



Proposed Advanced Clean Trucks Regulation

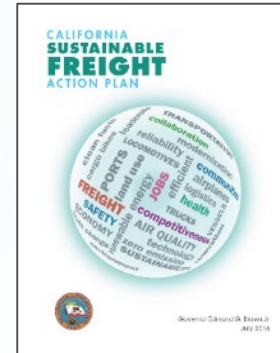
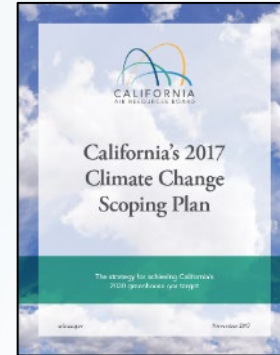
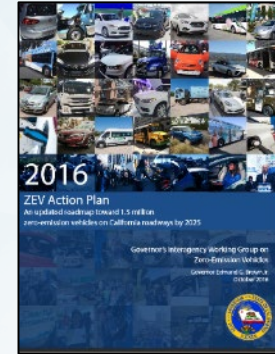
Sacramento, California
December 12, 2019

Today's Overview

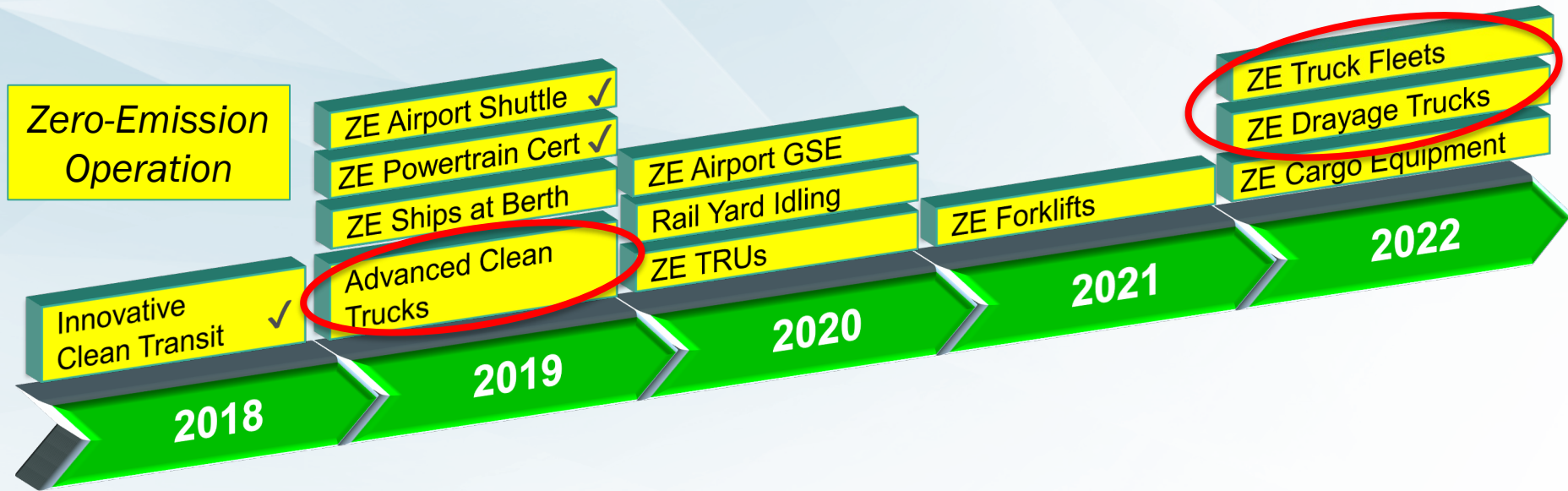
- Introduction
- Manufacturer ZEV sales requirement
- Large entity reporting
- Next steps

Zero-Emission Key to California's Future

- The Advanced Clean Trucks (ACT) regulation advances the first wave of zero emission (ZE) vehicles
- Goal of 100% ZE pickup and delivery goal by 2040
- Assisting the San Pedro Bay Ports' goal of 100% ZE drayage by 2035
- Exceeds SIP obligation for "Last Mile Delivery"



Suite of Mobile Source ZE Measures



Heavy-duty Electric Market Growing

2B-3

(8,501 14,000 lbs.)

