

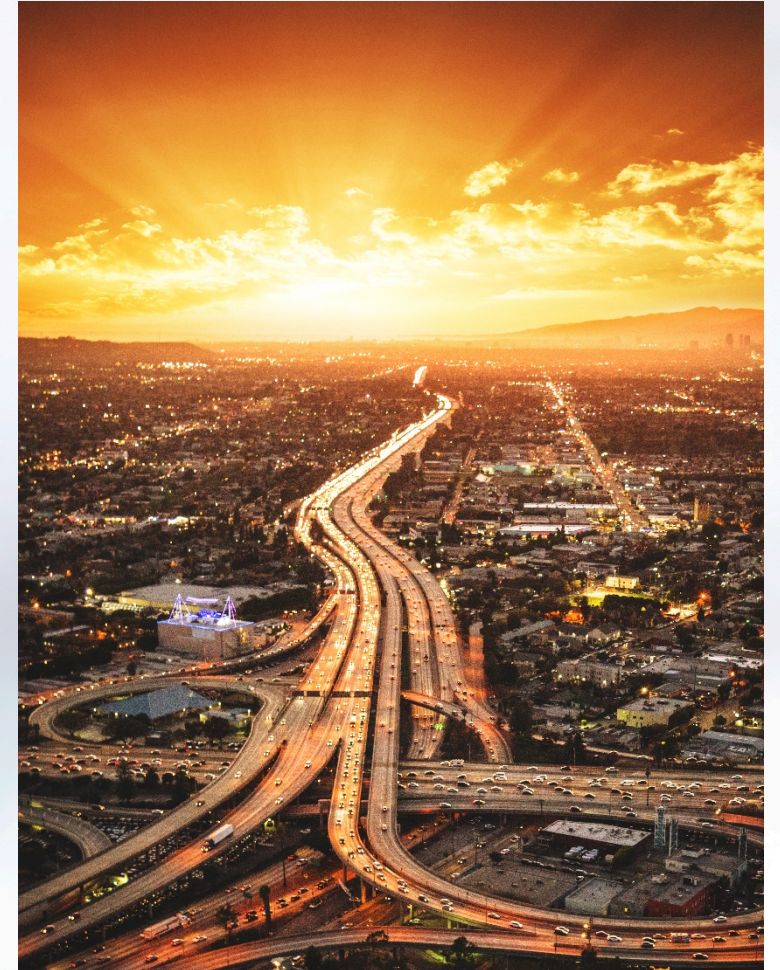
2020 Mobile Source Strategy: A Vision for Clean Air

