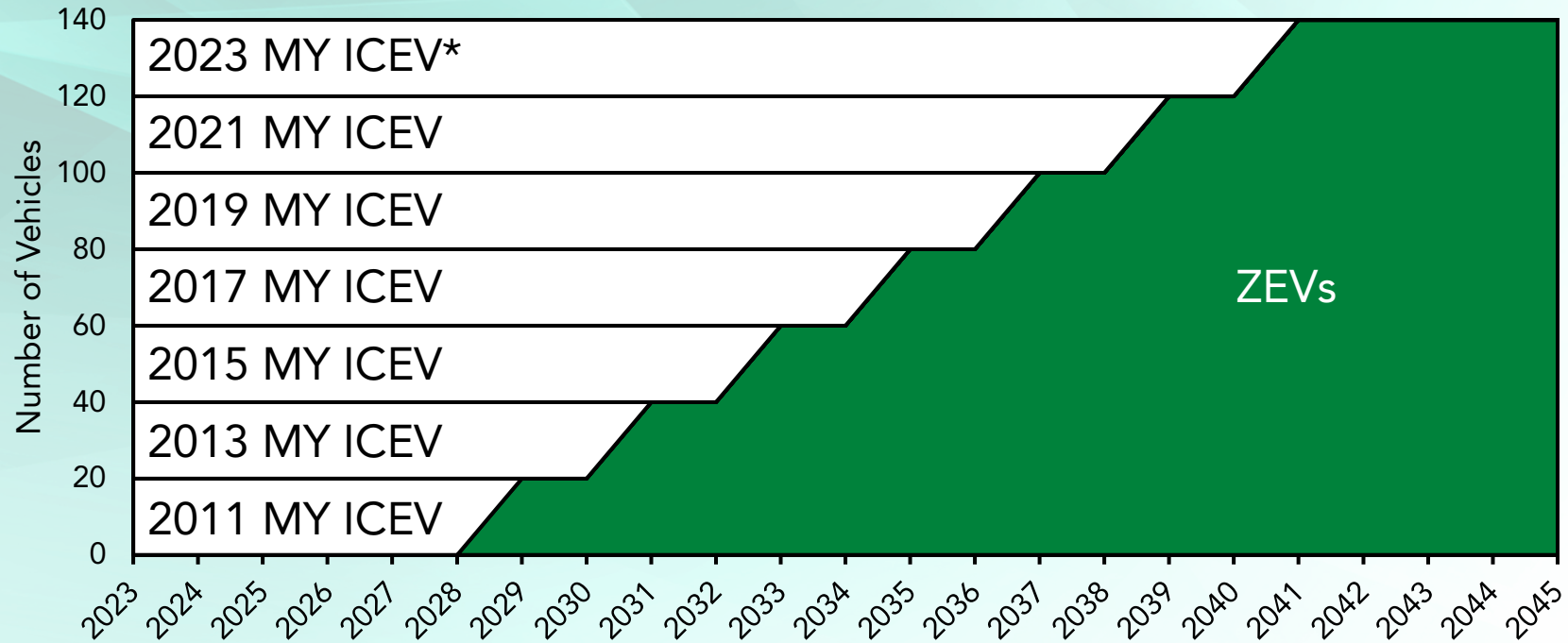
- Requirements apply to the California fleet
- Model year schedule
- Optional ZEV milestone phase-in
- Exemptions and extensions
- Reporting and record keeping



Model Year Schedule (New)

- Beginning January 1, 2024
 - All additions are ZEVs
 - Retire legacy trucks at end of their useful life
- Useful life is the later of 13 years or 800,000 miles but no more than 18 years
- May use certain exemptions or extensions
- Reporting and record keeping

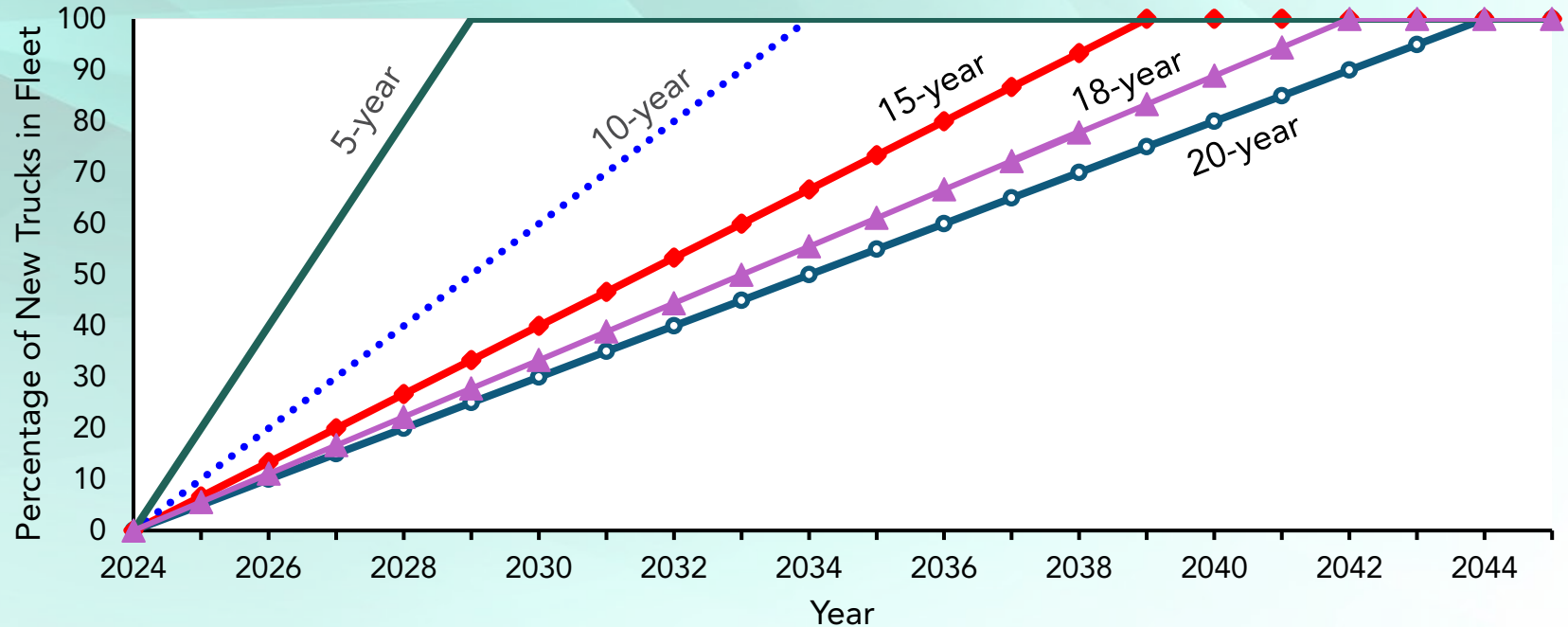
Model Year Schedule Example



Assume fleet holds vehicles until the end of their useful life at 18 years

*ICEV is an internal combustion engine vehicle

ZEV Deployment Varies by Purchase Pattern



Model Year Schedule Summary

- Straightforward and simple, but not flexible
- Consistent with Senate Bill 1 (SB1) (Beall, Chapter 5, Statutes of 2017) useful life criteria
- Compliance strictly based on model year and mileage
- Doesn't allow for combustion additions
 - Exceptions limited to specified provisions
- Requires faster ZEV adoption for high turnover fleets
- Could result in delayed normal purchases

