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Strategies for Reducing Emissions from On-Road Heavy-Duty Trucks

2022 AQMP Mobile Source Working Group

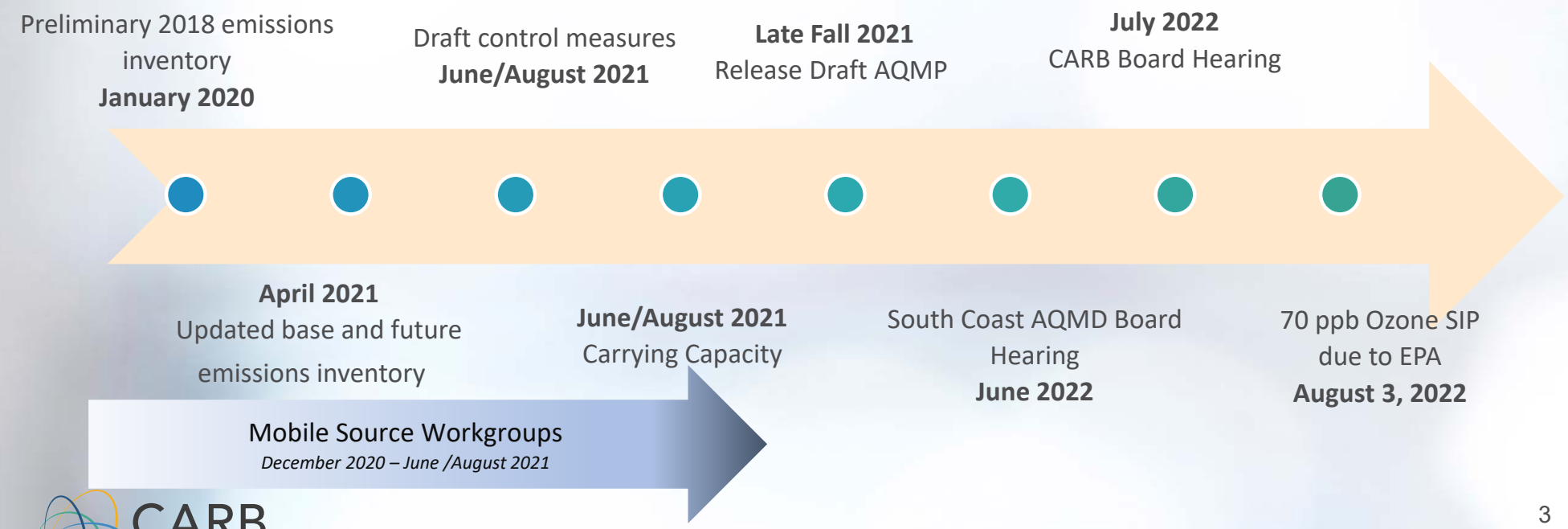
January 26, 2020

Agenda

- Introduction to 2022 Air Quality Management Plan
- CARB Adopted Regulatory Measures
- 2020 Mobile Source Strategy
- Heavy Duty Inspection & Maintenance Program
- Advanced Clean Fleet & ZE Drayage Trucks Regulation
- Zero Emission Infrastructure
- ZEV Market Development Strategy
- Big ZEV Opportunities
- South Coast Incentive Programs

2022 AQMP

- Address the attainment of the 2015 8-hour ozone standard (70 ppb) for South Coast Air Basin and Coachella Valley without reliance on black box measures in 2037



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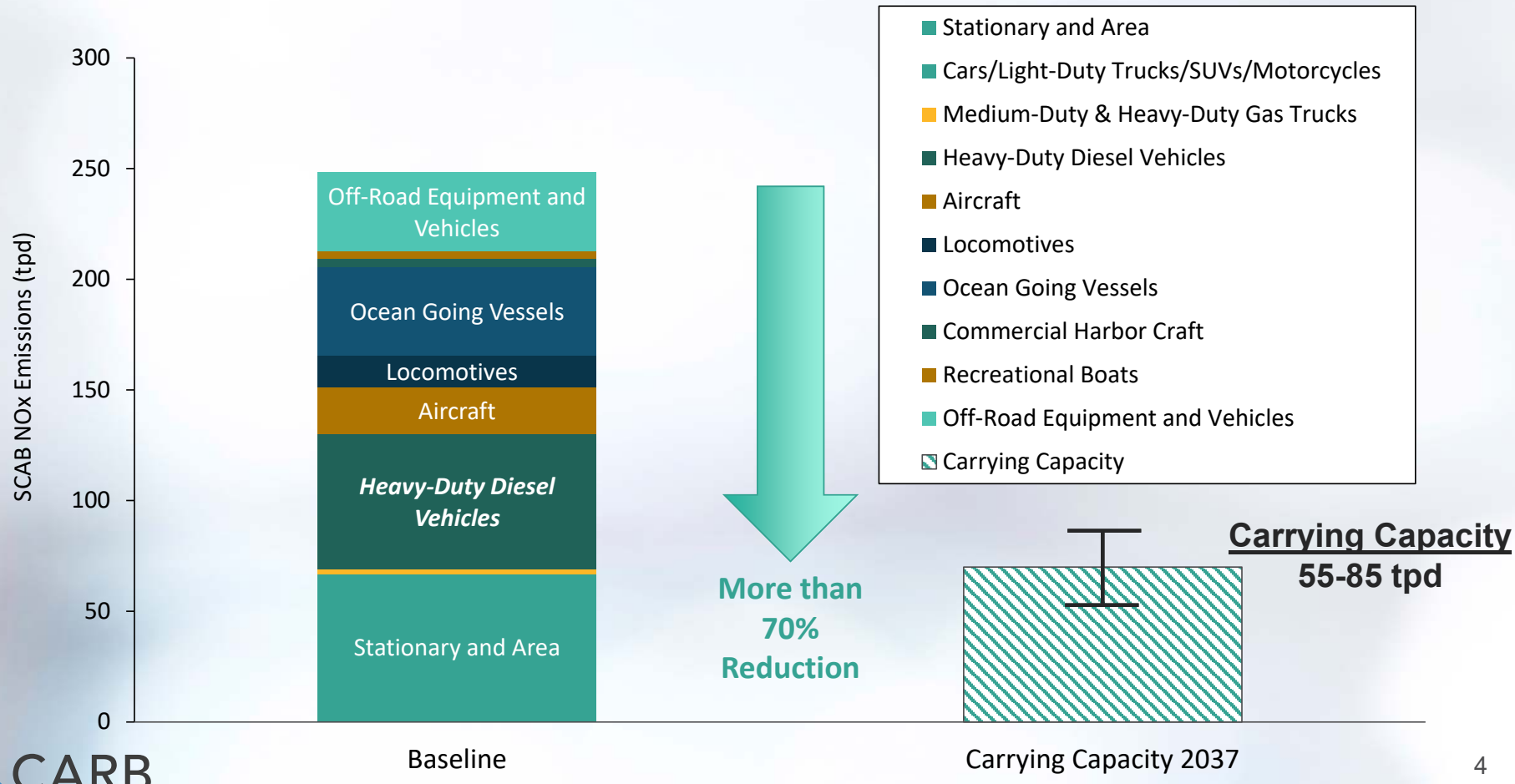
2037 Attainment Working Draft



