



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

**AGENDA: 2**

# **Overview of Governor's Executive Order**

**Board of Directors Special Meeting  
October 21, 2020**

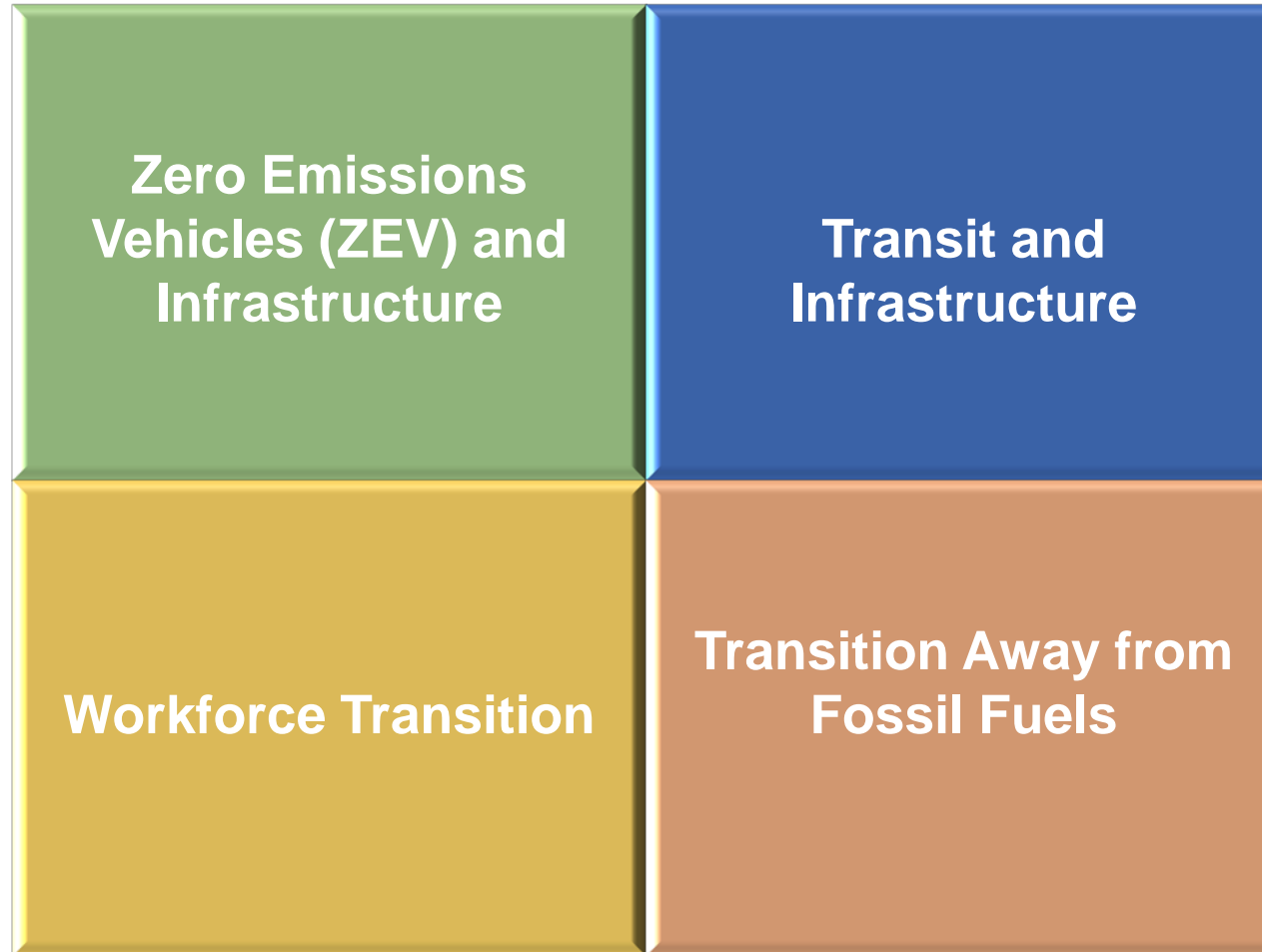
**Damian Breen, Deputy Air Pollution Control Officer  
Technology**