4-5

(14,001 19,500 lbs.)

6-7

(19,501 33,000 lbs.)

8

(33,000 lbs. and over)



Commercial Vehicles
Today

Major Suppliers and Service Providers Entering Market

- Established suppliers entering ZE truck supply chain
 - Partnering with existing ZE vehicle/drivetrain manufacturers
 - Numerous demonstrations underway
- Established companies servicing, distributing, training, leasing ZE trucks

Electric Powertrain Providers



Service, Support, Training



Successful HD ZEV Transition

Positive fleet
experience

Education,
workforce training,
service network

Greater vehicle
availability

Predictable, affordable
electricity rates

Streamlined
infrastructure build-out

Battery improvements
and cost reductions





Staff Proposal

Advanced Clean Trucks Summary

Manufacturer ZEV Sales

Must sell ZEVs as
a percentage of
annual sales

Large Entity Reporting

One time
reporting in 2021

Vehicles, facilities,
contracted
vehicle services

ZEV Sales Requirements

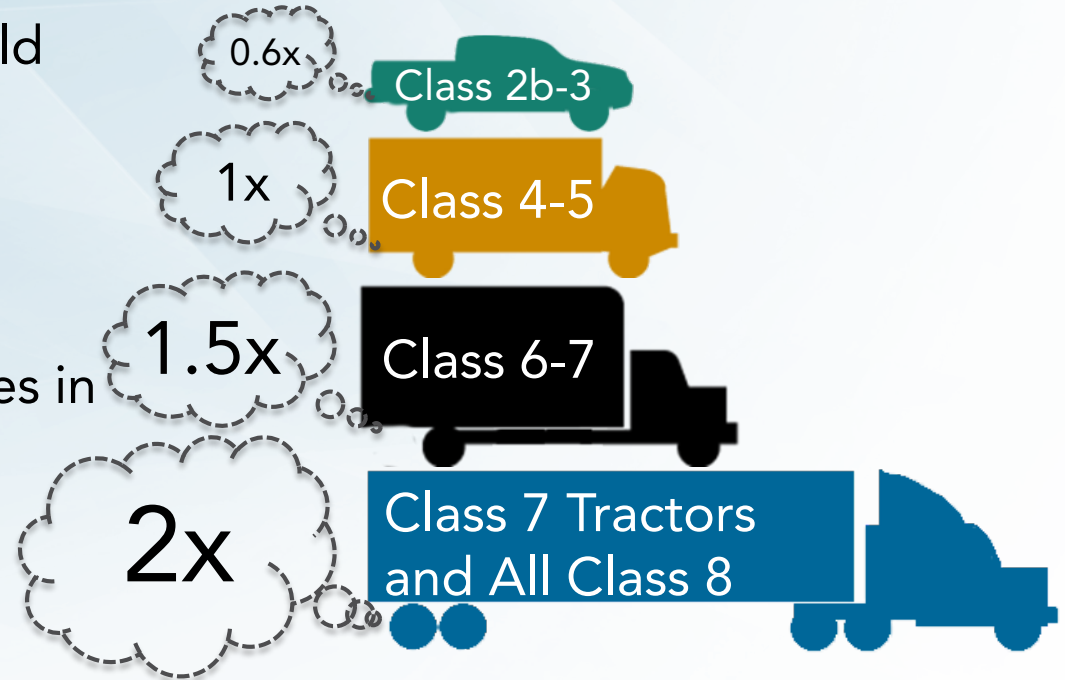
- Applies to manufacturers with >500 annual California sales
- Percent of California sales must be zero-emission
- Use Zero-Emission Powertrain Certification starting with 2024 MY
- Early action credits with 2021 MY
- Partial credit for near-zero emission vehicles (NZEV)

