



Zero-Emission Truck Regulations in California

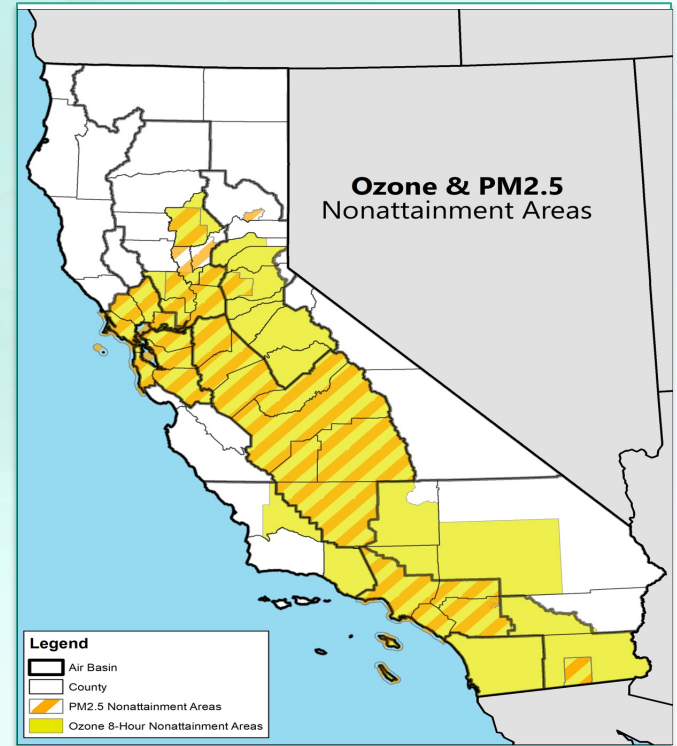
WaterReuse, San Diego Chapter
December 7, 2023

Overview

- Need for emissions reductions in California
- Summary of recent medium and heavy-duty measures
- Advanced Clean Trucks (ACT) Regulation
- Advanced Clean Fleets (ACF) Regulation

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

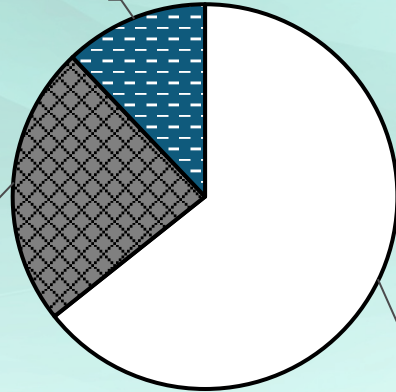


Trucks Are Large Source of Emissions

Daily Truck Population



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



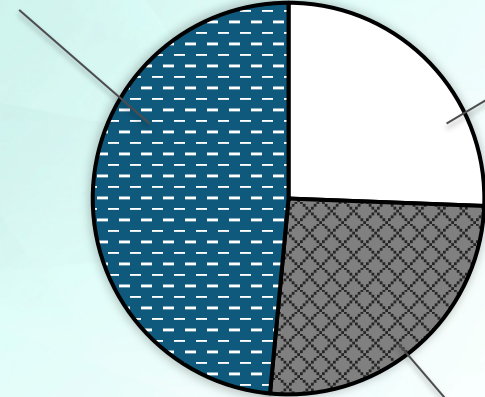
Class 4-8 Straight Trucks and Buses
427,000 (24%)



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

Daily NOx Emission

Class 7-8 Tractors
129.7 tpd (48%)