Informational Update
April 23, 2020

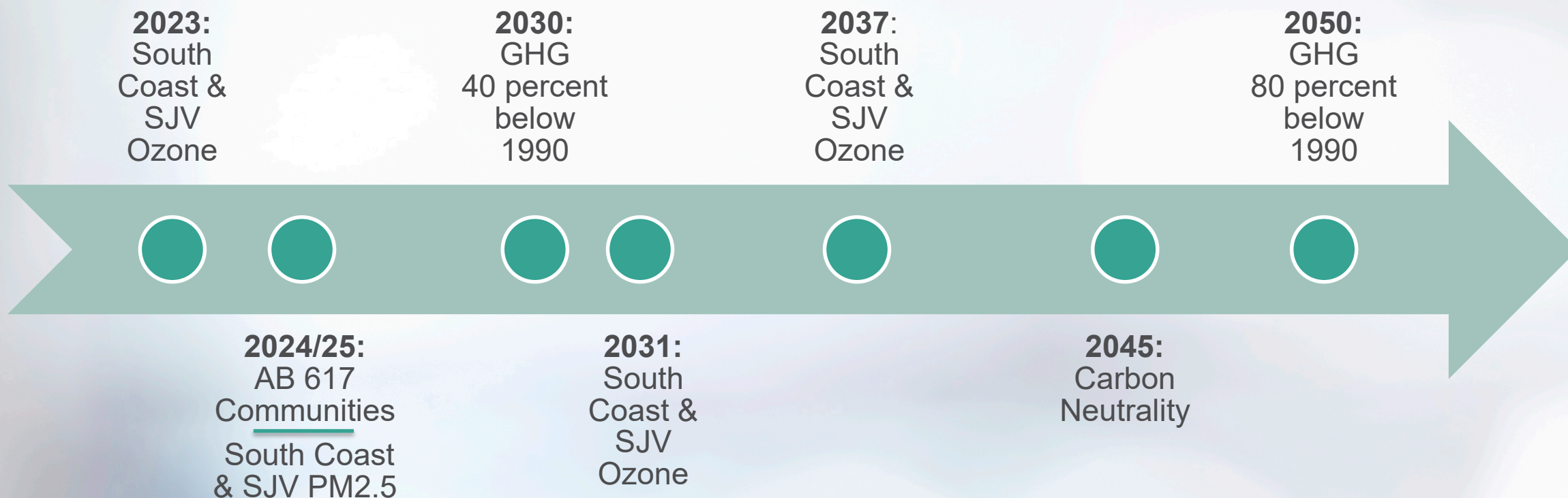


2020 Mobile Source Strategy: A Vision for Clean Air

- Builds on 2016 Mobile Source Strategy
- Conceptual scenario approach
- Identifies potential technology mixes needed to meet air quality and climate targets
- Meets SB 44 requirements
- Informs policy development



Addressing Multiple Goals

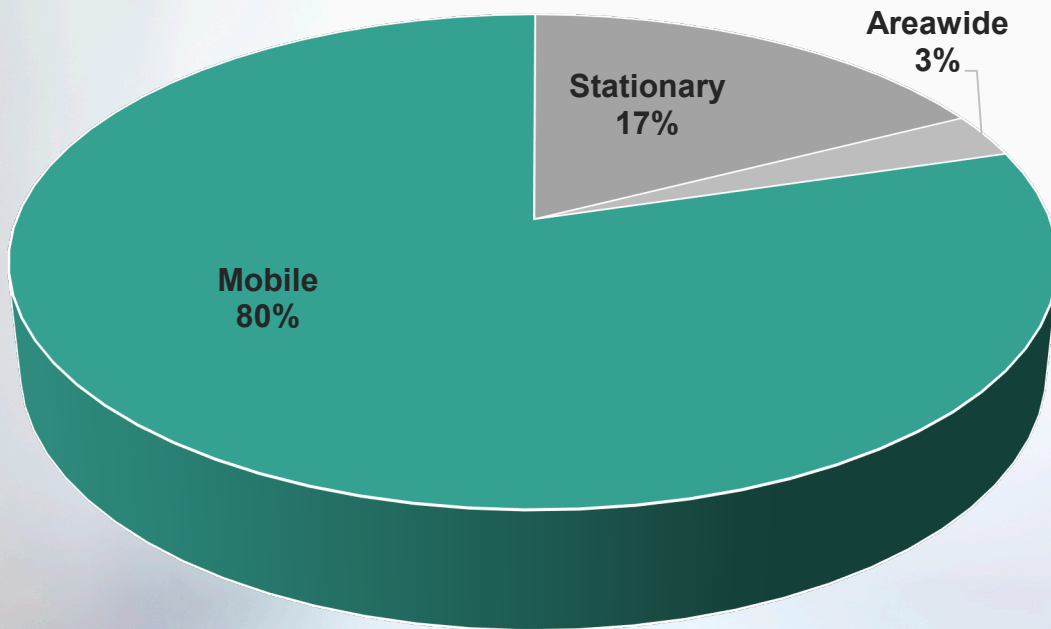


Prioritizing Benefits to Disadvantaged Communities (DACs)