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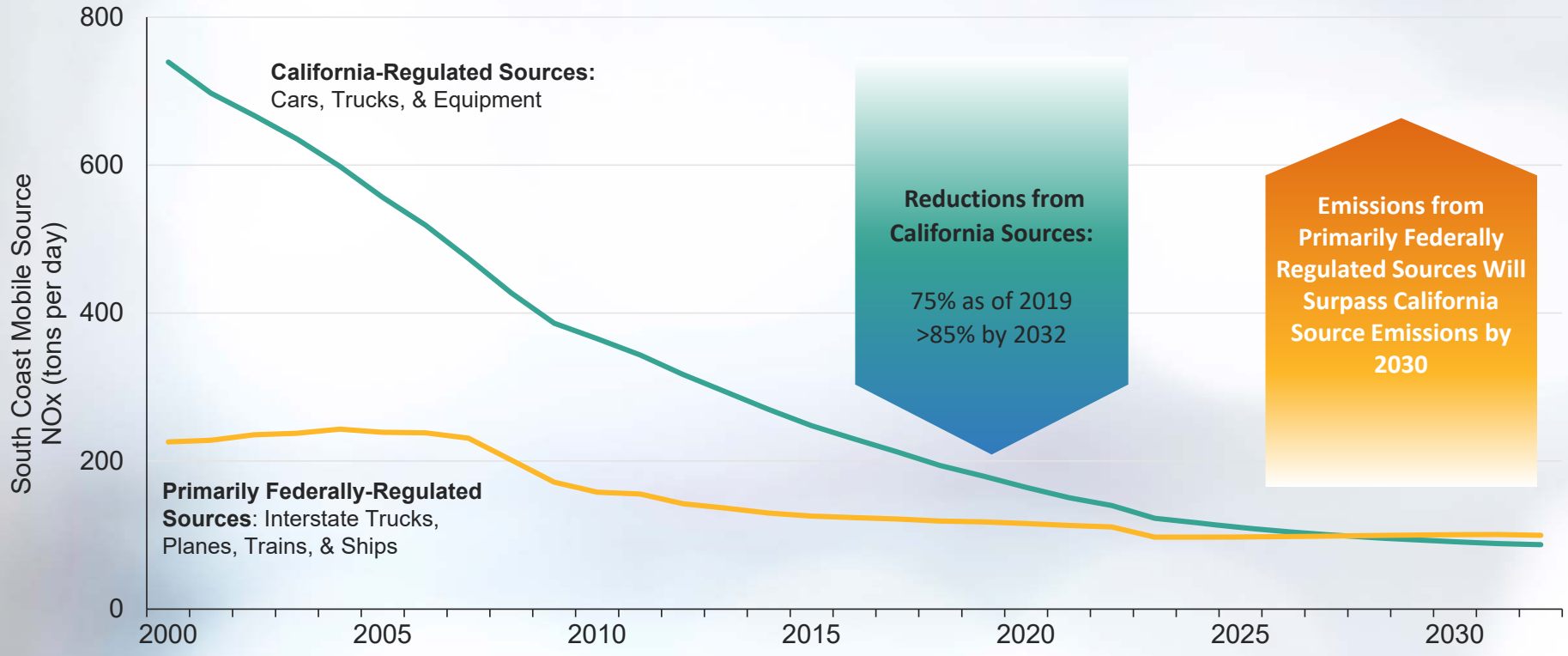
Controlling Federal Sources is Critical to Achieving our Clean Air and Climate Targets



Source: CARB, CEPAM 2016 SIP - Standard Emission Tool (v1.05), https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php

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CARB Adopted Regulatory Measures

HD Vehicle Inspection Program (HDVIP)/ Periodic Smoke Inspection Program (PSIP)

Innovative Clean Transit (ICT)

Advanced Clean Trucks

HD Engine Warranty

Zero Emission (ZE) Airport Shuttle Bus

HD Omnibus

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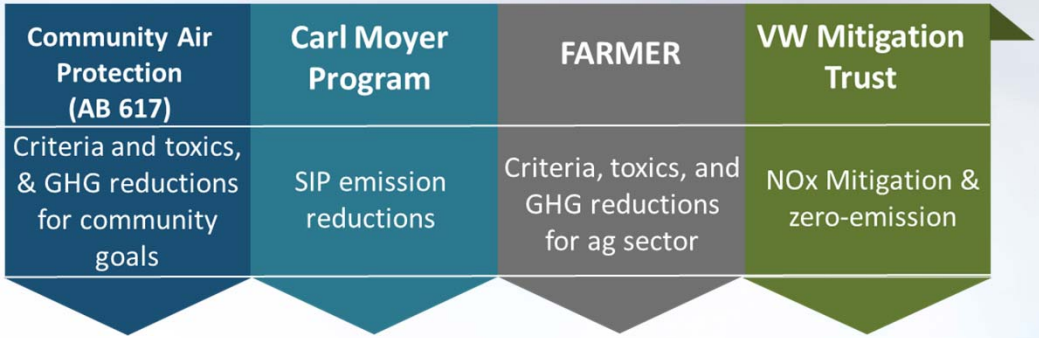
CARB Incentive Programs

- Incentives play a pivotal role in supporting the State's various air quality, climate change, ZEV deployment, and community risk reduction goals



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Federal Cleaner Trucks Initiative

- The Environmental Protection Agency (EPA) is pursuing a Cleaner Trucks Initiative (CTI) regulation to update NOx emissions standards for heavy-duty trucks
- In 2020, EPA released an Advanced Notice of Proposed Rulemaking
- Proposed rulemaking expected in 2021

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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*

Full transition to
ZE off-road equipment
by 2035*

*where feasible

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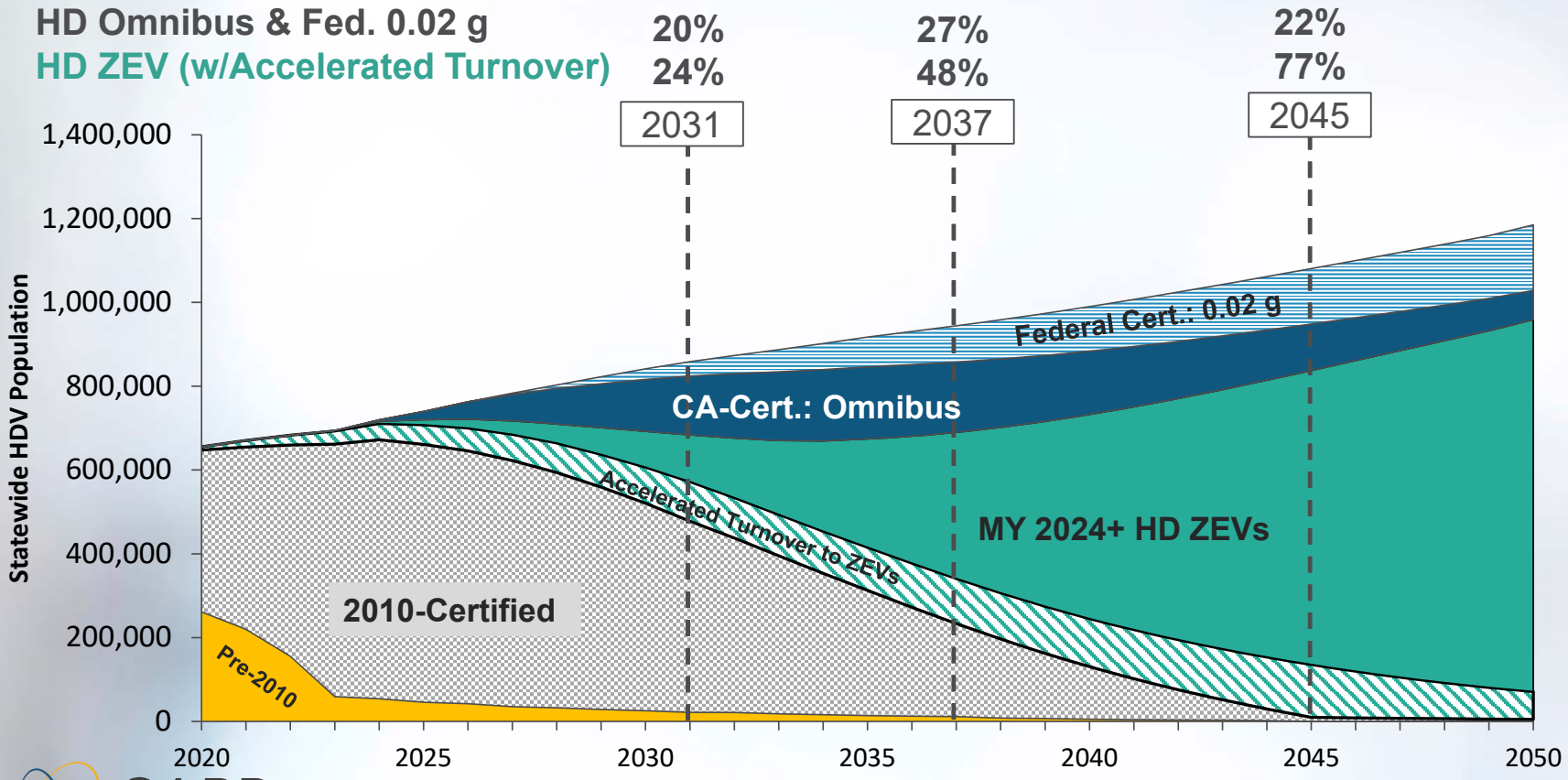
2020 Mobile Source Strategy
On-Road Heavy Duty Vehicles



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NOx Emission Reductions in South Coast