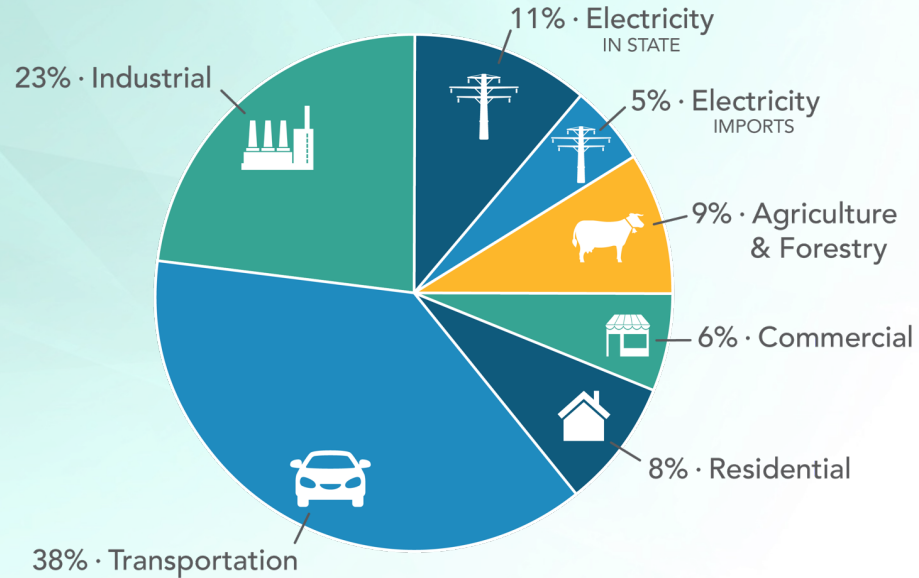
Class 2b-3 Trucks and Vans...

Class 4-8 Straight Trucks and Buses
69.3 tpd...

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.

California's Climate Targets

- Greenhouse gas goals
 - 40% reduction by 2030
 - 85% reduction by 2045
 - Carbon neutrality by 2045
- Clean electricity
 - 60% renewable by 2030
 - Carbon-free by 2045