Model Year (MY)	Class 2b-3 ¹	Class 4-8	Class 7-8 Tractors
2024	3%	7%	3%
2025	5%	9%	5%
2026	7%	11%	7%
2027	9%	13%	9%
2028	11%	24%	11%
2029	13%	37%	13%
2030 ²	15%	50%	15%

1. Excludes pickups until 2027 MY
2. 2030 MY requirements continue after 2030

Deficit/Credits System for Flexibility

- Deficits for each vehicle sold
- Credits for each ZEV sold
 - 5 year credit life from beginning of MY
- Weighted deficits/credits
 - Sell more or less vehicles in one category
 - Tractor sales met with tractor credits
- Banking and trading



Near-Zero-Emission Vehicles

- Hybrid electric vehicles with all-electric range earn partial ZEV credit
 - Credit value increases with higher all-electric range
 - Up to 75% of equivalent ZEV credit
 - Consistent with California Phase 2 GHG regulation criteria
- Can be used for up to 50% of a manufacturer's deficits
 - Ensures minimum ZEV production
- NZEV credits available until 2030

Additional Details

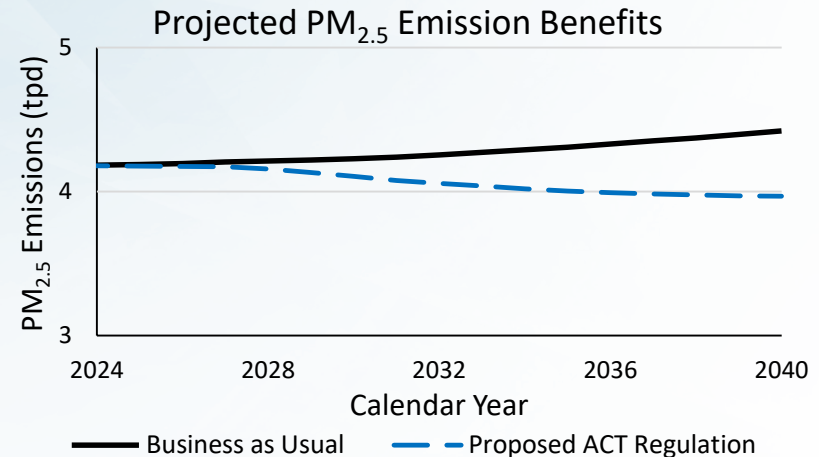
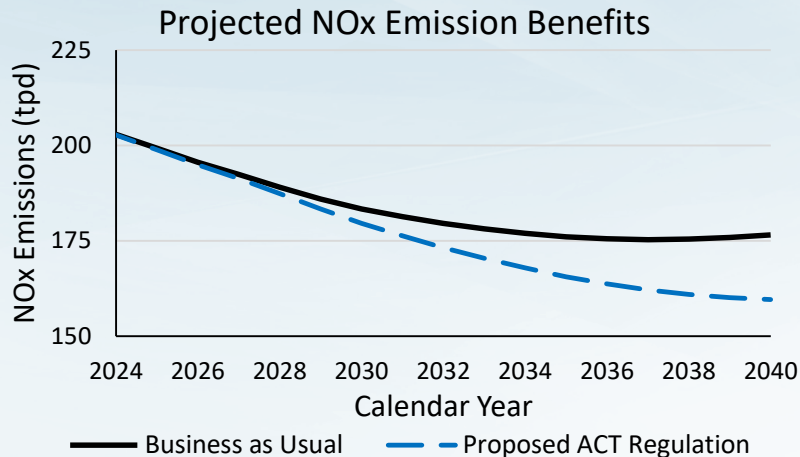
- Count Class 2b-3 ZEV sales towards Advanced Clean Cars or ACT
- Reporting similar to California Phase 2 GHG for simplicity
- ZEV sales may also earn Phase 2 GHG credit
- Total California sales and credits will be published annually
- Transit buses, motor coaches, and articulated buses are excluded
- Coordination with upcoming Low-NOx Omnibus effort