Model Year Schedule Provisions




- Backup vehicles can operate beyond useful life
- Daily mileage exemption allows for purchase of internal combustion engine vehicle (ICEV) if ZEV mileage not suitable
- Infrastructure construction delay extension allows for continued use of existing ICEV and delay delivery of ordered ZEVs
- Vehicle delivery delay extension allows for continued use of existing ICEV until ordered ZEV is delivered
- ZEV unavailability exemption allows fleet owner to purchase ICEV
- Declared emergency event
 - Allows for the temporary use of existing ICEV
 - Allows for mutual aid assistance fleets to purchase some ICEV

Optional ZEV Milestone Phase-in

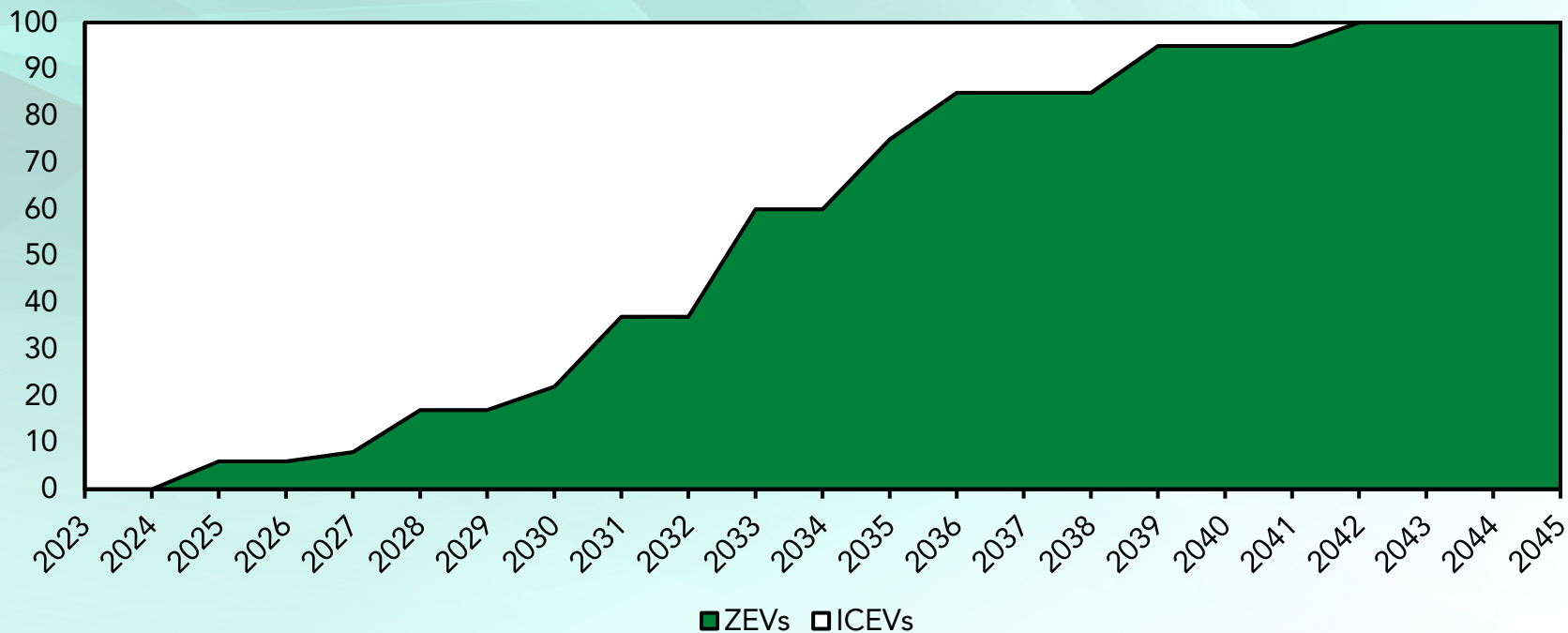
- Meet ZEV milestones as a percent of total fleet
- Phase-in based on vehicle type
- Flexibility to meet with any vehicle type
- Fleets must opt-in and sign useful life waiver ^(New)

Zero-Emission Fleet Percentage	10%	25%	50%	75%	100%
Box trucks, vans, two-axle buses, yard trucks	2025	2028	2031	2033	2035
Work trucks, day cab tractors, three-axle buses	2027	2030	2033	2036	2039
Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042

ZEV Milestone Example for Mixed Fleet A

Vehicle Type	# of Vehicles	ZEVs in 2025	ZEVs in 2029	ZEVs in 2033	ZEVs in 2037	ZEVs in 2041	ZEVs in 2045
Box trucks, vans, two-axle buses, yard trucks 	60	6	15	45	60	60	60
Work trucks, day cab tractors, three-axle buses 	20	0	2	10	15	20	20
Sleeper cab tractors and specialty vehicles 	20	0	0	5	10	15	20
ZEV Milestones	100	6	17	60	85	95	100

ZEV Milestone Example for a Mixed Fleet A



ZEV Milestone Pathway Summary

- Provides more flexibility to phase-in ZEVs consistent with normal purchase patterns
- Better aligned with ZEV suitability
- Allows for combustion additions provided ZEV Milestones are met
 - May not keep all ICEVs as long as model year schedule
 - May keep some ICEV longer than model year schedule

ZEV Milestone Provisions

- Back-up vehicles may be excluded from fleet milestones
- Daily mileage exemption allows for purchase ICEV and to exclude it from fleet milestones if remaining ICEV fleet has exemptions
- Infrastructure construction delay extension allows ZEV order to be delayed temporarily and for existing ICEV to count as a ZEV
- Vehicle delivery delay extension allows for existing ICEV to temporarily count as a ZEV until the ordered ZEV is delivered
- ZEV unavailability exemption allows fleet owner to purchase ICEV and exclude it from ZEV milestone calculation

ZEV Milestone Provisions (cont.)