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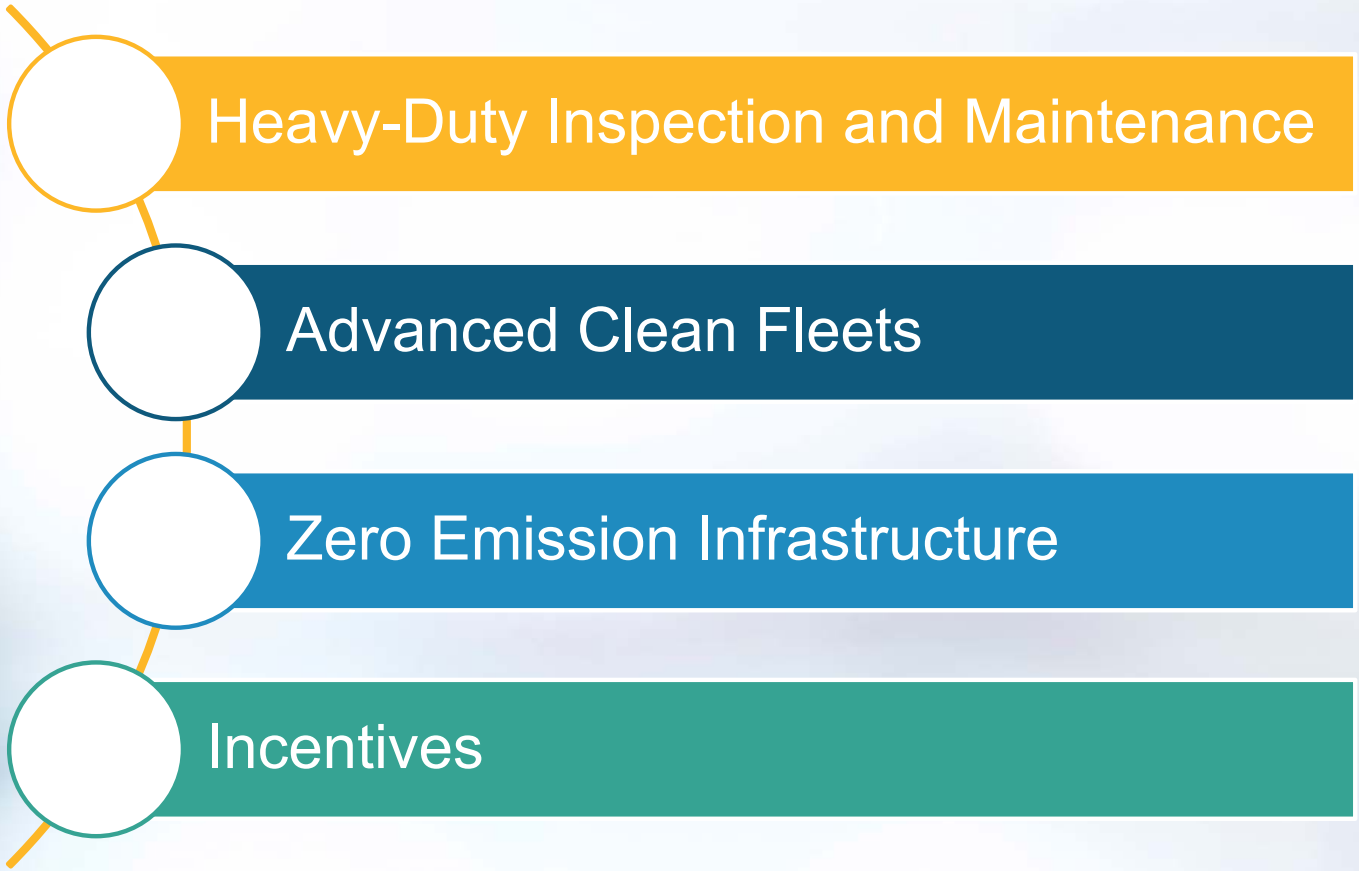
* Preliminary estimate assuming 90% cleaner in-use

Potential Strategies



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Heavy-Duty Vehicle Inspection and Maintenance (HD I/M) Program Development

HD I/M Program Objectives and Applicability

- Senate Bill 210 (Leyva; Statutes of 2019) directs CARB to develop and implement a new, comprehensive HD I/M program
  - Maintain low emissions throughout a vehicle's life
  - Ensure emissions control systems are functioning properly
- Applicable to all heavy-duty vehicles (non-gasoline) with gross vehicle weight ratings (GVWR) > than 14,000 pounds operating in California
  - In-state, out-of-state/country
  - Diesel, alternative fuel, and hybrid vehicles
  - Limited exemptions (zero emission vehicles exempt)
  - Gasoline HDVs > 14,000 pounds GVWR not included - already in BAR's Smog Check Program

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Proposed HD I/M Program Structure

- Require periodic vehicle inspections
  - On-board diagnostic (OBD) system checks for 2013+ model year engines
  - Retain smoke opacity testing for pre-2013 model year engines
    - Adding a visual inspection component
- Complement periodic inspections with roadside emissions measurement and new enforcement mechanisms
  - Deploy remote sensing device (RSD) and automated license plate recognition (ALPR) cameras statewide
  - Compliance certificate required to operate in CA
  - Link HD I/M compliance to DMV registration

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HD I/M Inspection Methods

- OBD-equipped vehicles – 4x/year data submittals
  - CARB-certified telematics service providers
  - CARB-certified OBD data collection tools operated by HD I/M-Approved Testers
  - CARB-certified dongles and/or kiosks operated at approved private locations throughout California
- Non-OBD vehicles – 2x/year data submittals
  - Maintain current SAE J1667 opacity test procedure and thresholds
  - Perform visual inspection

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Roadside High-Emitter Vehicle Screening

- Real-time emissions monitoring equipment with ALPR cameras to identify high emitting vehicles
  - NOx and PM
- High emitters would be required to demonstrate compliance via testing mechanisms discussed previously

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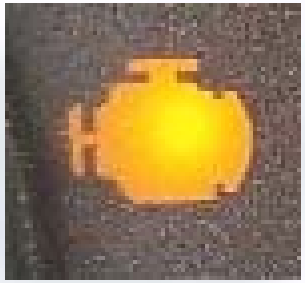
Coordinated Field Enforcement

- Continued CARB field inspection efforts in coordination with CHP
- SB 210 authorizes CHP to:
  - Check for illuminated MIL in vehicle
  - Check for excessive visible smoke
  - Check for valid HD I/M Compliance Certificate

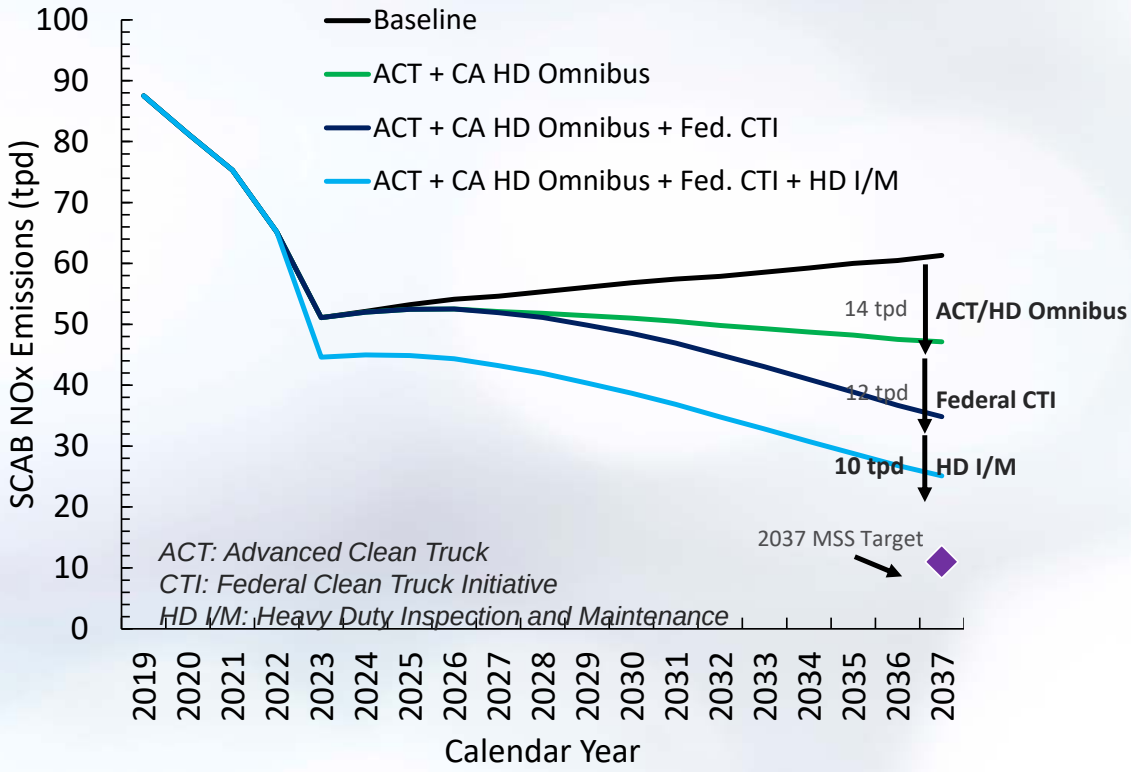


HD I/M Implementation: Proposed Program Phase-In

- First Phase – Begins **January 1, 2023**
  - High emitter vehicle screening
- Second Phase – Begins **July 1, 2023**
  - Enforcement of compliance certificate requirements starts
  - DMV registration holds for California registered vehicles start
- Third Phase – Begins **January 1, 2024**
  - Periodic testing starts