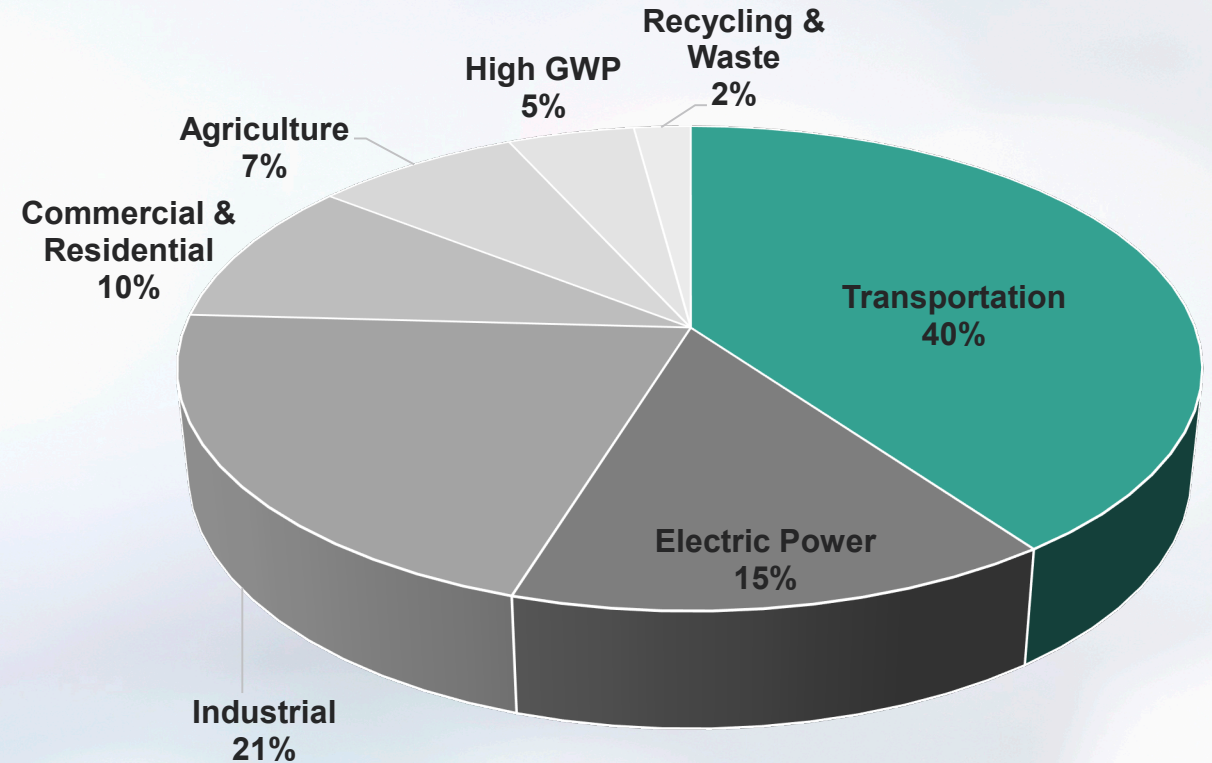
- DACs and people of color are disproportionately affected by mobile pollution
- Develop scenarios with focus on benefits in DACs
- Seek rapid transition to zero-emission technology in and near DACs
- Complement AB 617 strategies