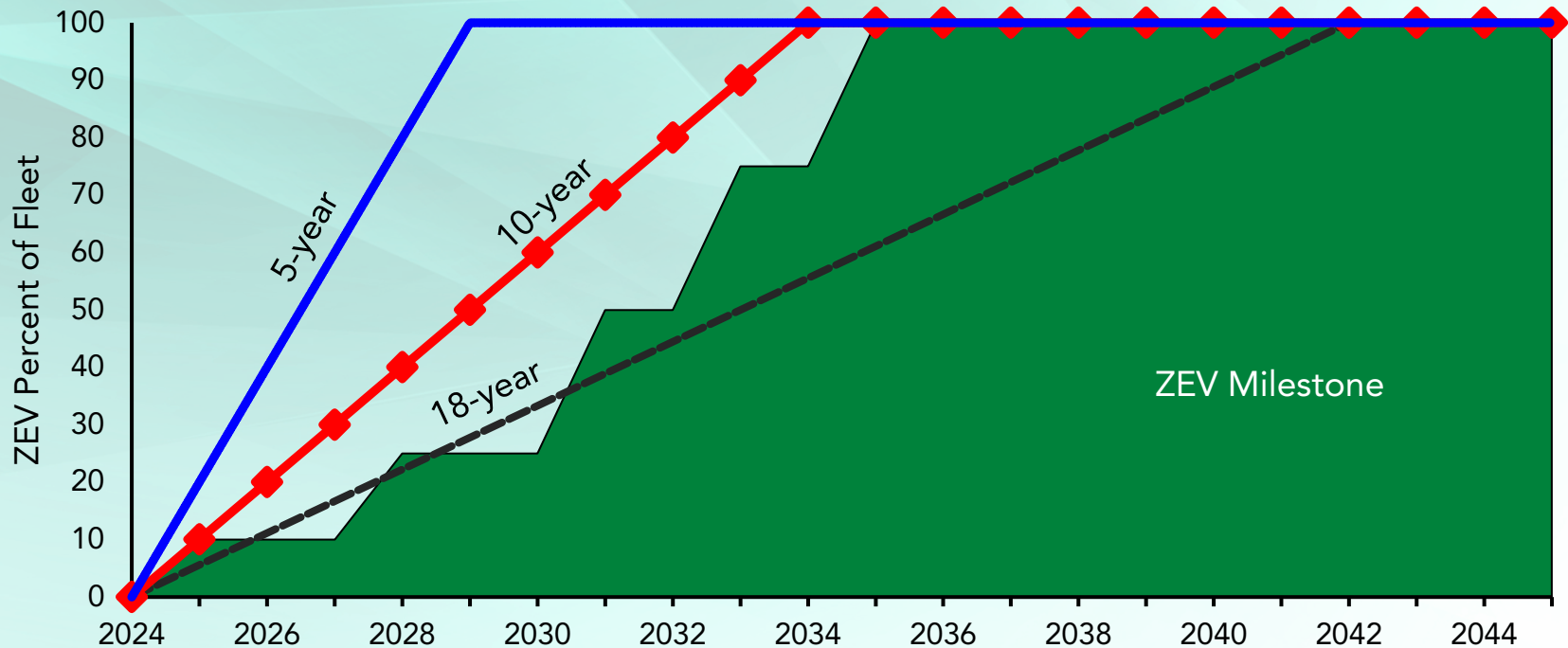
- Declared emergency events
 - Emergency mileage may be excluded for back-up vehicles
 - Allows for temporary use of non-compliant trucks
 - Allows for mutual aid assistance fleets to purchase some ICEVs and exclude them from ZEV Milestone calculation
- Rental vehicle provision ^(New)
- Vehicles acquired with public funds ^(New)
- Corporate joint compliance option

Rental Vehicle Provision

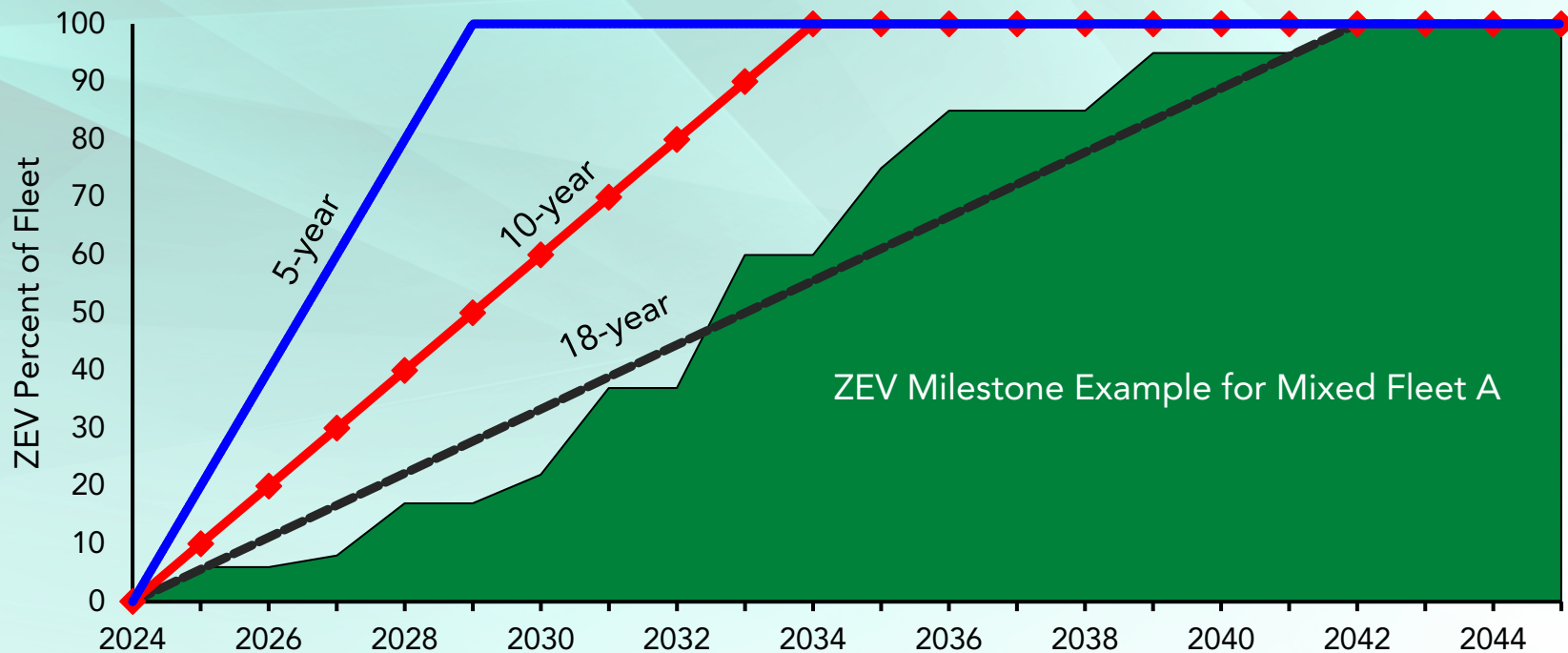
- Provision for rental fleets regularly engaged in business of renting vehicles without drivers
 - Addresses transient interstate rental vehicle operations
 - Allows compliance to be based on average number of rental vehicles in state
 - Report individual vehicle information for all vehicles except transient rental fleet
 - Report four quarterly snapshots of rental fleet