369.2 MMT CO₂e
2020 TOTAL CA EMISSIONS

Measures to Clean Up Medium and Heavy-Duty Vehicles



2018
Innovative Clean
Transit



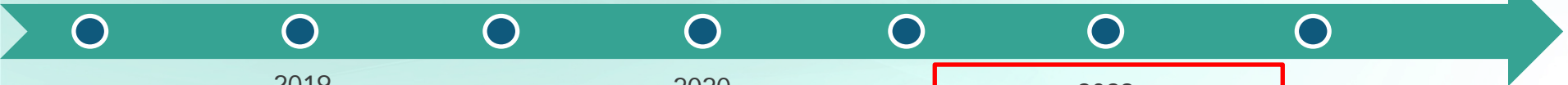
2020
Advanced
Clean Trucks



2021
Clean Truck
Check



Future
Zero-Emission
Truck Measure



2019
Zero Emission Airport
Shuttle



2020
Heavy-Duty
Omnibus

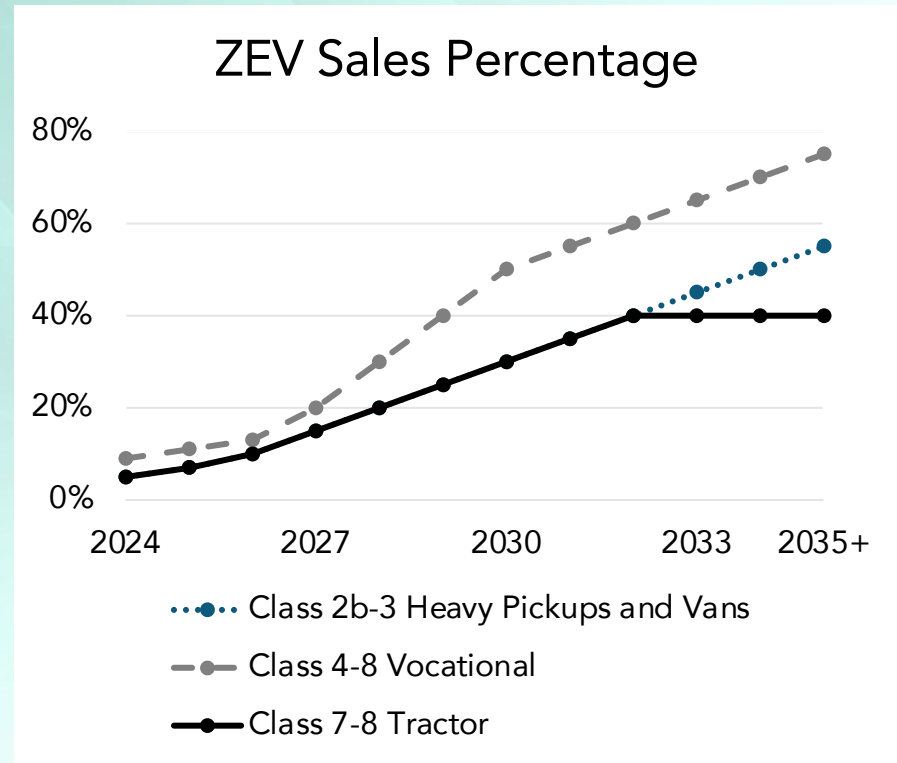


2023
Advanced
Clean Fleets



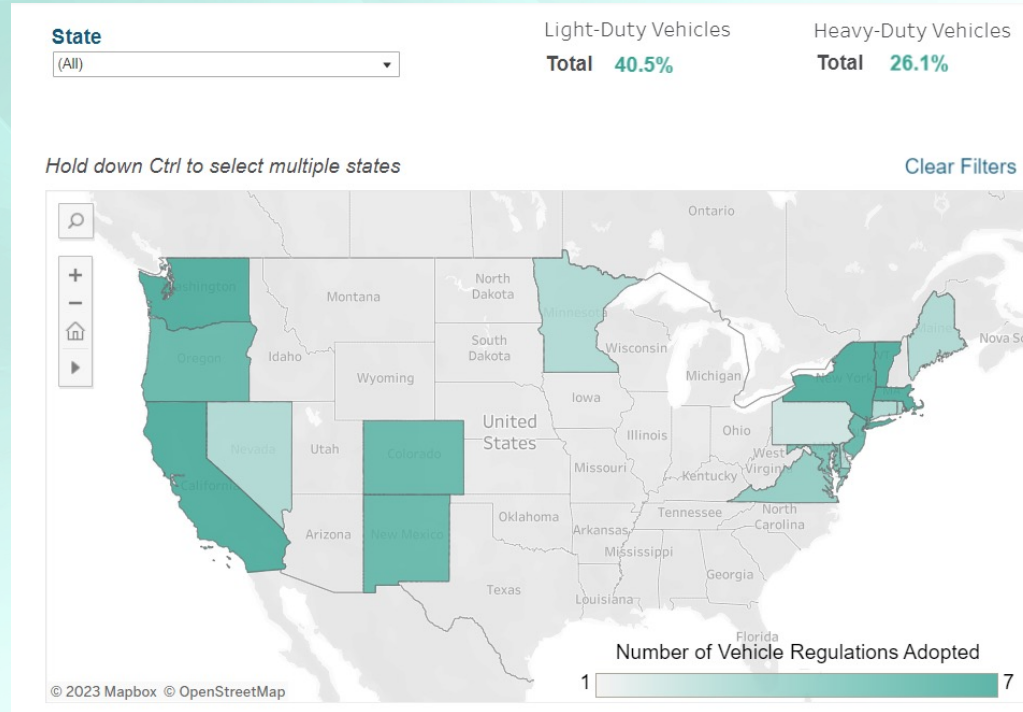
Advanced Clean Trucks Regulation

- Approved 2020
- Manufacturers to sell ZEVs as increasing percentage of sales starting 2024*
- Credit for early sales