# Overview



- Governor's Executive Order N-79-20 Highlights
- Intersection with Air District Programs
- Market and Technology Status
- Challenges and Opportunities

# Executive Order Highlights



# Executive Order Highlights



## Zero Emissions Vehicles (ZEV) and Infrastructure

- Passenger car and light-duty truck sales will be 100% zero-emission by 2035
- Drayage trucks operations will be 100% zero-emission by 2035 where feasible
- Off-road vehicles and equipment will be 100% zero-emission by 2035 where feasible
- Medium- and heavy-duty truck and bus operations will be 100% zero-emission by 2045 where feasible
- California Air Resources Board (CARB) will develop rules consistent with State and Federal law, considering technological feasibility and cost effectiveness

# Executive Order Highlights



## Zero Emissions Vehicles (ZEV) and Infrastructure

- Develop a ZEV Market Development Strategy by January 31, 2021
- Ensure new and used ZEVs are available to all Californians
- Accelerate deployment of affordable fueling infrastructure, focusing on low-income and disadvantaged areas
- Perform biannual assessments of infrastructure to support ZEV adoption

# Executive Order Highlights



	<b>Transit and Infrastructure</b>

- Where feasible, build towards an integrated statewide rail and transit network to provide seamless and multimodal transportation for all, including:
  - Bicycle, pedestrian, and micro transit improvements
  - Focus on disadvantaged communities
- Consider ZEV and other infrastructure as part of building projects where appropriate

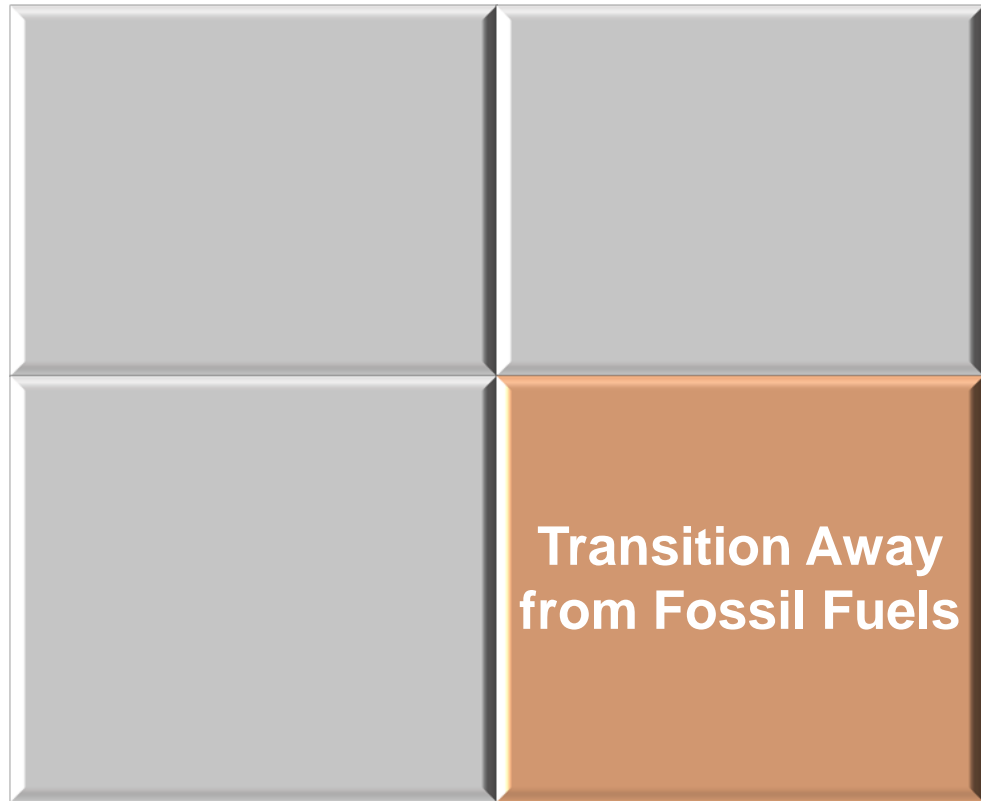
# Executive Order Highlights



**Workforce  
Transition**

- Develop a “Just Transition Roadmap” by July 15, 2021, which will focus on a transition away from fossil fuels to achieve carbon neutrality by 2045