Compliance Pathway Comparison

Example fleet with 100 Group 1 Vehicles



Compliance Pathway Comparison



General Provisions

- Controlling party must meet same requirements as fleet owner, include vehicles under common ownership or control
- Near-zero emissions vehicles (NZEV)* with 2035 model year or older count same as ZEVs
- Address newly formed fleets and changes to existing fleets
- Fleets recognized as “ZEV Fleet” by meeting certain criteria



Hiring Affected Fleets

- Affects any motor carrier, broker, person, entity that hires or dispatches fleets subject to the regulation
- Verify fleets are compliant and listed on CARB's website
- Similar to existing Truck and Bus Regulation lookup

Truck and Bus Regulation

Check Compliance Status

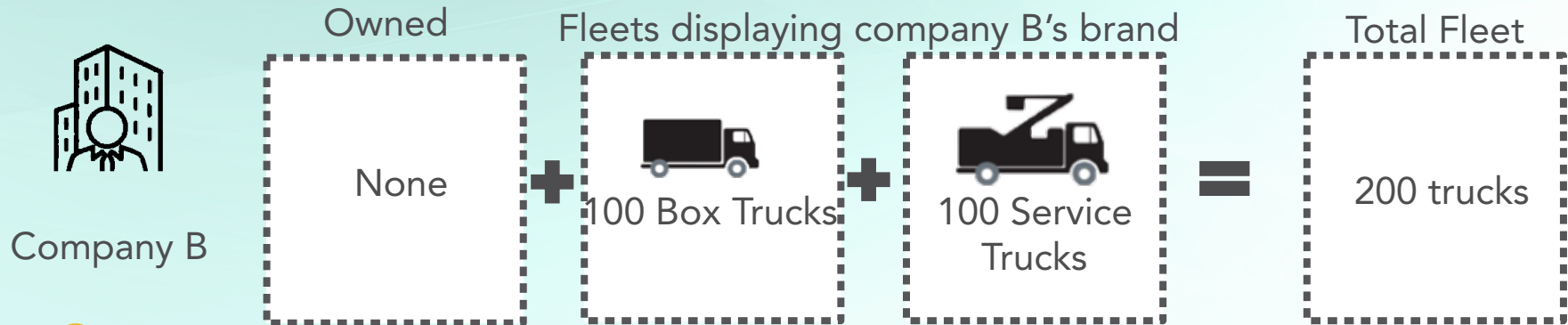
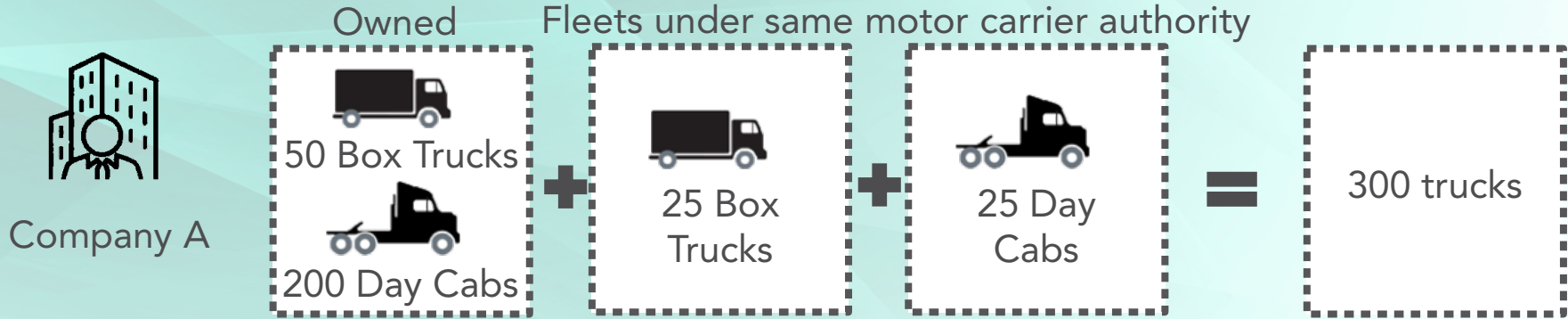
Here you can look up companies or fleets that have reported to comply with the Truck and Bus regulation. You can search by entering any part of the company name, TRUCRS ID, or Motor Carrier Number. Only fleets that have confirmed compliance with the current compliance year requirements and printed their certificate will be listed. This fleet information is updated nightly.

Anyone who operates or directs the operation of any vehicle subject to the Truck and Bus regulation needs to verify that each hired company is either in compliance with the regulation or has reported compliance to the Air Resources Board. See [How to Verify if Hired Fleets Comply](#).

Search Results

TRUCRS ID	Name	Carrier Number	Carrier Type	Complies	Date Certificate Printed	Reg Type
36579	ZMD, Inc.	1612349	USDOT Number	Truck and Bus Regulation	2022-01-13 01:54:56	TR
38450	Musco Excavators, Inc.	123456	CA Number	Truck and Bus Regulation	2022-02-10 08:11:18	TR
41234	TOUCHATT TRUCKING	0001330	CA Number	Truck and Bus Regulation	2022-01-20 01:57:22	TR
71232	T I TRUCKING	123407	CA Number	Truck and Bus Regulation	2022-01-19 08:24:37	TR

Controlling Party Compliance Examples





How to Qualify for Exemptions and Extensions

Exemptions and Extensions Overview

- ZEV or NZEV unavailability ^(New)
- Daily mileage
- Infrastructure delay ^(New)
- Vehicle delivery delay ^(New)
- Mutual aid ^(New)
- Backup vehicle

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

Daily Mileage Exemption

- If available Class 4-8 ZEVs do not meet daily usage needs
 - Must have at least 10% ZEVs in fleet
 - Must show no NZEVs available
 - Must show available ZEVs cannot meet daily usage needs of any combustion powered vehicle in the fleet of that type
- Submit fleet operational data showing at least 3 out of 30 days the mileage needs cannot be met with any available ZEV, and no infrastructure is available along routes
- Can also use collected data from ZEVs in actual service ^(New)
- Submit request to Executive Officer for review

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

Vehicle Delivery Delay Extension

- Available if vehicle delivery is delayed for reasons beyond fleet owner control
 - Ordered ZEVs at least 1 year in advance of deadline
 - Available for fleets on ZEV milestone path
 - Purchase agreement required
- Claim exemption during open reporting and provide proof of purchase

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
- Allows for purchase of Class 4-8 ICEV
- Submit request to Executive Officer for review

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

High Priority and Federal Fleet Reporting

- Report compliance annually by February 1^(New)
- General entity information
- Vehicle information
 - VIN, make, model, model year, weight class, body type
 - Fuel and drivetrain type
 - For tractors which are 12 years or older
 - Odometer reading, engine family, and engine model year
- Report changes to fleet within 30 days
- Records to be provided upon request
 - Registration, vehicle information, odometer readings, etc.