Mobile Source Contribution



2017 Statewide NOx Emissions

Total = 1294 tons per day



2017 Statewide GHG Emissions

Total = 424 MMTCO₂e

2016 Mobile Source Strategy



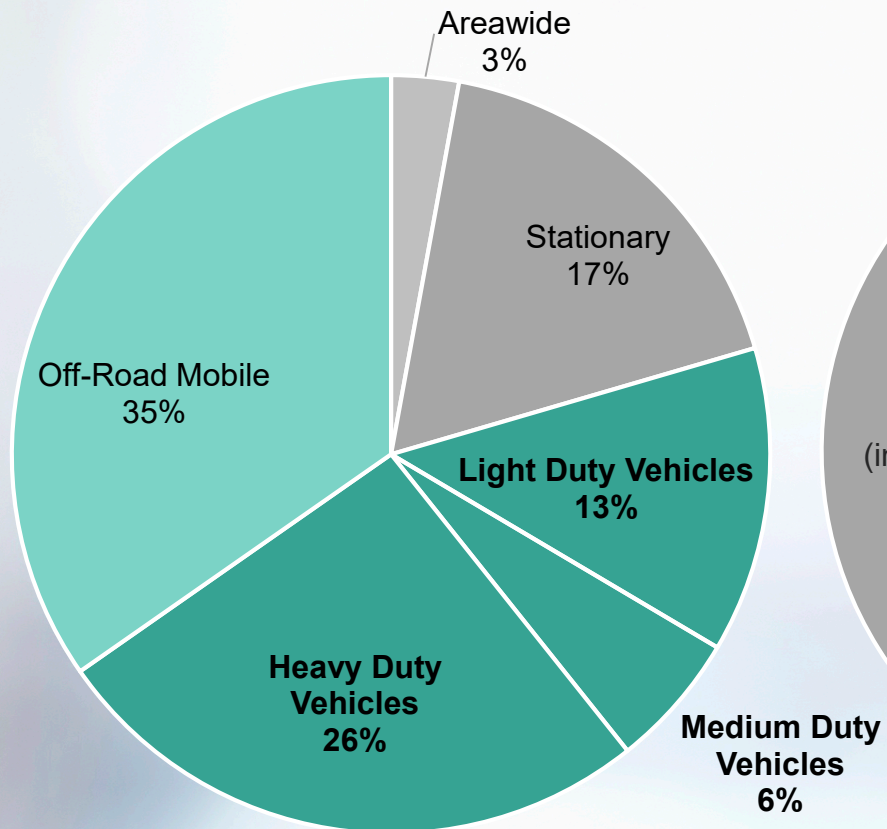
Regulatory Progress	
Regulation	Adopted
Phase 2 GHG Standards for Medium/ Heavy-Duty Vehicles	Feb 2018
Lower Opacity Limits for HD Vehicles	May 2018
Amended Warranty Requirements for HD Vehicles	June 2018
Innovative Clean Transit	Dec 2018
Zero-Emission Airport Shuttle Buses	June 2019

Regulations In Development

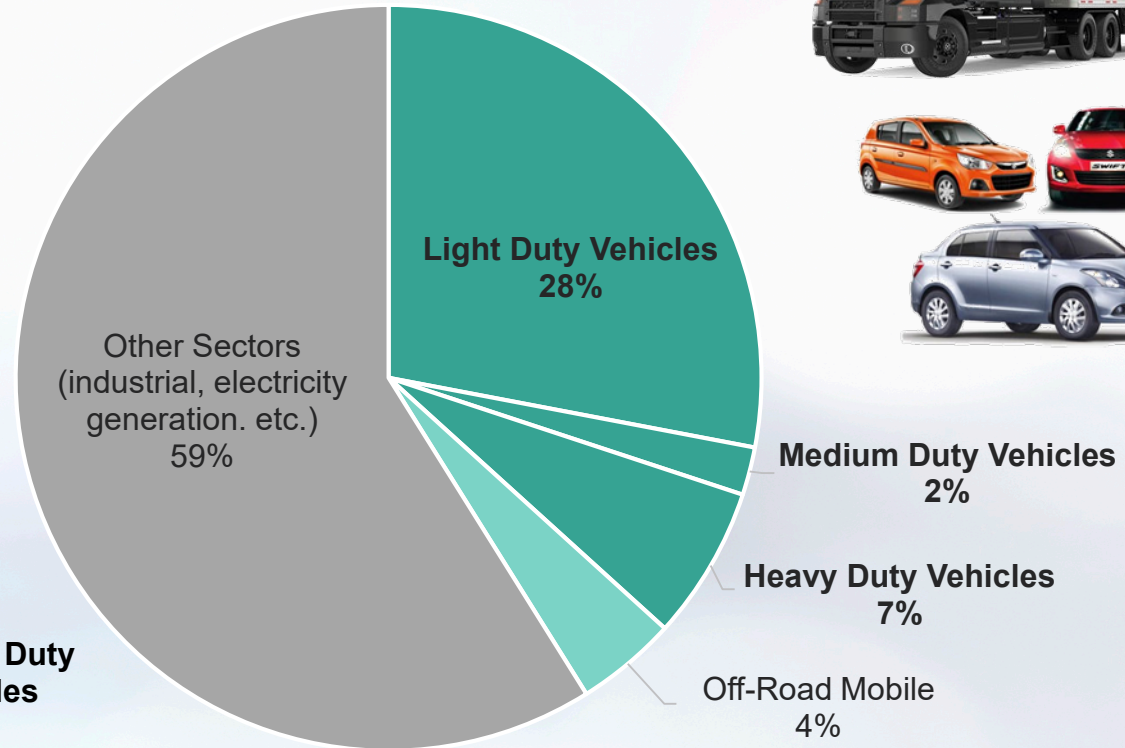
Regulation	Progress	Anticipated Consideration
Ocean Going Vessels – At Berth	1 st hearing Dec 2019	Spring 2020
Advanced Clean Trucks	1 st hearing Dec 2019	Spring 2020
Heavy-Duty Low-NOx Omnibus	Workshops since 2016	Mid 2020
Transport Refrigeration Units	Workshops since 2016	Late 2020
Small Off-Road Engines	Workshops since 2016 Evap Reg amended 11/2016	Late 2020
Heavy-Duty I/M	Workshops since 2019	2021
Advanced Clean Cars 2	In Development	2021
Low-Emission Diesel Requirement	Workshops since 2019	2021