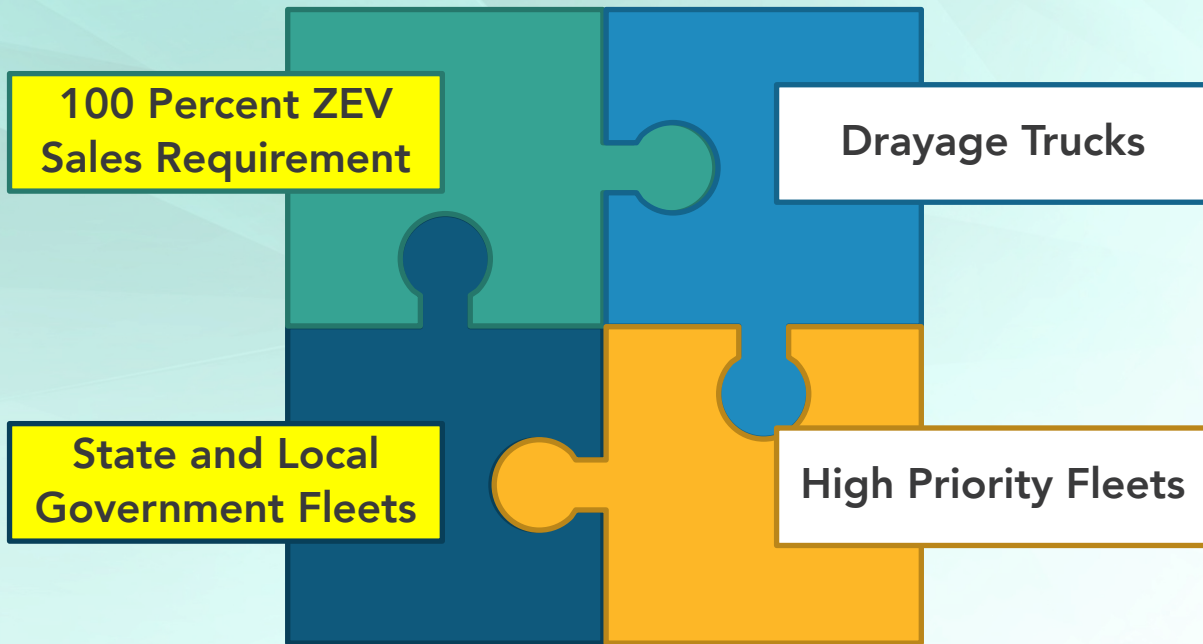


California is not Alone...

- 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 - 10 states
- Medium- and heavy-duty ZEV commitments
 - 18 states and DC
 - Province of Quebec, Canada



Advanced Clean Fleets Regulation Components



100 Percent ZEV Sales Requirement

Starting 2036, 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

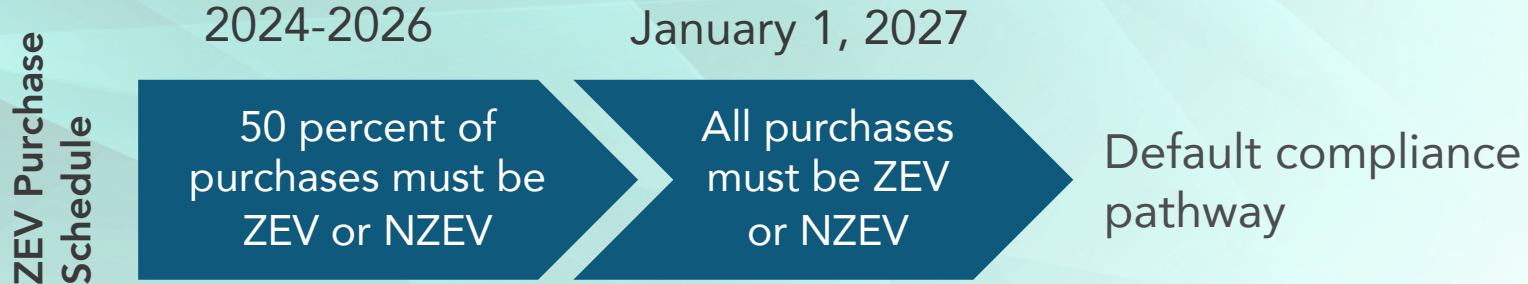
State and Local Government Fleets

- Applicability
 - State or local government agencies with jurisdiction in California that owns, leases, or operates one or more vehicles with a gross vehicle weight rating greater than 8,500 lbs.
 - Any governmental agency that operates, hires or directs the operation of vehicles in California