100 Percent ZEV Sales by 2040

Section 2016

100% ZEV Sales Requirement

- Applies to all large and small vehicle manufacturers
- Beginning in the 2040 model year, all Class 2b-8 vehicles sold into California must be ZEV
 - Excludes authorized emergency vehicles
- Provides certainty to the market and supply chain
 - Manufacturers, fleets, infrastructure providers, service technicians, sister agencies, local government
- Expanded market choice
- Manufacturer reporting and recordkeeping requirements

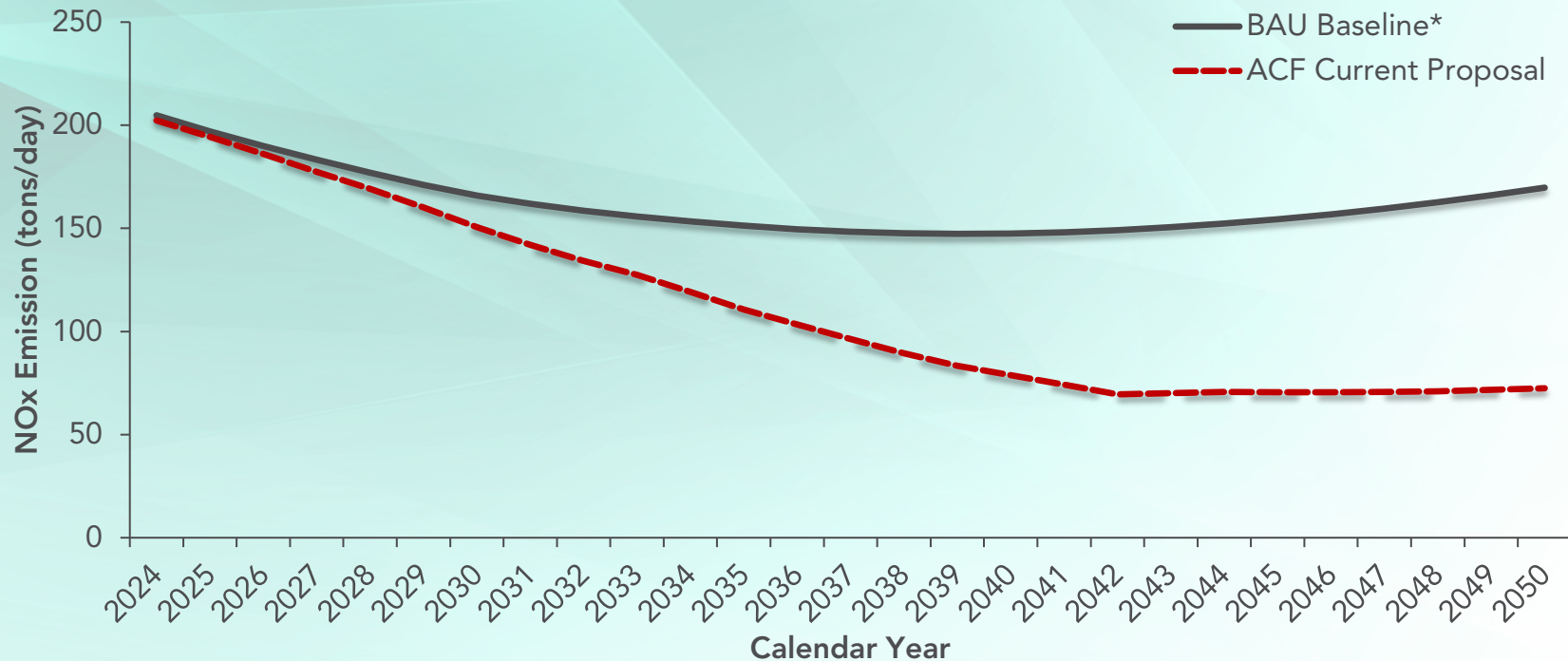


Emissions, Outreach, Next Steps

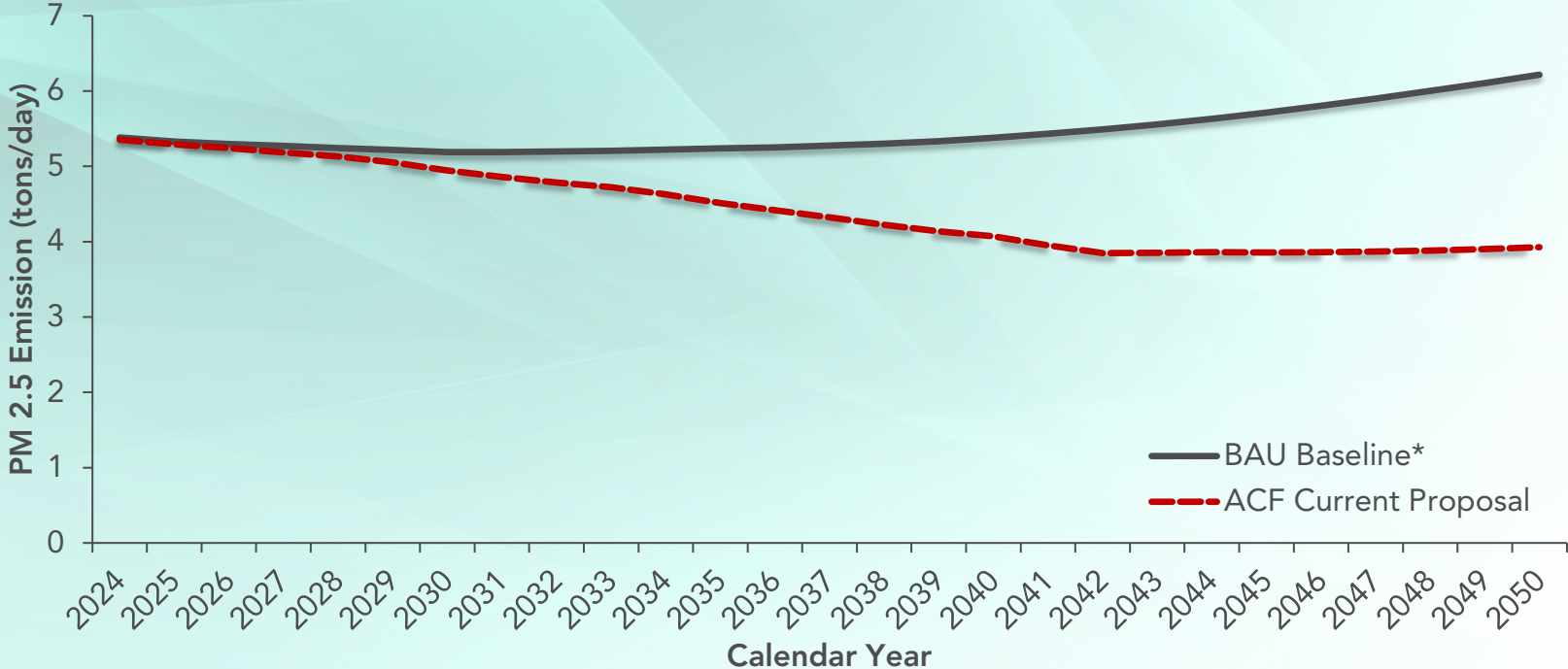
Emissions Overview, Outreach, and Next Steps