Benefits of Proposed Regulation

- Health benefits, especially in disadvantaged communities
- Climate benefits
- Expanded green jobs and trained workforce
- Reduces energy use and petroleum dependence
- Establish foundation to expand zero-emission heavy-duty market
- Other societal benefits

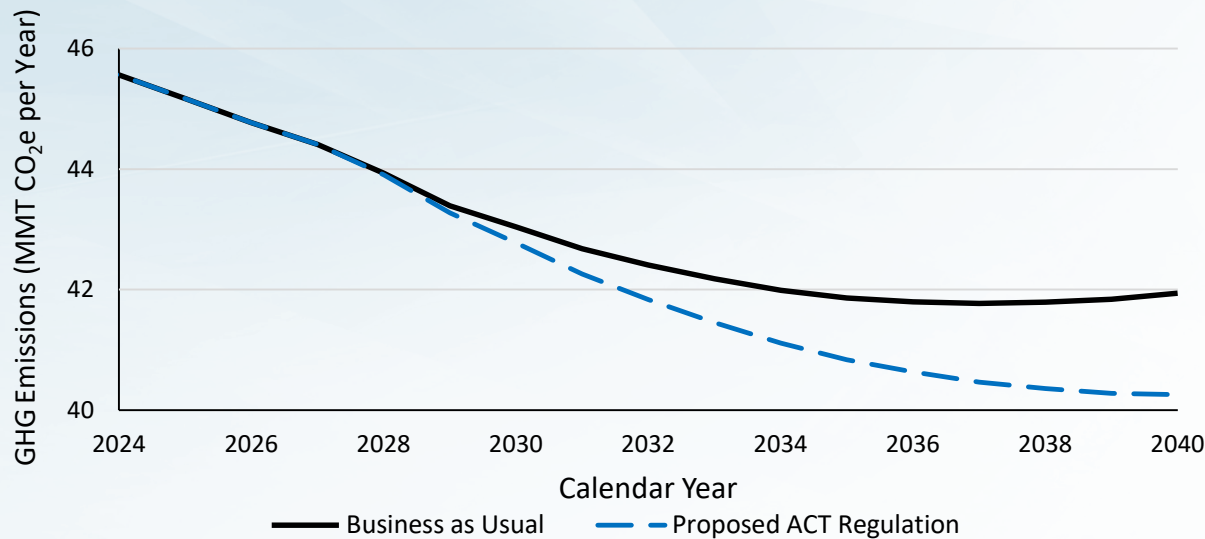
Projected NOx & PM_{2.5} Emission Benefits

- NOx – 5.0 tons per day (tpd) benefit by 2031, 16.9 tpd by 2040
- PM_{2.5} – 0.16 tpd benefit by 2031, 0.46 tpd by 2040
 - Includes reduced brakewear PM emissions



Projected GHG Emission Benefits

- Cumulative well-to-wheel CO₂e
 - 11.2 million metric ton reduction above and beyond Phase 2 GHG requirements by 2040



Manufacturer ZEV Sales - 15-Day Changes

- Match Phase 2 GHG credit life
- Add limited flexibility for low annual tractor sales
- Deficit makeup period clarifications
- Prevent double-counting NZEV credits between ACT and ACC
- Adjust credit retirement order
- Other clarifying updates



Proposed Large Entity Reporting

Applicability For One-time Reporting

Businesses >\$50 Million in Revenue

- With facilities in California (may or may not own vehicles)

Large Fleets Own 100+ Vehicles¹

- With facilities in California

Brokers Directing 100+ Vehicles¹

- To or from California

Government All Levels

- Municipalities, State, Federal Agencies

1. Vehicles with GVWR greater than 8,500 lbs

Information To Be Reported

General Entity Info

- Business type
- Subcontractor/ subhauler counts
- Facility locations

Grouped Facilities

- 10 Categories
- # by category
- Characteristics
- Contract types

Representative Facility

- Details
- Location
- Size
- Truck Trips
- # of Suppliers

Grouped Vehicles

- Assigned Facility
- Truck type
- Vehicle operation
- Existing infrastructure

Need for Large Entity Reporting

To craft effective ZEV fleet strategies, more information is needed.