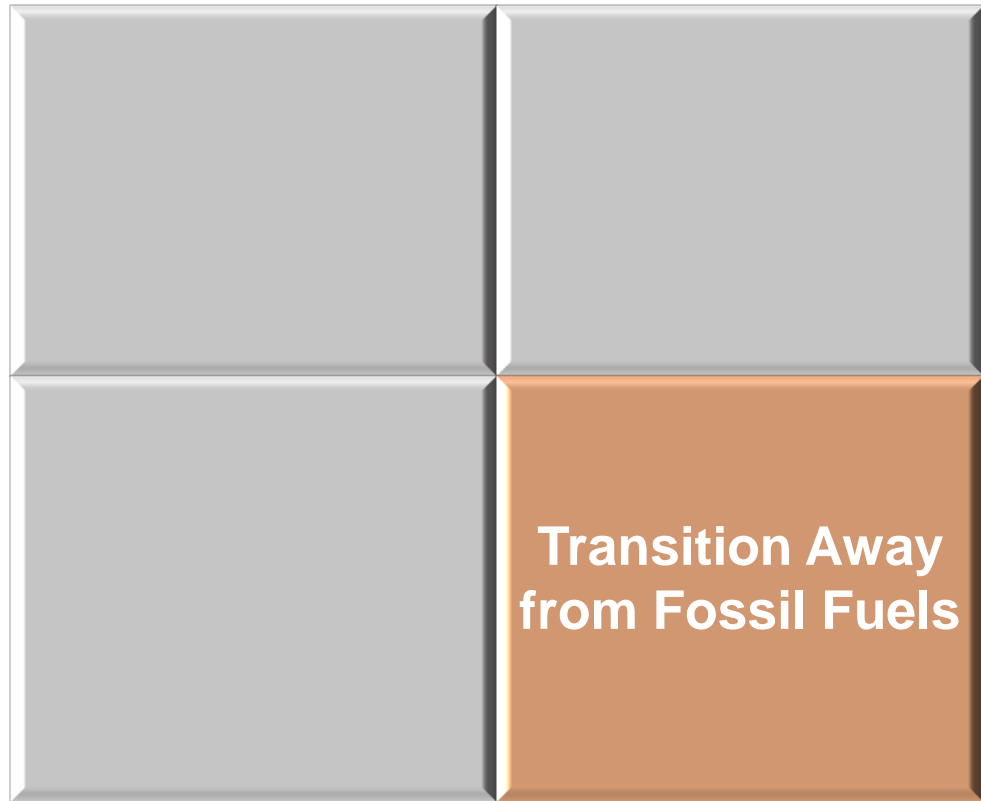
# Executive Order Highlights



- Expedite regulations to repurpose and transition upstream and downstream oil production facilities
- As part of regulatory action, take into consideration community and labor participation, and protect public health, safety, and the environment
- Develop an action plan by July 15, 2021
- CARB to propose strategies to continue to reduce carbon intensity of fuels beyond 2030