Excluded Vehicles

- School buses
- Military tactical vehicles
- Vehicles awaiting sale
- Emergency vehicles (police, fire)
- Historical vehicles
- Dedicated snow removal vehicles
- Two-engine vehicles
- Heavy cranes
- Two-engine vehicles (but not street sweepers)
- Transit vehicles subject to the Innovative Clean Transit regulation
- Vehicles subject to the Zero-Emission Airport Shuttle regulation

Compliance Pathways



Optional ZEV Milestone Phase-in

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

Flexibility Provisions

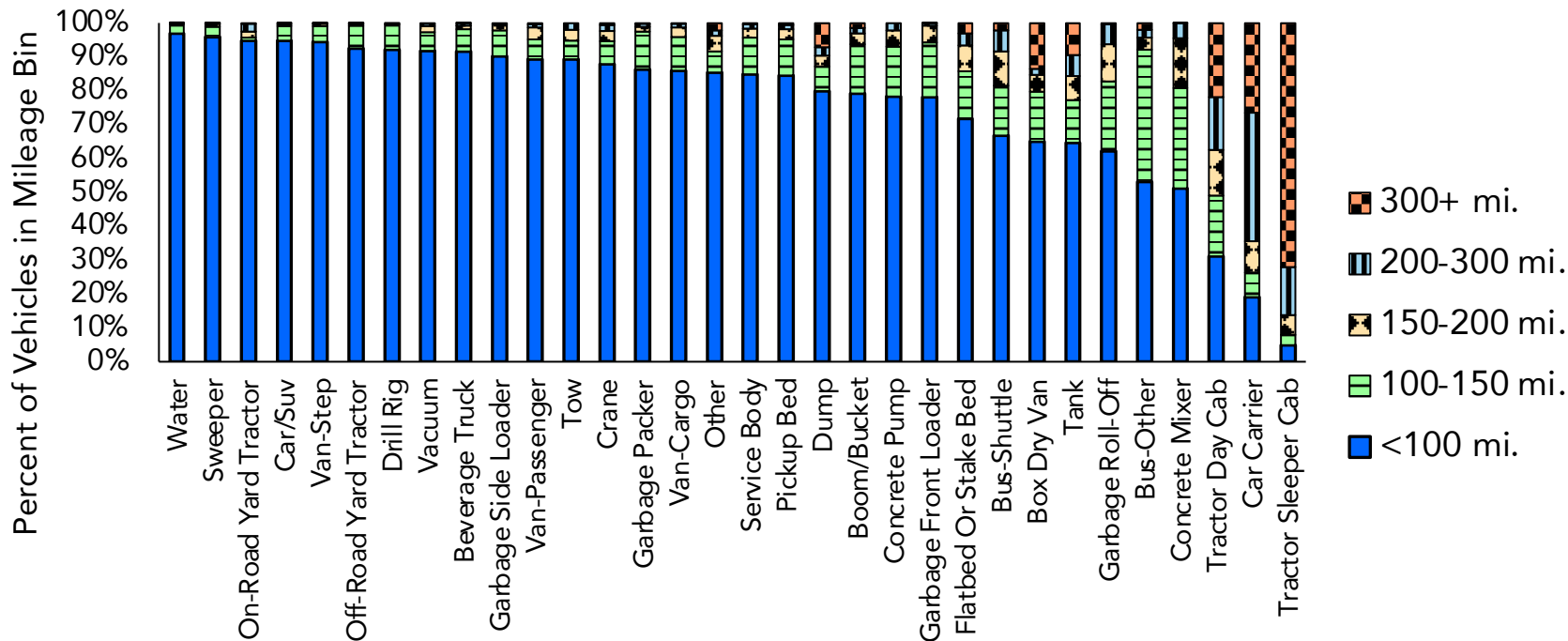
Provision	Summary
Vehicle Delivery Delay Extension*	Allows a Fleet to remain compliant if a ZEV order is delayed.
ZEV Infrastructure Delay Extension	Extends compliance for up to 5 years for delays during planning and construction.
ZEV Purchase Exemption	Can buy ICE vehicle if ZEV is not available in configuration needed.
Daily Usage Exemption	Can buy ICE vehicle if available BEV does not meet fleet's mileage or power needs.
Mutual Aid Assistance	Reserves up to 25 percent of ICE vehicles in a fleet for use in mutual aid events.
Waste and Wastewater Fleets Ext.	Gives more time for existing CNG trucks in waste diversion and biomethane generation.
Non-Repairable Vehicle	Flexibility to purchase used replacement ICE vehicle in case of accident
Backup Vehicle Exemption	Excludes vehicle operated less than 1000 miles per year including mutual aid events.
Intermittent Snow Removal Vehicle	May purchase ICE vehicles to operate as intermittent snowplow until 2030
Transit Agency Exemption	Excludes transit agencies and their maintenance vehicles until 2030