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

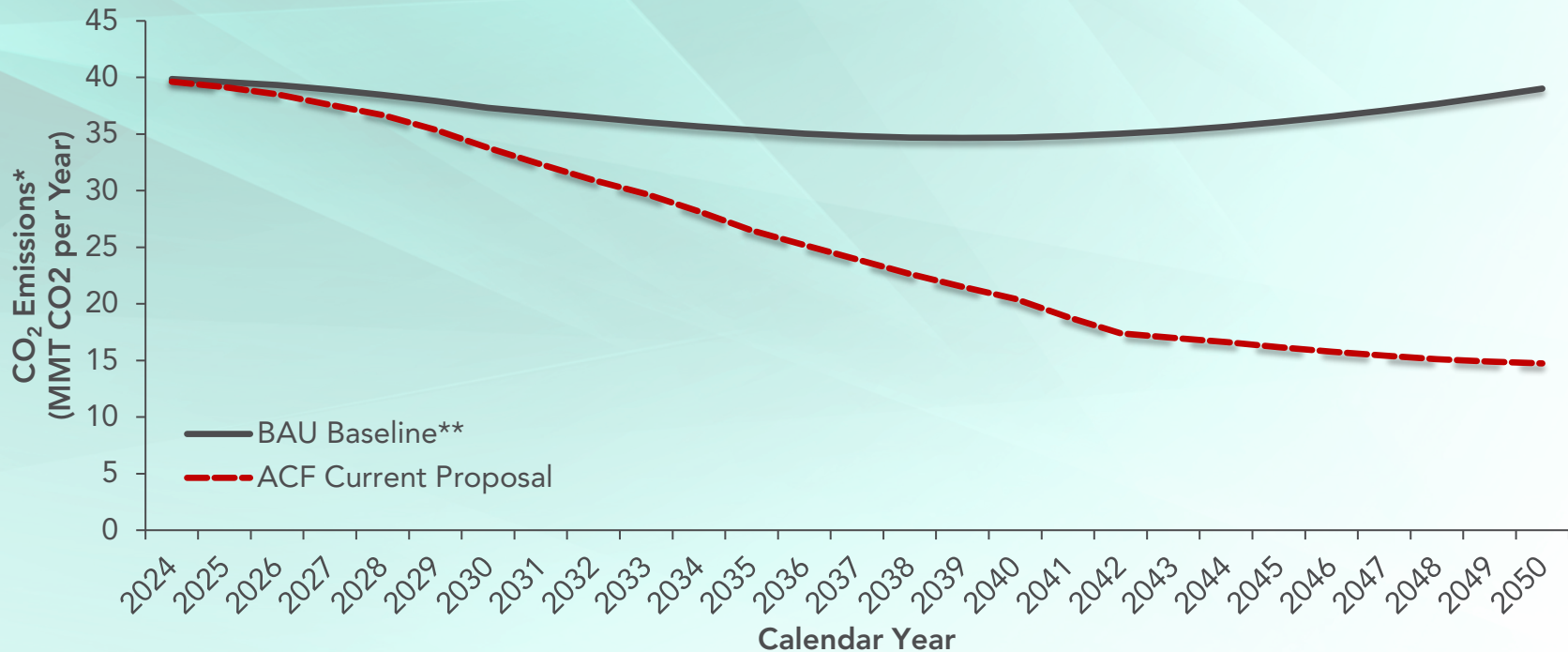
Projected Statewide NOx Emissions



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