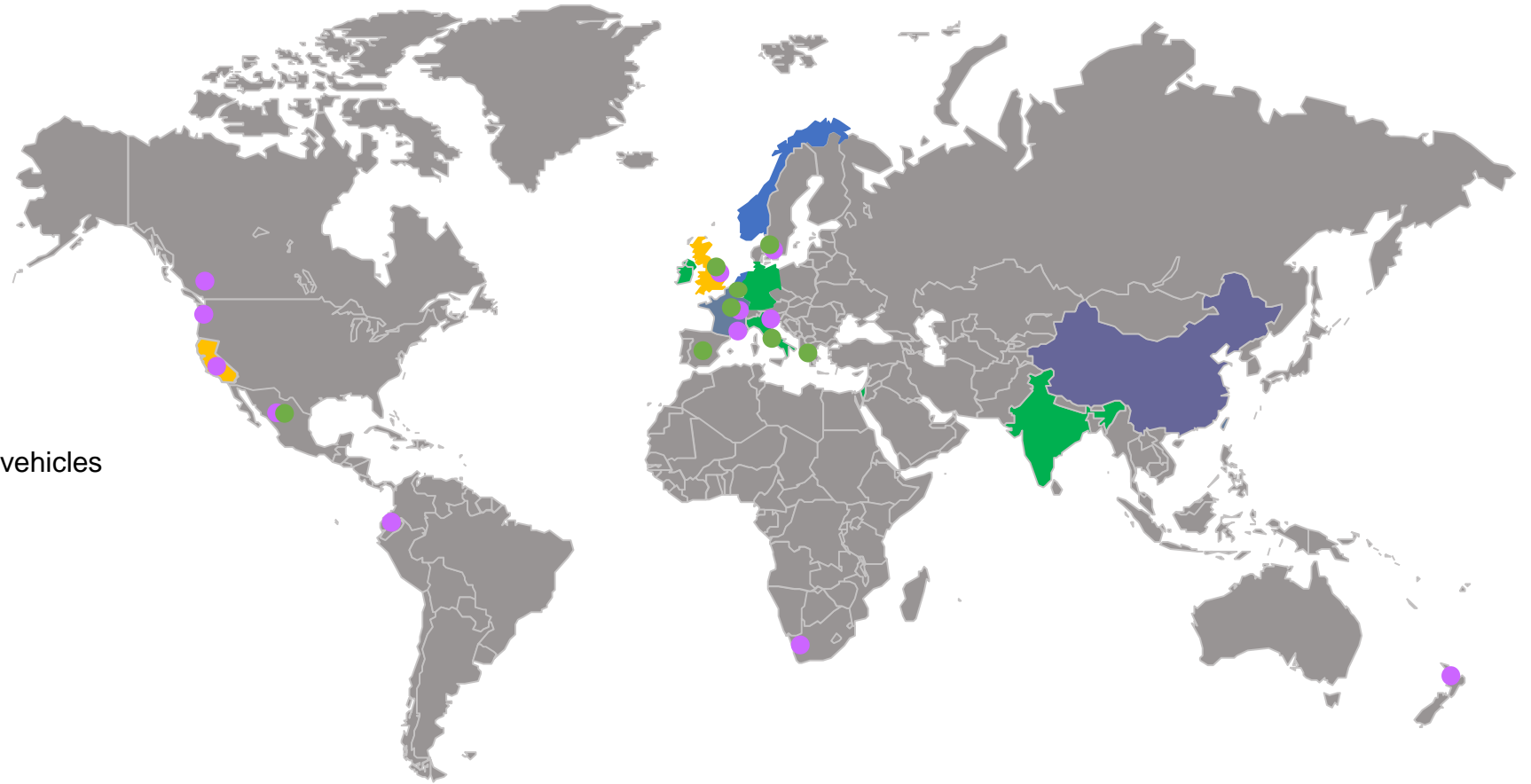


# Executive Order Highlights



- Develop strategies to remediate and expedite closure of oil extraction sites by July 15, 2021
- Enforce requirements, so oil extractors are responsible for site clean up
- Propose strengthened health and safety rules that protect the public and workers from the impacts of oil extraction activities