On-Road Vehicles

Statewide NOx Emissions

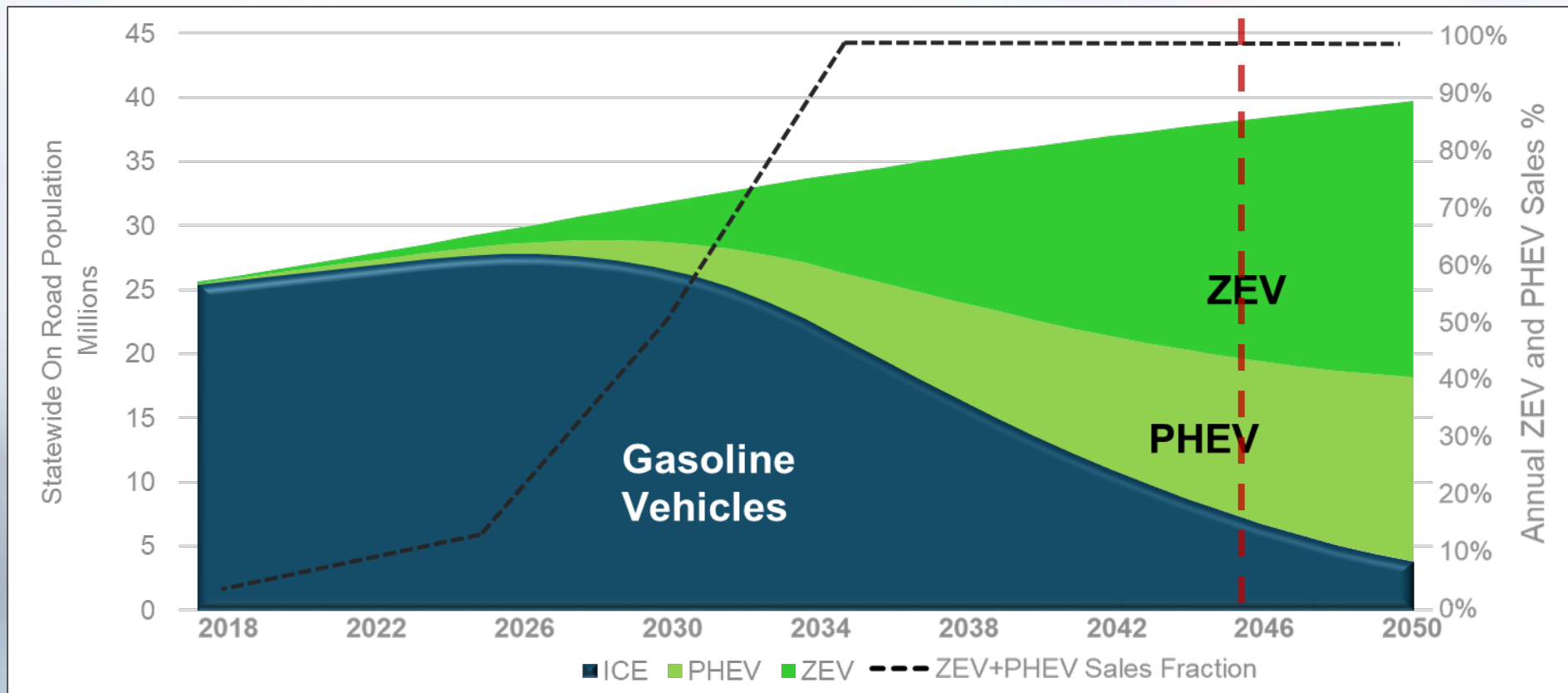


Statewide GHG Emissions

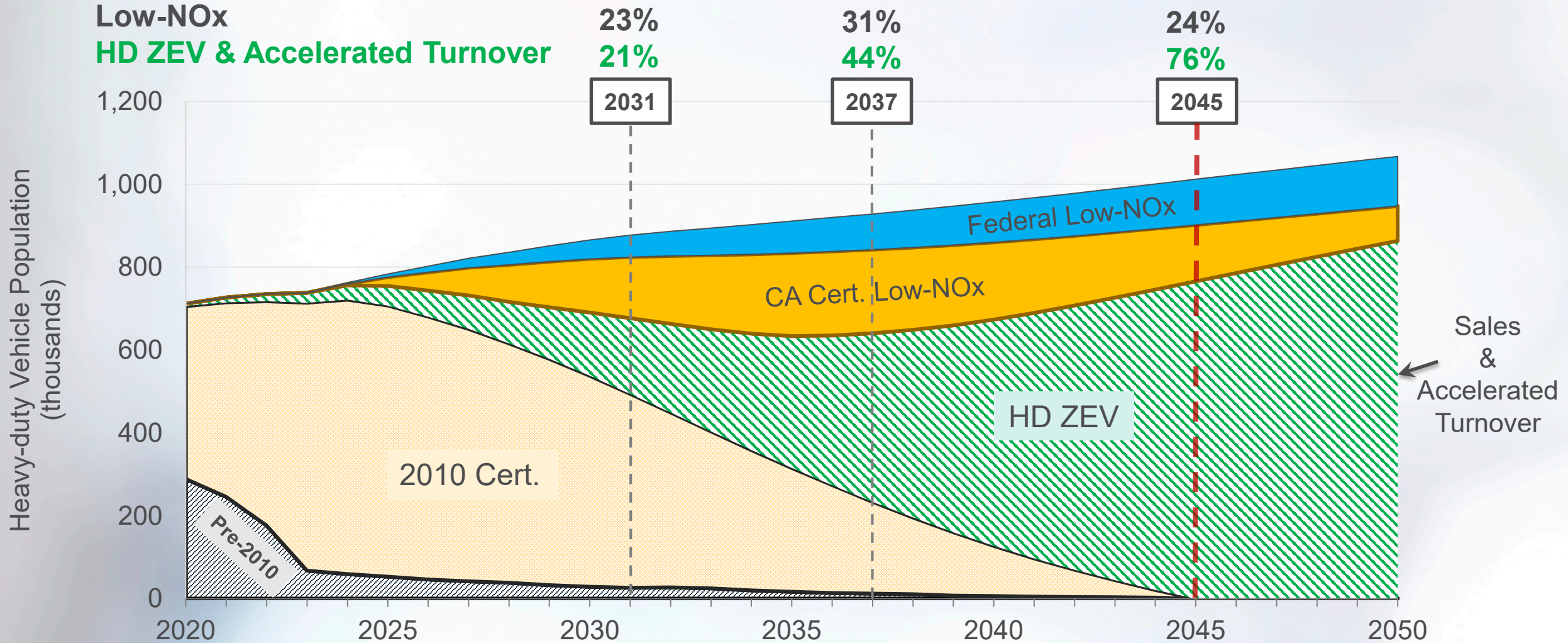


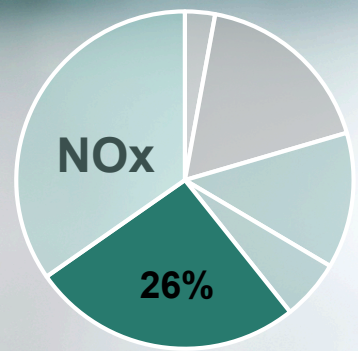
Current Scenario for Light-Duty

- 100% sales ZEVs & PHEVs by 2035; Does not go far enough
- Staff continue to evaluate more ambitious ZEV sales scenarios and the impact of high mileage vehicles