Potential NOx Emissions Benefit

These are preliminary estimates of NOx benefits from the HD I/M program assuming that it will reduce the number high emitting trucks by 50 and 25 percent for in-state and out-of-state trucks, respectively. Staff are working on a more comprehensive analysis to better quantify the impact of the program



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HD I/M Development and Next Steps

- Multiple public workshops and workgroup meetings throughout 2019 and 2020
- Most recent workgroup meetings:
  - November 16, 2020: Pilot Program Activities and On-Board Diagnostics (OBD) Specifications
  - December 17, 2020: Draft HD I/M regulatory concepts
- Additional HD I/M workgroup meetings and workshops throughout 2021
  - Enforcement HD I/M workgroup expected in February 2021
- Staff report and proposed regulation order: October 2021

Board Hearing: December 9 – 10, 2021

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For More HD I/M Program Information

- Visit CARB's website at: https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program

- Subscribe to receive HD I/M email updates at: https://public.govdelivery.com/accounts/CARB/subscriber/new?topic_id=hdim

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Advanced Clean Fleets
&
Zero Emission Drayage Trucks

Proposed Advanced Clean Fleets Rule

- Transition fleets to zero emission trucks and buses
- Target high priority fleets with later requirements for others
  - Government, drayage, refuse, last mile delivery
- Complement manufacturer sales requirement
- Support California's transition to zero-emission where feasible to meet ACT Board Resolution and Governor's Executive Order
  - 2035 – Drayage, public fleets, last mile delivery
  - 2040 – Refuse, buses, utility fleets (may include NZEVs)
  - 2045 – For all other trucks and buses where feasible

Regulatory Concepts

- ZEV purchase requirement
  - Increasing percentage of new purchases must be ZEVs
- ZEV fleet standard
  - Increasing portion of the fleet must ZEVs
- Green fleet contracting
  - Large fleets and businesses must contract with “green” fleets to ship cargo or serve customers
- Zero-emission zones
  - Only ZEVs may enter certain areas
- Infrastructure requirements
  - Require stores, warehouse, and other locations with truck traffic to install infrastructure to enable broader electrification

Public Fleet Concept

- City, county, state owned vehicles
  - Exclude school buses
- Phase-in best available ZEV or NZEV for new purchases
  - 2023 – XX% of purchases
  - 2026 – 100% of purchases for all fleets
- Exemption process if suitable ZEV/NZEVs are not available
- Consistent with normal truck purchase cycle
- No significant subcontracting or competitive disadvantage issues

Private and Federal Fleet Concept

- Includes owned, rented, leased vehicles and hired subhaulers
- Meet ZEV milestones as the total fleet
- Initially applies to straight trucks then others
- Example fleet milestones for box trucks
  - 2025 – 5%
  - 2030 – 50%
  - 2035 – 100%
- Baseline registry to determine fleet composition in 2023
- Annual reporting

Drayage Truck Concept

- Trucks must register with CARB if they conduct drayage activities at the seaports and railyards
- Beginning in 2023, any truck added to the CARB Drayage Truck Registry must be zero-emissions
- Legacy drayage trucks removed from registry at the end of their useful life
- All drayage trucks would be required to be zero-emission by 2035

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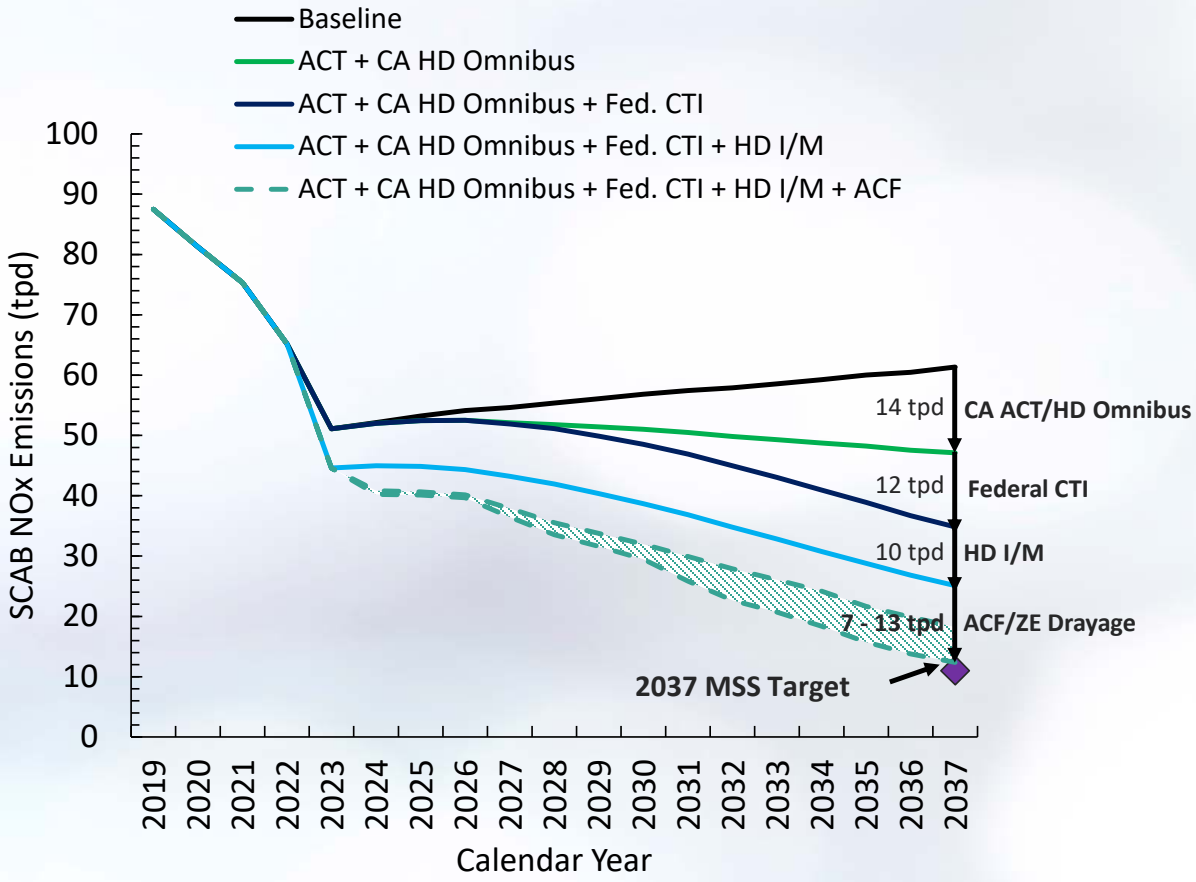
Green Fleet Contracting Concept

- Large entities and government must hire green fleets for certain services starting in 2025
  - Hire green fleets listed on CARB website or
  - Pool of vehicles used must meet the ZE fleet standard
- Service types include parcel, food, beverage, home delivery, linen services, armored car, buses, refuse, and freight transportation
- Reporting required

NOx Emissions Benefit in South Coast

The green striped area represents benefits from CARB's initial assessments of proposed concepts. Staff are working on a more comprehensive analysis to better quantify the impact of the program



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Advanced Clean Fleets Timeline

- Workshop anticipated in February/March timeframe
  - More workshops and workgroups throughout 2021
- Board consideration planned December 2021
- Expected implementation in 2023

For More Information

- Visit CARB's website at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets
- Subscribe to receive ACF email updates at: https://public.govdelivery.com/accounts/CARB/subscriber/new?topic_id=zevfleet

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Infrastructure Needs for Medium- and Heavy-Duty Zero Emissions Vehicles

Medium- and Heavy-Duty Zero Emission Vehicles (MD/HD ZEVs) Regulations

- **Adopted**
  - Innovative Clean Transit
  - Zero Emission Airport Shuttle Buses
  - Advanced Clean Trucks
- **Under Development**
  - Advanced Clean Fleets
- **Other regulations that promote ZE deployment**:
  - Zero Emission Forklifts
  - eTRU
  - Ocean Going Vessels At-Berth

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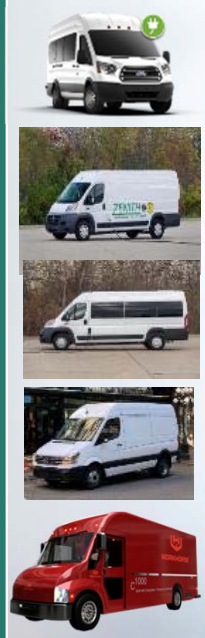
Commercially Available ZEVs Are Here!