Support ZE regulatory frameworks

- Fleet standards, purchasing requirements, must contract with ZE fleets, ZE zones

Ensure level playing field

- Large fleets vs. small fleets
- Owned trucks vs. contracted services

Assessing infrastructure needs

- Energy demand, barriers, build-out planning

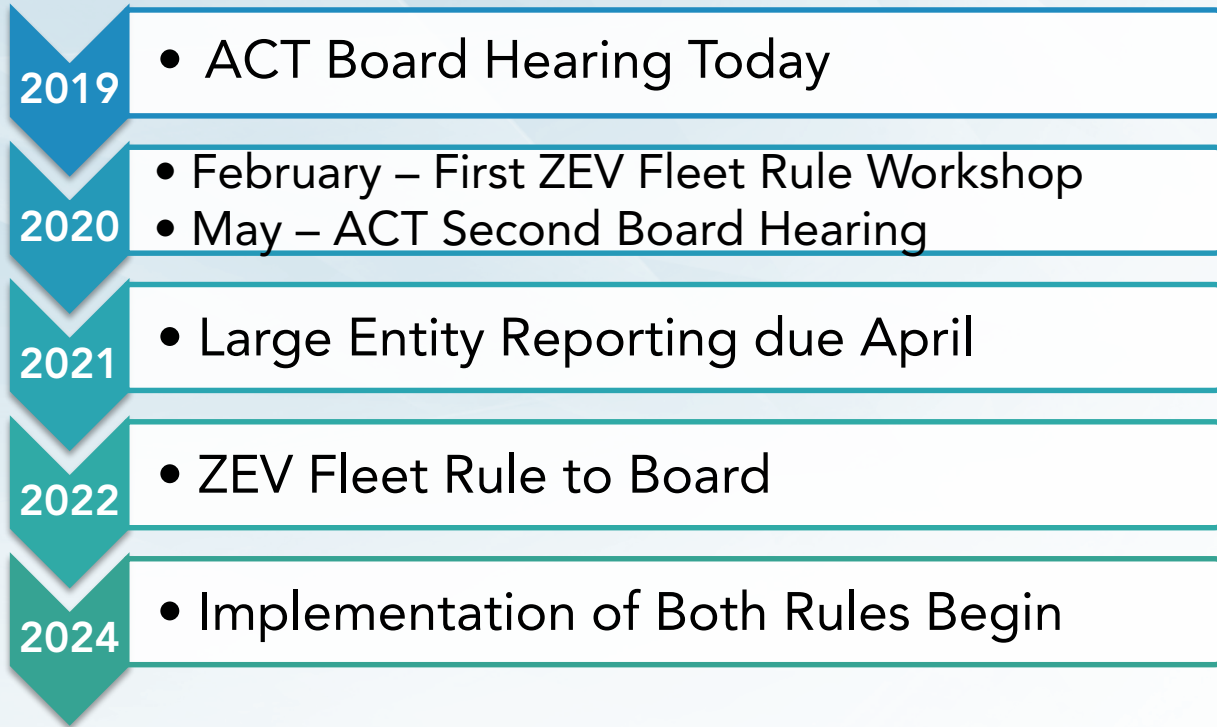
Match technology with duty cycles

- Understanding spectrum of existing use cases

Large Entity Reporting - 15-Day Changes

- Reduce reporting obligation if majority of regulated entities report before 2021
- Add guide posts for one week truck trip data collection
- Clarify definitions and language
 - Change “subcontractor” definition
 - Provide guidance on determining where a vehicle is assigned

ACT and ZEV Fleet Rule Timeline



Staff Recommendations

- Adopt resolution directing staff to return with final proposed Advanced Clean Trucks regulation for adoption
- Direct staff to propose a ZEV fleet rulemaking no later than 2022
 - Implementation to begin in 2024