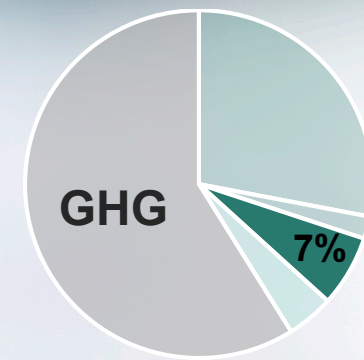


Heavy-Duty Technology Mix Needed

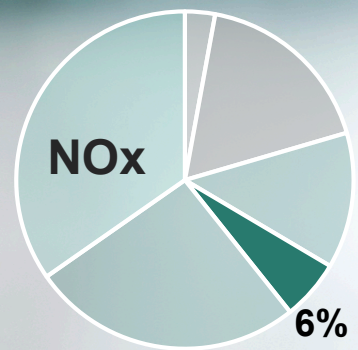




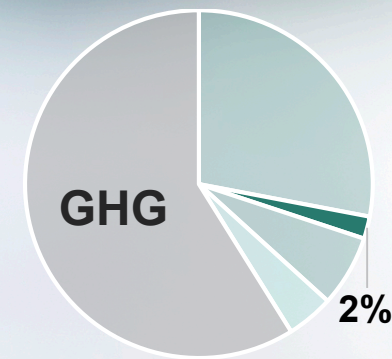
Heavy-Duty Vehicle Strategies



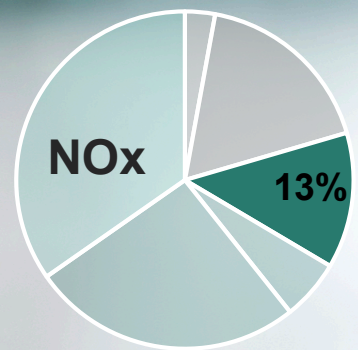
- Aggressive ZEV penetration and accelerated turnover of older vehicles
- Cleaner diesel technology (Low-NOx Standard)
- In-use performance measures (Heavy-Duty Inspection and Maintenance Program)
- Continued energy efficiency improvements
- Renewable fuels where electrification is not feasible



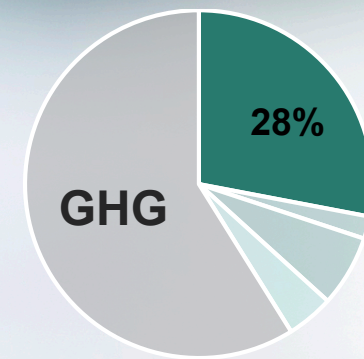
Medium-Duty Vehicle Strategies



- ZEV penetration
- Enhanced LEV regulations
 - Advanced Clean Cars 2 – Post 2025 automaker rules
- Continued energy efficiency improvements