Commercial Vehicles Today

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)



Note: Excludes transit buses and all models not shown. Updated Sept. 2020.

Charging Capability

- **Level 2 Chargers**: 240 volt Chargers
  - Home charger typically less than 10 kW (up to 19.2 kW at charging stations)

40 – 70 kWh (Typical)

- **Direct Current Fast Chargers** (DCFC)
  - Typical 50 kW – 150 kW
  - 350 kW in use today – some 500 kW, but uncommon
  - Multi-MW is underway

140 – 280 kWh

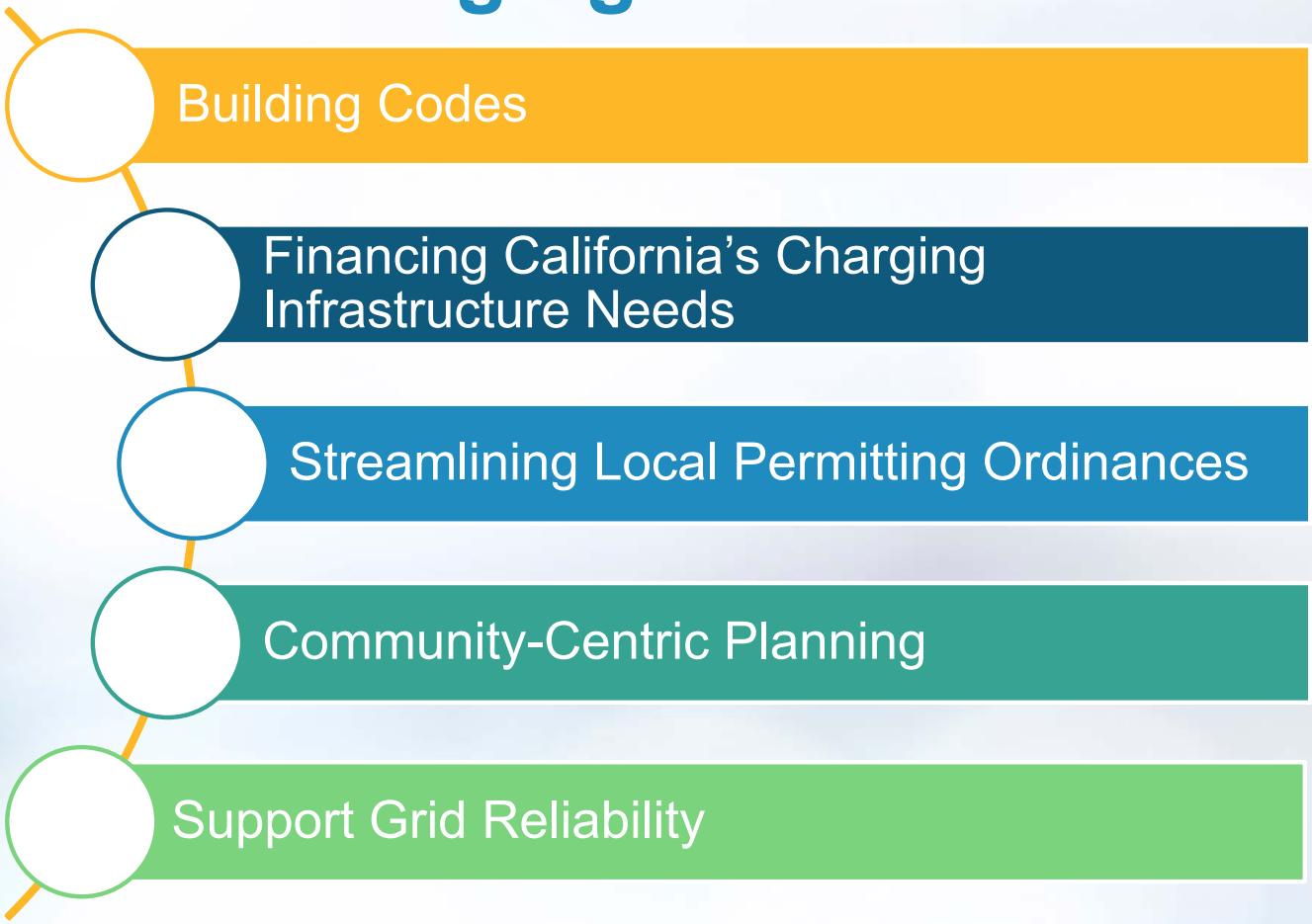
- An electric drayage truck with a 400 kWh battery capacity can be charged within:
  - 8 hours using a 50 kW charger
  - Less than 1.5 hour with 350 kW charger

260 – 485 kWh

Interagency Coordination on Infrastructure

- New infrastructure needed to support transition to ZEV
  - Zero-emission technology for both on- and off-road sectors requires streamlined infrastructure build-out
  - Staff have been working with CEC, CPUC, and GO-Biz throughout development of the 2020 MSS
  - Results from the 2020 MSS are being incorporated into the CEC's technical analysis for AB 2127 report

Key Priorities in Building the Charging Network



Meeting the Demand of the Charging Network

- AB 2127 required an analysis of light- and heavy-duty infrastructure needs through 2030
  - 2020 Mobile Source Strategy projected a total of 180,000 zero emission medium- and heavy-duty vehicles by 2030
  - CEC estimated that this would create the demand for 141,000 50 kW chargers and 16,000 350 kW chargers for medium- and heavy-duty (750,000 for light duty vehicles).

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Planning to Address Demand

- State agencies, NGOs and Utilities
  - GO-Biz coordinating State agency efforts
  - CEC charging infrastructure needs analysis
  - CalETC Statewide Infrastructure Strike Force
- Not just more chargers
  - o Vehicle to Grid Integration (VGI)
    - ✓ "Smart" technology that can optimize charging of multiple vehicles
    - ✓ Can also help power homes, businesses, the grid-early development
  - o Load management
    - ✓ Varying charging times
    - ✓ Off-peak pricing

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Financing Opportunities

- Governor's proposed budget includes securitizing up to $1 billion to accelerate the pace and scale of the infrastructure needed.
- CPUC regulates Independently Owned Utilities (IOUs)
  - SB 350 required CA IOUs to support transportation electrification
  - $1 billion in authorized IOU transportation electrification infrastructure projects; requesting additional $1 billion
- $100 million annually through CEC's Clean Transportation Program

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ZEV Market Development Strategy & Big ZEV Opportunities

2022 AQMP Mobile Source Working Group - Heavy Duty Trucks

Hannah Goldsmith
Lead Advisor, Zero Emission Vehicle Market Development
California Governor's Office of Business & Economic Development (GO-Biz)

Executive Order Policy Directives

- ✓ Air Resources Board: regulations and strategies
- ✓ GO-Biz: ZEV Market Development Strategy
- ✓ Energy Commission: charging infrastructure assessment
- ✓ Air Resources Board, Energy Commission, Public Utilities Commission and other agencies: accelerate deployment of fueling/charging infrastructure
- ✓ And related actions to ensure enhanced clean mobility options, just workforce transition, continued fuel carbon intensity reduction

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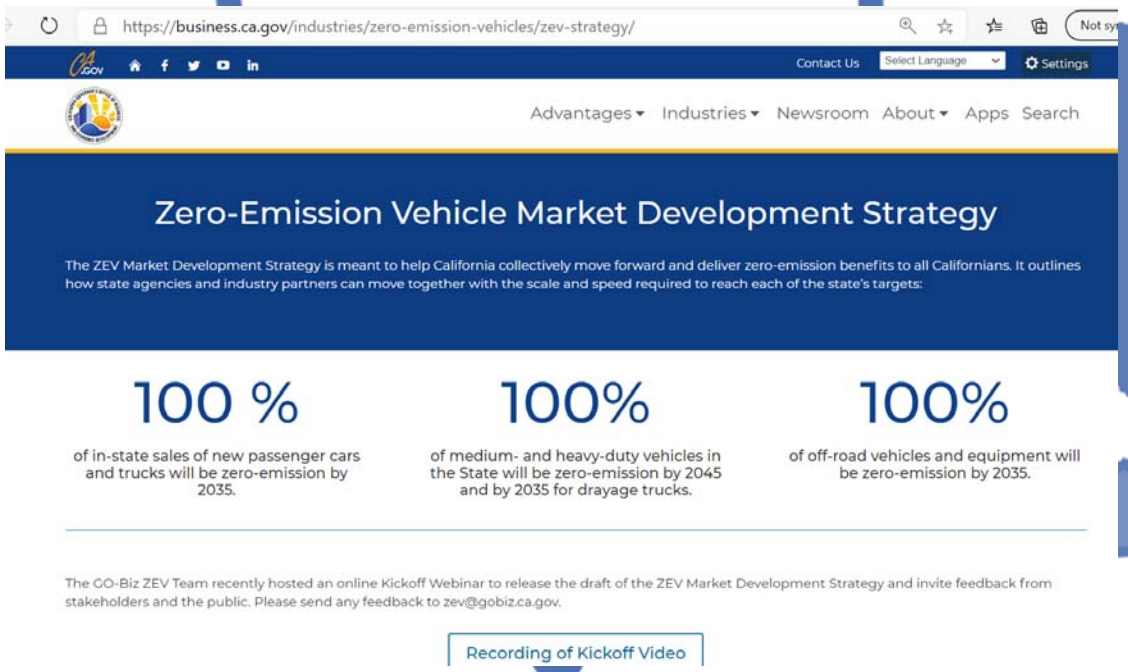
ZEV Market Development Strategy



The Strategy is centered around the four market pillars: vehicles, infrastructure, end users, and workforce.