# Other Commitments Worldwide



## Legend:

Country/regional, ban sales of gasoline/diesel vehicles

■ By 2025   ■ By 2040

■ By 2030   ■ TBD

Country/regional, all zero emission vehicles

■ By 2050

State, reduce petroleum consumption by 50%

■ By 2030

City, diesel vehicle ban

● 2018-2025

C40 cities with pledges for zero emissions

● By 2030

# Intersection with Air District Programs

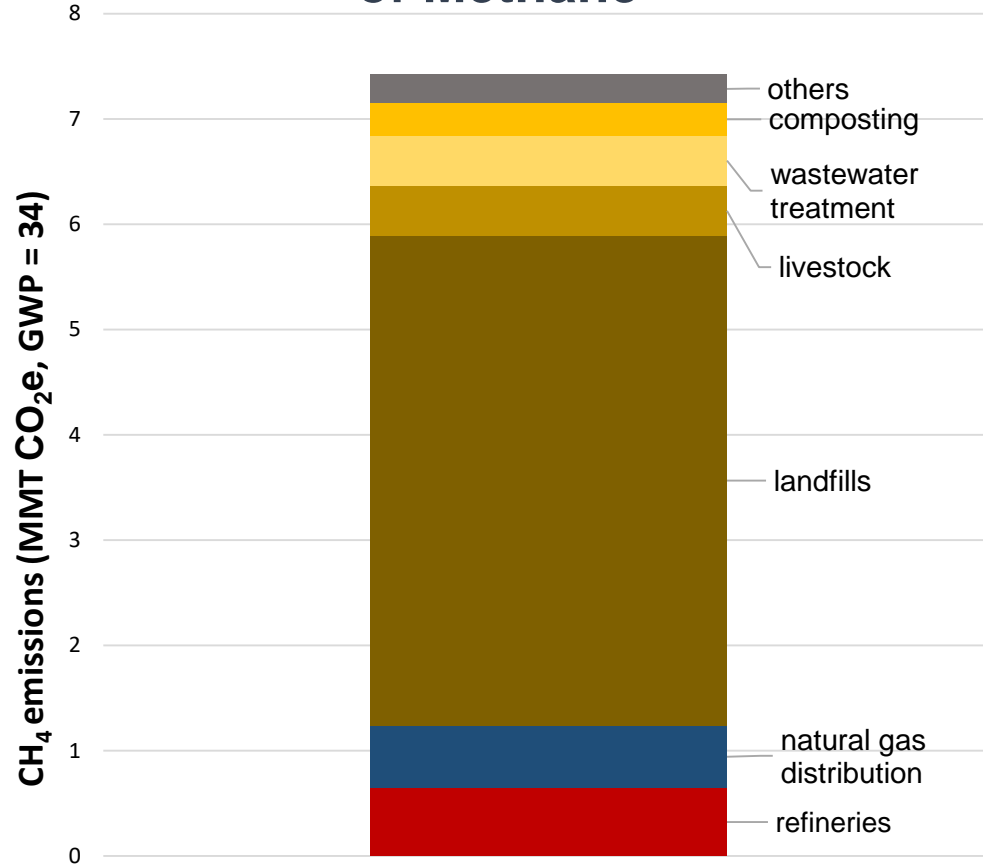


- Climate Strategy
- Equity and Assembly Bill (AB) 617 Programs
- Grants and Incentives
- Technology Implementation Office
- Permitting and Enforcement
- Strategic Partnerships

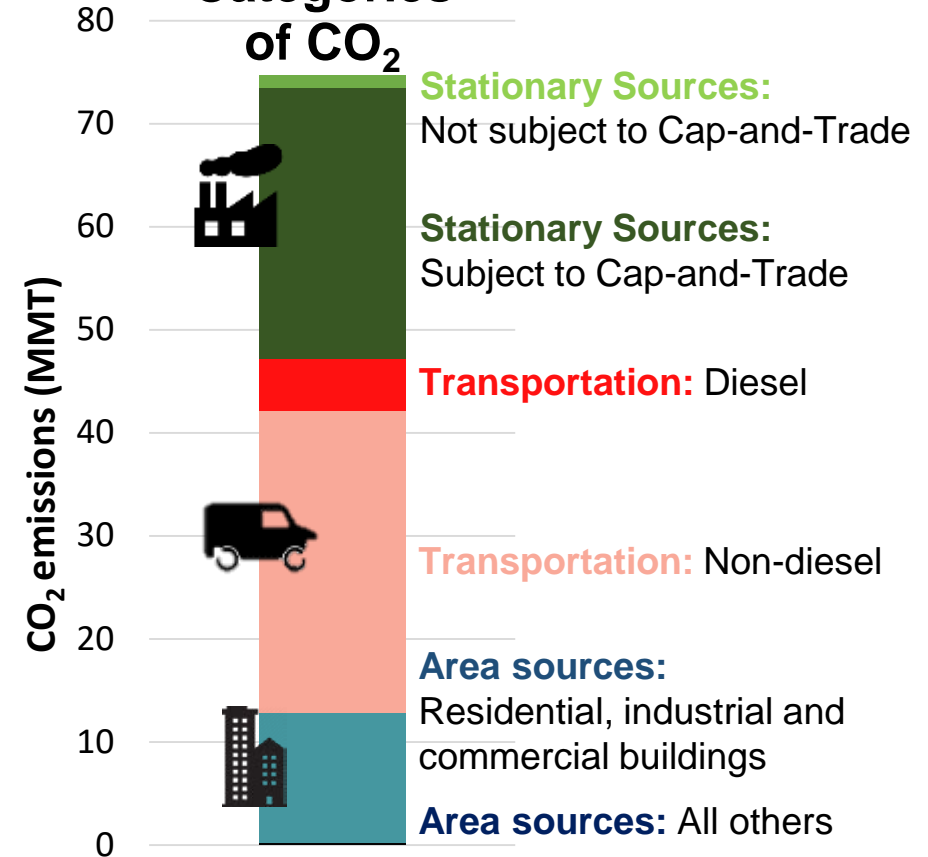
# Climate Strategy Bay Area GHG Emissions