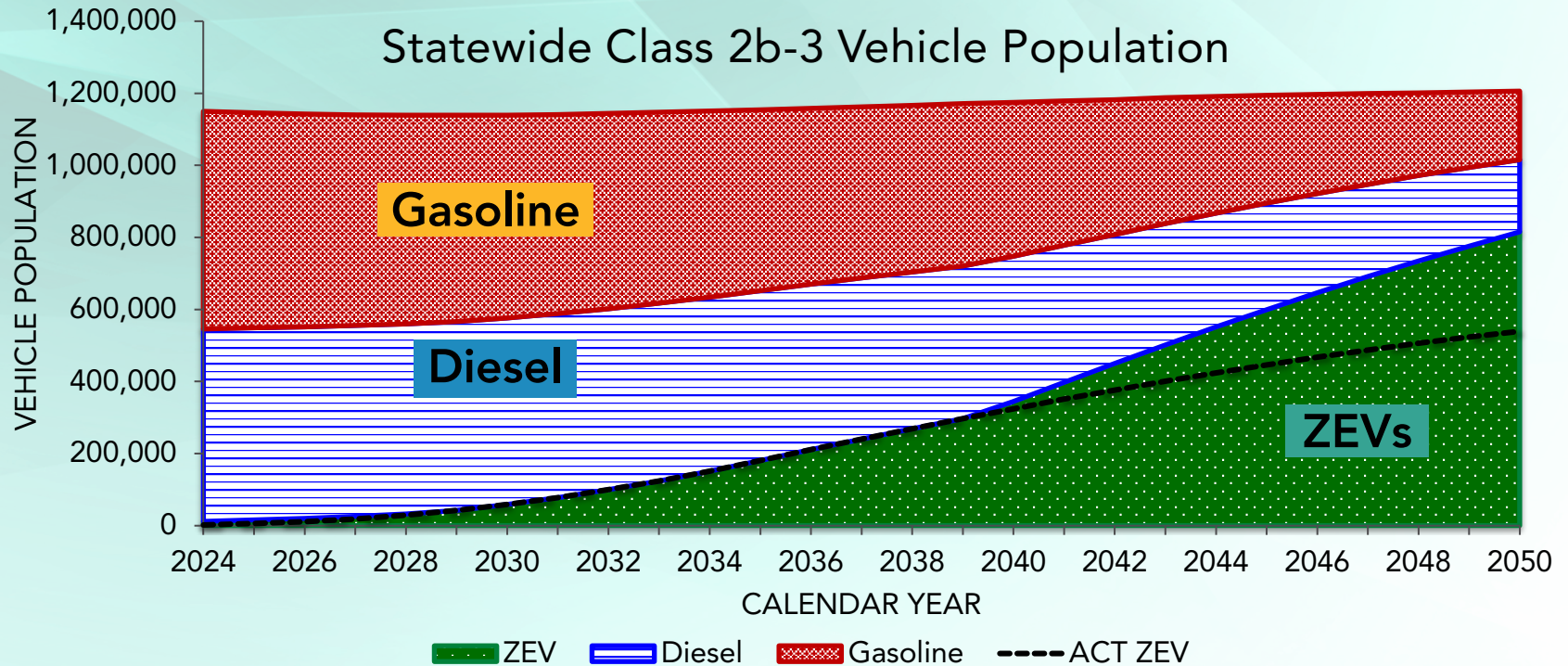
Projected Statewide Tank-to-Wheel GHG Emissions



*Tailpipe CO₂ emissions Only

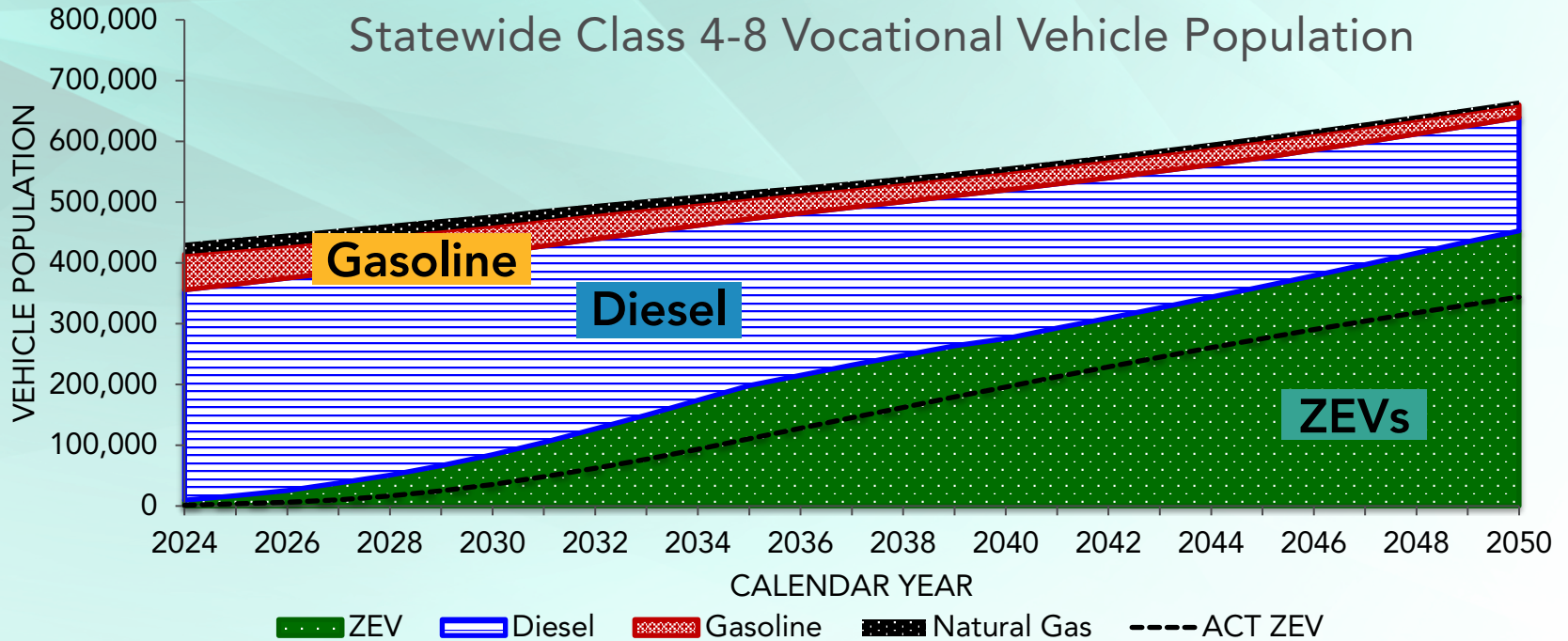
**BAU baseline includes the impacts of ACT and HD Omnibus.