The pillars must all be fully supported and are built upon a foundation of five core principles:

1. equity in every decision,
2. embracing all zero-emission pathways,
3. collective problem-solving,
4. public actions drive private investment, and
5. designing for system resilience and adaptability.

Inform roadmap for who is focused on what, including public and private actors.

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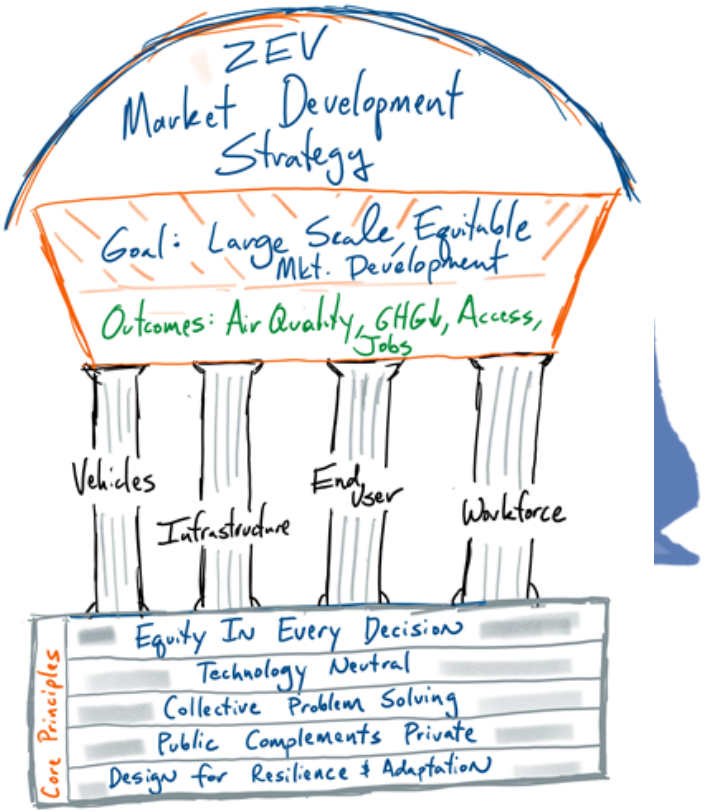
ZEV Market Development Strategy

Process:

- Strategy due January 31st and will be updated at least every 3 years
- Annual state agency action plans, due March 1st
- Annual priority summaries for each pillar, plus an equity implementation strategy and a cross-cutting priority view, due March 15th
- Public ZEV Strategy website to track our progress on diverse metrics



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Big ZEV Efforts

Interviews

- Interviewed over 25 organizations/representatives
- February 2020 – August 2020

Sectors Represented

- Included vehicle manufacturers, fuel providers, fleets, state and local agencies, trade associations, NGOs
- Broad perspectives on achieving a successful transition to big ZEVs

Sort and Organize Information

- Sorted themes and details into barrier and opportunity sub-categories
- Created barriers summary and corresponding opportunity charts

- Big ZEV priorities will be included in the annual pillar priority summaries
- Charting prior work to new Strategy process

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Barrier Themes → Opportunity Mapping

- Costs
  - Vehicle, infrastructure, fuel, other
- Infrastructure
  - Installation and scaling timelines
  - Real estate, planning, support
- Incentives
  - Adequacy and consistency
  - How funding, financing programs fit together
- Choosing a technology
  - Uncertainty with how to choose a vehicle, what to consider to ensure operational needs will be met
  - Standardization and interoperability of vehicles/fueling
- Deployment process and best practices
  - Guidance, tools to transition for fleets, as well as parties in chain of deployment (e.g., permitting jurisdictions)
- Transparency of helpful efforts
  - Many active proceedings and efforts to overcome these barriers, but challenging to track them all
- Workforce
  - Need to ensure workforce to support all aspects of transition exists; create good jobs

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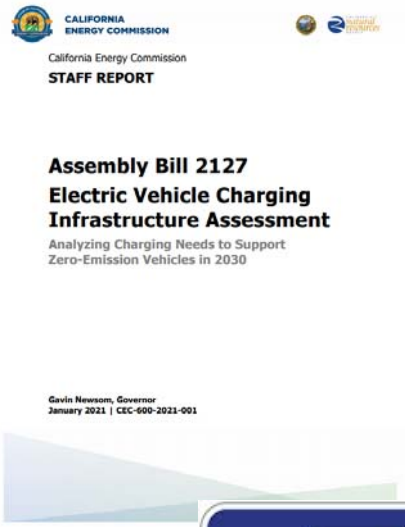
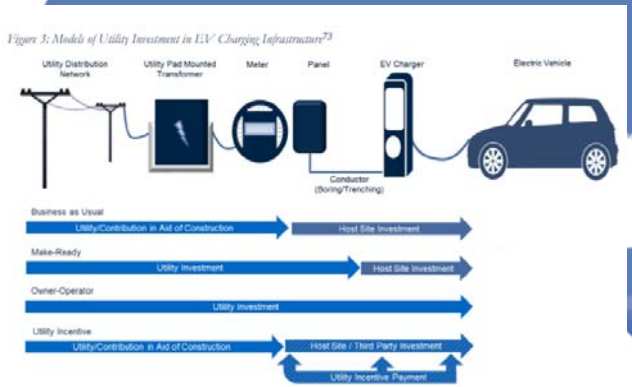
Complementary State Efforts: Infrastructure

Energy Commission AB 2127 Assessment and Clean Transportation Program



Public Utilities Commission Transportation Electrification Framework and Utility Programs



Charging and hydrogen station permitting

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Building Code updates to help achieve ZEV targets

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Governor's Proposed January Budget

Cap and Trade Expenditure Plan
(Dollars in Millions)

Investment Category	Department	Program	Early Action 2020-21	Budget Year 2021-22	Total
Equity Programs	Air Resources Board	AB 617 - Community Air Protection	$125	$140	$265
		AB 617 - Local Air District Implementation	$0	$50	$50
		AB 617 - Technical Assistance to Community Groups	$0	$10	$10
	Water Board	Safe and Affordable Drinking Water ($130 million total)	$30	$24	$54
Low Carbon Transportation & ZEV Strategy	Air Resources Board	Clean Trucks, Buses, & Off-Road Freight Equipment	$165	$150	$315
		Agricultural Diesel Engine Replacement & Upgrades	$90	$80	$170
		Clean Cars 4 All & Transportation Equity Projects	$74	$76	$150
Natural & Working Lands	CAL FIRE	Healthy & Resilient Forests (SB 901) ($75 million included in 2020 Budget)	$125	$200	$325
	Department of Food & Agriculture	Healthy Soils	$15	$15	$30
Total			**$624**	**$745**	**$1,369**

Zero Emission Vehicle Budget Highlights:

- ZEV Infrastructure: Securitization of $1B in future revenues to accelerate pace/scale of station installation
- Greening of State Infrastructure: $50M one-time General Fund for state-owned facilities
- ZEVs: $465M from Cap & Trade for equity programs and medium-, heavy-duty, off-road vehicles and equipment
- Delayed Property Tax Assessment of ZEV Charging and Fueling Stations

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Governor's Office of Business and Economic Development

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South Coast AQMD Incentives Update