## Major Source Categories of Methane



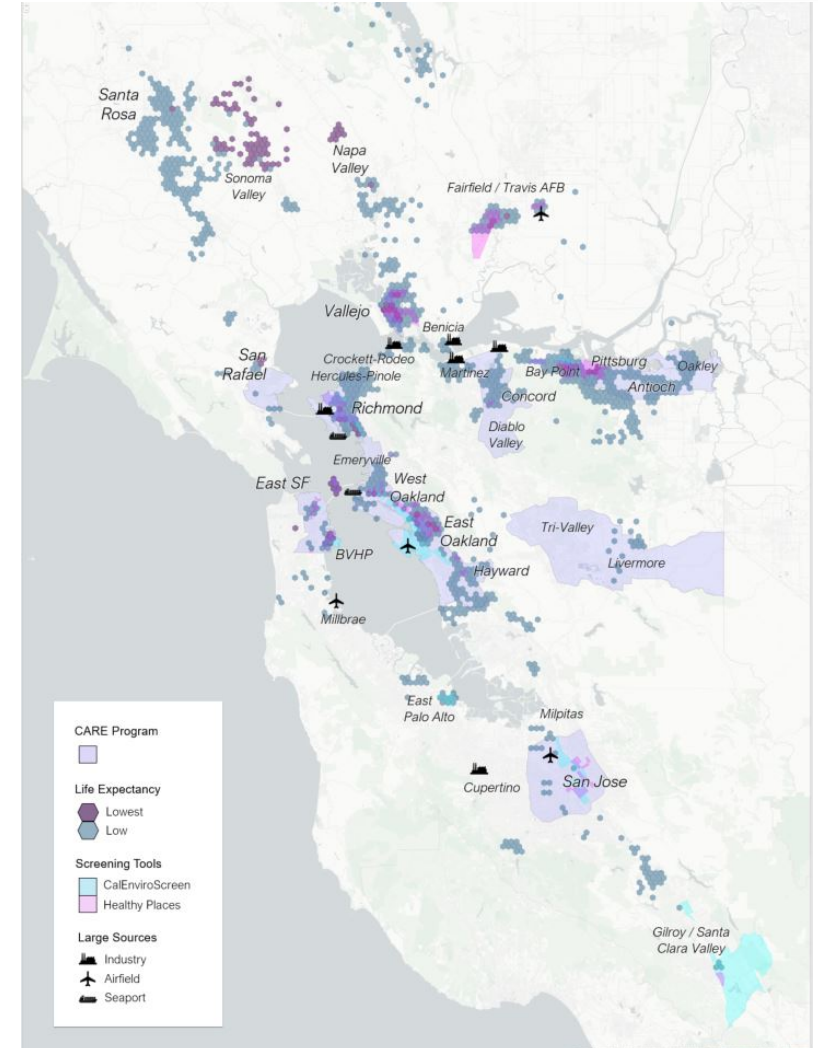
## Major Source Categories of CO<sub>2</sub>