Projected Technology Distribution Under ACT and ACF Proposal



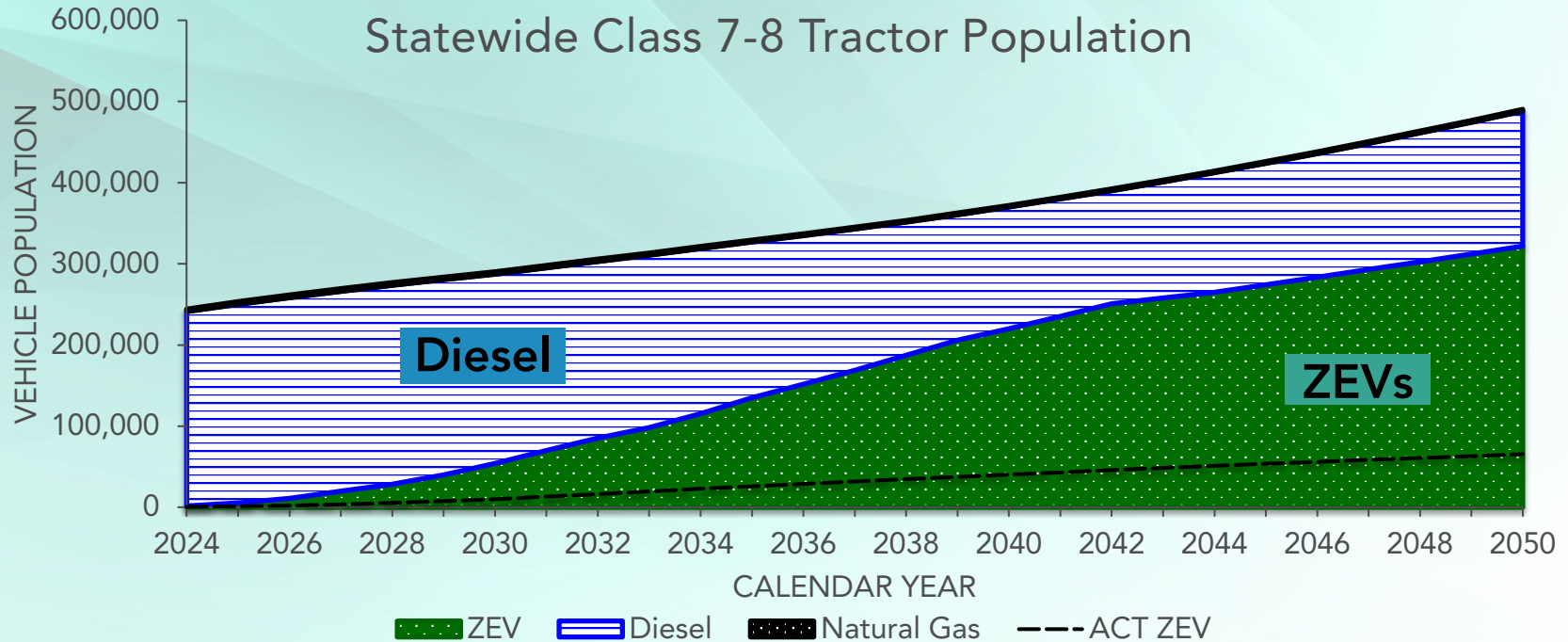
Projected Technology Distribution Under ACT and ACF Proposal

Statewide Class 4-8 Vocational Vehicle Population

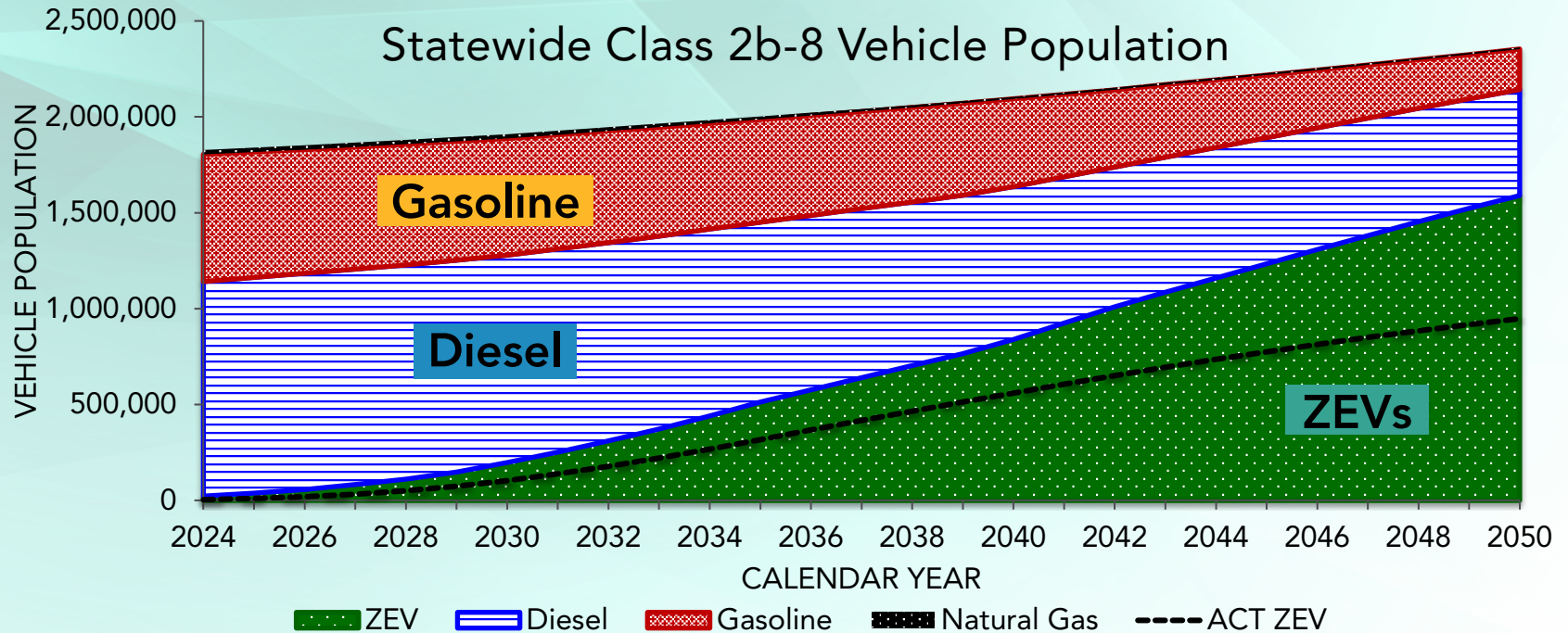


Projected Technology Distribution Under ACT and ACF Proposal

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

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

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

Beyond Regulations and Funding

- Recognition for ZEV fleets
 - *Coming soon* – voluntary program to recognize and assist fleets that transition to ZEV sooner than deadlines, includes access to ZEV planning resources and educational opportunities
- What else?
 - CARB is looking for innovative ways to support all fleets so that they are encouraged to transition to ZEV technologies

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>) – Overview of regulations, incentives, our partners, market availability, ZEV 101 info to be added soon
 - HVIP Website (<https://californiahvip.org/>) – Vehicle catalogue, funding updates, FAQs, planning guides
 - EnergIIZE Website (<https://www.energiize.org/>) – Infrastructure Readiness Center, TCO tool, funding finder
 - Funding Finder Tool (<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>) – resource for finding information about zero-emission fueling infrastructure
- Training
 - Coming soon – “Next Stop to Zero” immersive training events on all things medium and heavy-duty ZEV

ZEV Resources For Fleets (Cont'd)

- Training
 - *Coming soon* – “Next Stop to Zero” immersive training events on all things medium and heavy-duty ZEV
 - *Coming soon* – CARB regulatory training on ACF rule applicability and implementation

Regulation Resources

- Informal comments can be submitted to CARB through a comment docket located on CARB's website.
(<https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=acf-comments-ws>)
- Workshop information including this presentation and a recording of this webinar can be found on CARB's website.
(<https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/advanced-clean-fleets-meetings-events>)
- For more information, please contact CARB staff by email (zevfleet@arb.ca.gov), or by phone at (866) 634-3735.

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)
- 45-Day rulemaking package early September 2022
- Board recommendation October 2022