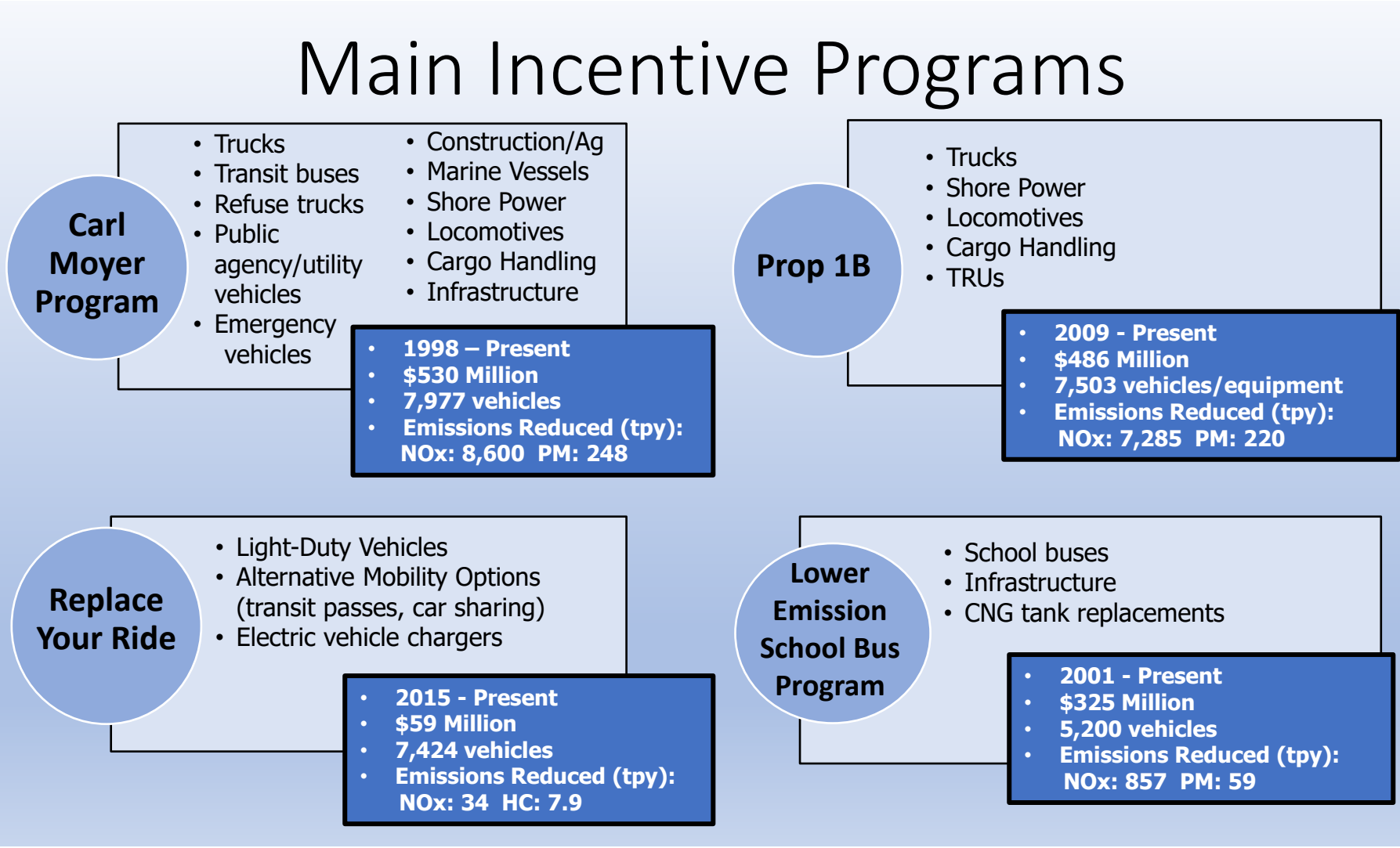
Vicki White
Technology Implementation Manager

Role of Incentives

- Accelerate deployment of new, cleaner technologies that have become commercialized
- Designed to offset the higher cost of new, cleaner technologies
- Higher incentive for the cleanest technologies (zero emissions)
- Existing programs require retirement of an older vehicle, engine or piece of equipment in order to maximize emission reductions
- Projects must achieve "surplus" emissions reductions – go beyond existing regulations
- Infrastructure to enable deployment of near-zero & zero emission heavy-duty vehicles and equipment

Incentive Project Types

Main Incentive Programs



Other Incentive Programs

- Community Air Protection Program (supports AB 617)
- Voucher Incentive Program (for small fleets with ten or fewer vehicles)
- Commercial Electric Lawn and Garden Equipment Program
- Volkswagen Environmental Mitigation Trust Program
- Funding Agricultural Replacement Measures for Emission Reductions (FARMER)

California VW Mitigation Trust

Community Air Protection Program

- Financial incentives to support the goals of AB 617
- Approved by Governor as part of the State budget each year
- Specific bills:
  - AB 134 (2017) – $250M statewide ($107.5M to SCAQMD), for Moyer and Prop 1B projects
  - SB 856 (2018) – $245M statewide ($85.57M to SCAQMD) to reduce emissions from mobile and stationary sources
  - AB 74 (2019) - $245M statewide ($79.4M allocation to SCAQMD) to reduce emissions from mobile and stationary sources, and community-identified projects

South Coast AQMD's AB 923 Distribution of Funds

The Board approves annually how to distribute revenues from $2 DMV fee among the following programs:

- Carl Moyer on- and off-road mobile source project
- Lower Emission School Bus Program (including ze emission buses)
- Metrolink passenger locomotive project (multiple phases)

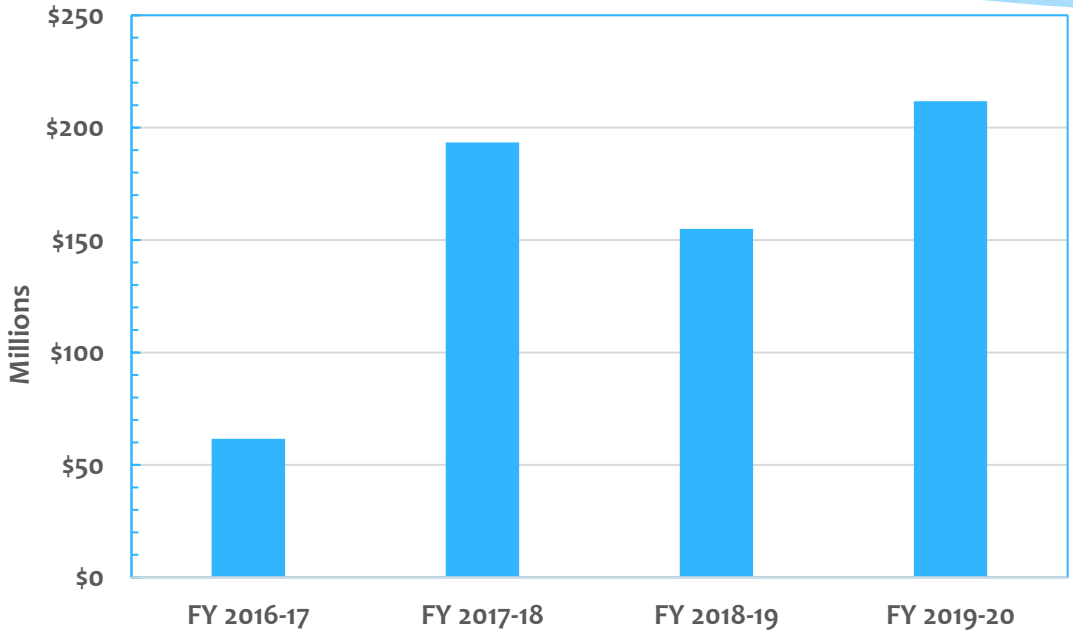
Lower-Emission School Bus Program

- Replace older, high-emitting school buses with cleaner technologies
- Participants include public school districts, including JPA, charter schools and private transportation providers under contract with a public school district
* Program strives to fund the cleanest bus technologies commercially available
* School districts must pay at least $15K as their local match
  - Funds are often combined with HVIP funds to help offset the higher cost of the new near-zero or zero-emission school bus
  - Up to $400k for an electric school bus (with HVIP funds)
  - South Coast AQMD funds also available for infrastructure

VW Mitigation Program

Project Category	Technology	Allocation (millions)	Air District Administrator
Zero-Emission Transit, School and Shuttle Buses	Battery electric or fuel cell	$130	SJVAPCD
Zero-Emission Class 8 Freight and Port Drayage Trucks	Battery electric or fuel cell	$90	SCAQMD
Zero-Emission Freight and Marine Projects	Battery electric or fuel cell	$70	BAAQMD
Combustion Freight and Marine Projects (waste haulers, dump trucks, concrete mixers, switcher locomotives, ferries, tug boats)	Low NOx engine, Tier 4, or Tier 4 equivalent	$60	SCAQMD
Light-Duty Zero-Emission Vehicle Infrastructure	Electric charger or hydrogen fueling station	$10	BAAQMD
CARB Reserve		$63	
	Total:	$423	

South Coast AQMD Incentive Programs (Past 4 Years)



Emission Reduction Benefits from Incentive Programs (2020)

Program	Funding Amount	No. of Equipment/ Engines	NOx (tpy)	PM2.5 (tpy)
Carl Moyer	$33,959,122	162	222.1	4.0
Carl Moyer State Reserve	$1,086,505	6	3.7	0.1
AB 923 Match Funds	$4,618,441	18	6.1	0
FARMER	$706,804	2	5.8	0.4
AB 617 Community Air Protection Program (CAPP) Incentives	$37,762,509	172	123.4	6.0
EFMP (Replace Your Ride)	$13,532,012	1,649	4.2	0.3
Proposition 1B	$39,610,000	399	151.1	0
Voucher Incentive (VIP)	$2,705,000	63	43.2	0.2
VW Mitigation Program	$4,980,238	69	25.1	N/A
Total	**$138,960,631 ***	**2,540**	**584.7**	**11**

* EPA DERA/TAG awards and other smaller grants not included.