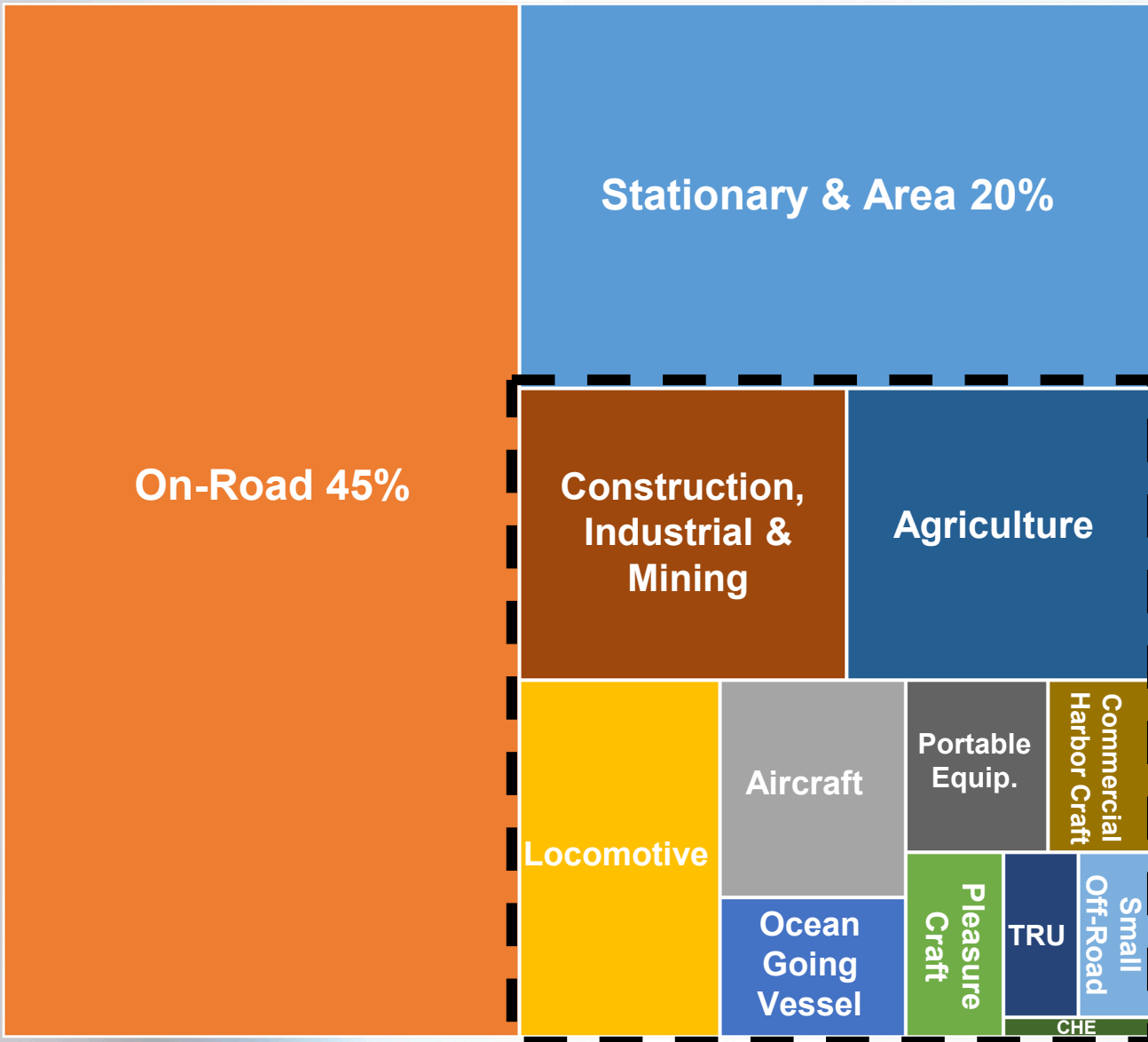
Light-Duty Vehicle Strategies



- Aggressive ZEV penetration
- Enhanced ZEV and LEV regulations
 - Advanced Clean Cars 2
 - Clean Miles Standard (SB 1014) – Reducing GHG emissions from ride hailing

Off-Road Sector

Statewide NOx Emissions



- Off-road NOx is 35 percent of total, expected to grow to become the largest share by 2022
- Off-road annual diesel consumption will reach 2.13 billion gallons by 2045



Off-Road Engine Strategies

- Zero-emission technology wherever possible
- Remaining combustion engines as low-emitting as technically feasible
 - Tier 5, OBD and GHG standard
- Accelerated turnover of older equipment to cleanest available technology
- Retrofit with after-treatment technologies
- Renewable fuels where electrification is not feasible

Energy and Infrastructure Needs

- Zero-emission technology for both on- and off-road sectors requires streamlined infrastructure build-out
- AB 2127: CEC preparing infrastructure assessment for meeting 2030 ZEV and GHG goals
- Significant investments being made in infrastructure
- Staff is coordinating with CEC and CPUC on assessment of infrastructure needs



Timeline for Completing 2020 MSS

Scenario Modeling	Ongoing
Public Webinar	March 2020 ✓
Informational Update to the Board	April 2020 ✓
Release Draft Document	Fall 2020
Board Consideration	Late 2020

Public Webinar Feedback

What will CARB do if incentive funding does not materialize?

What renewable fuels is CARB considering when electrification is not feasible?

What does CARB plan to do different to get back on track with California's VMT/GHG goals?

How will COVID-19 impact the development of the Mobile Source Strategy and regulatory efforts?

Needed Transformation

- Zero-emission transformation in every sector possible is key to California's future
- Streamlined infrastructure build-out is necessary to facilitate transition to ZEVs
- Significant investments are needed to enable accelerated transition to a zero-emission future

Thank you