* Not relevant to ZEV Purchase Schedule

Battery-Electric Vehicles (BEVs) Available

- 20 cab and chassis with at least 2 models in Class 4 through 8 from 10 manufacturers
- 22 box trucks with at least 2 models in Class 4 through 7 from 12 manufacturers
- At least 15 vans with at least 2 models in Class 6 and below from 9 manufacturers
- 11 day cab tractors with at least 2 models in Class 6 through 8 from 6 manufacturers*
- 4 pickup trucks in Class 2b and 3 from 4 manufacturers with 2 models that have all-wheel drive capabilities
- 6 service/utility trucks in Class 4 through 6 from 5 manufacturers
- 2 bucket trucks (1 insulated and 1 non-insulated) in Class 8 from 2 manufacturers

Most Trucks Travel <100 Miles Per Day



Infrastructure Delays

- Site Electrification: up to 5 years
 - Not enough utility power to the site for required ZEV
 - Applications from fleet owners with multiple sites must include site capacity evaluation for all depots
 - Sunsets 2030
- Construction-Related: up to 2 years
 - For circumstances outside a fleet owners' control
 - Must have permit 1-year before required ZEV to qualify

Joint Statement of Intent

- Establishes:
 - Equity as a priority
 - Communication
 - Share data and analyses
 - Joint stakeholder engagement
 - Joint planning and solicitations



CalSTA

Caltrans

DGS
GENERAL SERVICES



AB 1594, Garcia. Medium- and heavy-duty ZEV: public agency utilities

- Chaptered on October 8, 2023
- Applies to local publicly-owned electric utilities, community water systems, water districts, and wastewater treatment providers
- Amends the Advanced Clean Fleets Regulation
 - To allow all truck mileage and usage data from public agency utility fleets for daily use exemption
- Requires CARB to consult with public agency utilities to determine utility truck end-of-life
- Informal rulemaking workshops to start next year

Reporting Requirements

- Report in TRUCRS by April 1, 2024
- Joint Compliance Option
- Opt-in to ZEV Milestones permanently by 2030
- Any changes to a fleet must be reported within 30 calendar days

Available Resources

Advanced Clean Fleets Webpage

- FAQs
- Searchable FAQ
- Compliance Calculator

Truck Regulation Implementation Group

- Infrastructure, rule provisions, outreach, border communities

Where to Find Resources

- Advanced Clean Fleets
 - <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>
 - zevfleet@arb.ca.gov
- ZEV Truckstop
 - www.arb.ca.gov/zev-truckstop