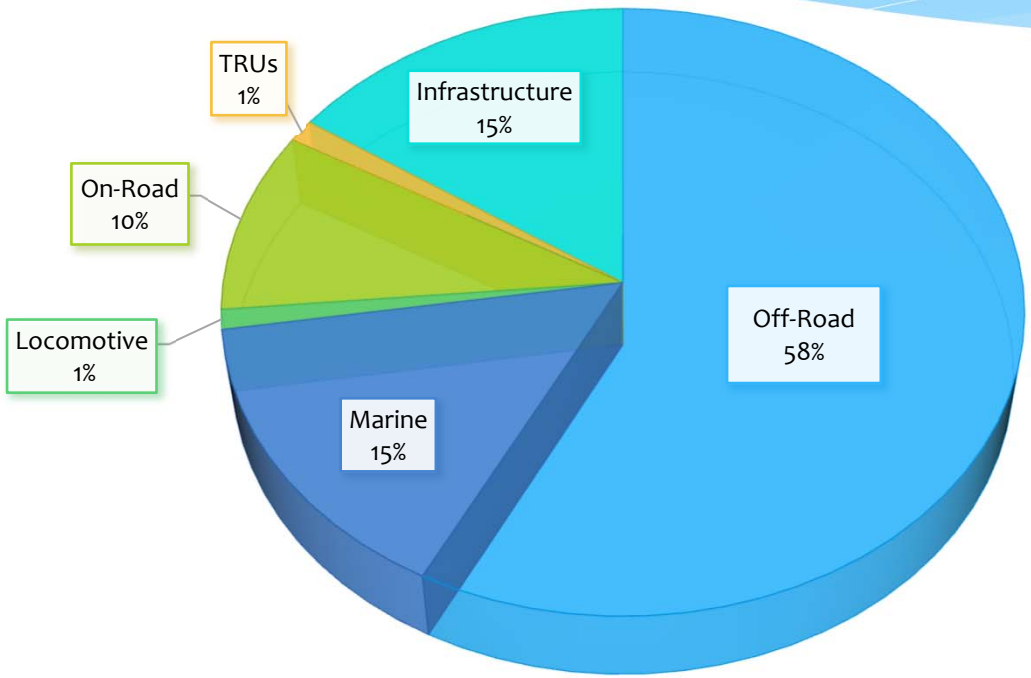
HD Trucks

- Freight trucks (drayage and other)
- Solid waste collection vehicles
- Emergency vehicles
- Public agency/utility vehicles
- Any on-road vehicle >14,000 lbs GVWR (LHD to HHD)
- Other trucks (concrete mixers, dump trucks)
- Transit and school buses (included for incentive purposes)

South Coast AQMD Main Incentive Programs for HD Trucks

- Carl Moyer Program
- Community Air Protection Program (CAPP) Incentives
- Proposition 1B – Goods Movement Program (in final stage of funding)
- Voucher Incentive Program (small fleets only)
- Volkswagen Mitigation Program (statewide)

Carl Moyer Program – Funding Distribution by Project Category



Barriers to Participation

- Requirement to scrap an older diesel truck
- Limited incentive – not qualified for maximum incentive amount
- No new purchase option (low NOx and ZE)
- Cost-effectiveness limit
- Ownership for past 2-years
- EMY eligibility
- DMV registration gaps
- No trade-down option with another fleet
- Usage records (incomplete or low mileage)

Incentive Program	Scrapping	Maximum Funding
VW	Yes	$85,000 *
Prop1B	Yes	$100,000
Carl Moyer	Yes	$100,000 **
HVIP	No	$45,000

*If non-drayage, limited to 25% of truck cost.
**May be capped at lower incentive due to C/E limit

CAPP Results

Project Category	Technology	AB 134 (CAPP Year 1)		SB 856 (CAPP Year 2)	
		Funded Amount	No. of Units	Funded Amount	No. of Units
On-Road	Zero emission	$12,566,150	66	$1,231,961	45
	Optional low-NOx	$22,858,674	415	$9,013,889	133
	Other (Emergency)	-	-	$1,187,478	19
Off-Road Agriculture	Tier 3/4F	$19,607,167	156	$4,795,672	55
Off-Road Construction	Zero emission	-	-	$2,226,833	9
	Tier 3/4F	$22,698,620	96	$2,754,835	32
Cargo Handing Equipment	Zero emission	-	-	$349,845	16
	Hybrid-Electric	-	-	$8,235,475	11
	Tier 4F	-	-	$883,702	5
Marine	Tier 3	$9,490,812	57	$17,032,908	85
Transport Refrigeration Unit	Electric	-	-	$1,411,528	31
Infrastructure	Electric charging	$122,500	1	$7,718,592	9
	Renewable natural gas	$12,243,034	13	$10,586,965	6
	Natural gas	$1,237,782	3	-	-
Locomotive	Tier 4	$11,533,500	6	$1,243,280	1
TOTAL		**$112,358,239**	**813**	**$68,672,963**	**465**

Total Investment - Near Zero and Zero Emission Trucks (2017 to Present)

Program	NZ Emission (0.02 g/bhp-hr)	Funding	Zero Emission	Funding
Moyer/CAPP	451	$31,654,703	3	$600,000
Prop 1B	757	$73,500,000	71	$14,200,000
Total	**1,208**	**$105,154,703 ***	**74**	**$14,800,000**

* Not including recent awards made under Volkswagen Mitigation Program.

Volkswagen Program Update

Funding Category	1st Installment	Open	Closed
ZE Transit, School, and Shuttle Buses	$65 million	10/21/19	Still open (Shuttle and Transit only)
Combustion Freight and Marine Projects	$30 million	12/6/19	3/4/20
Light Duty Infrastructure – Hydrogen	$5 million	2/20/20	5/22/20
ZE Freight and Marine Projects	$35 million	6/18/20	8/31/20
ZE Class 8 Freight and Port Drayage Trucks	$27 million	8/18/20	Still open (backup list)
Light Duty Infrastructure - Battery Electric	$5 million	February 2021 (Est)	TBD

School Bus Awards by County (2018/19)

County	No. of Schools	No. of Buses	U.S. EPA Air Shed Grant	South Coast AQMD AB 923 Funds*
Los Angeles	12	36	$628,800	$5,613,200
Orange	16	100	$1,100,400	$17,162,600
Riverside	6	19	$275,100	$3,154,400
San Bernardino	7	41	$1,100,400	$6,686,100
Total	41	196	$3,104,700	$32,616,300

* In addition, $2,050,000 in HVIP funds were provided.

Note: South Coast AQMD recently released a new Program Announcement in October 2020, closes January 26, 2021.

Funding Opportunities in 2021

* Lower Emission School Bus Program	Closing 1/26/21
* VIP for small fleets (first-come, first-served)	February 2021 (Est)
* Carl Moyer Program (incl. SOON, FARMER and other programs if available)	March 2021
* Prop 1B – Goods Movement Program	Closing 4/30/21
* Volkswagen - Combustion and ZE Freight & Marine and Light Duty Infrastructure (Battery Electric)	Qtr. 2 2021
* AB 617 Community Air Protection Incentives	TBD
* Other Programs	Ongoing (until funds are depleted)

Useful Links

Program	Link
CAPP Incentives	www.aqmd.gov/cappincentives
Proposition 1B - Goods Movement Emission Reduction Program	www.aqmd.gov/prop1b
Volkswagen Environmental Mitigation Program	www.aqmd.gov/vw
Carl Moyer Program	www.aqmd.gov/moyer
Voucher Incentive Program (for small fleets of 10 trucks and less)	www/aqmd.gov/vip
Lower Emission School Bus Program	www.aqmd.gov/schoolbus
Commercial Lawn and Garden Equipment Incentive Program	www.aqmd.gov/lawngarden
Replace Your Ride (Clean Cars for All)	www.replaceyourride.com

Contact Information

Please submit comments, questions, or suggestions on control strategies for on-road heavy-duty vehicles to:

AQMPMobileSources@aqmd.gov