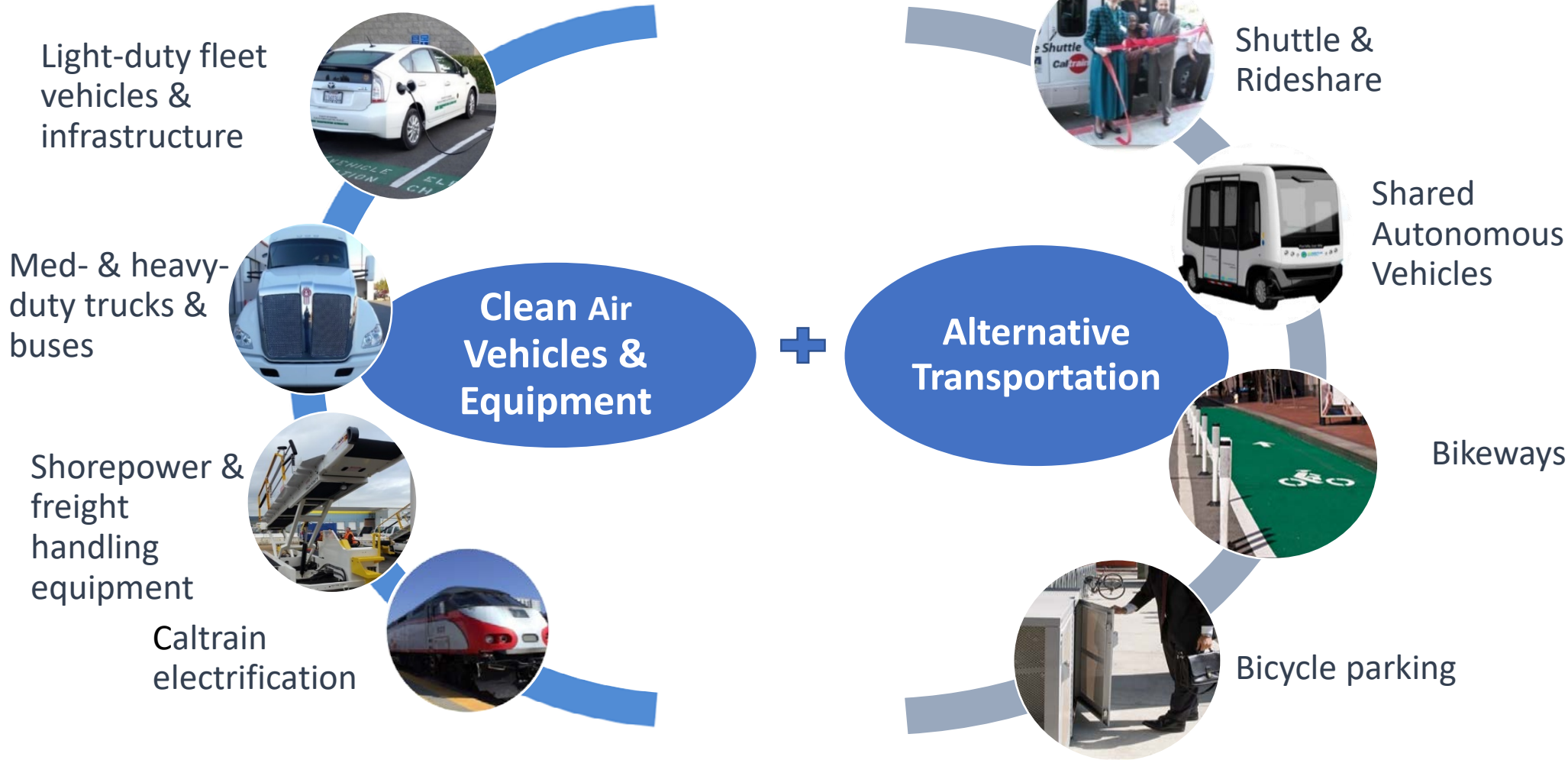
# Equity and AB 617 Programs



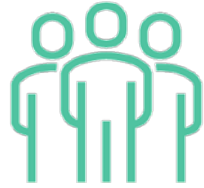
- Disproportionate health impacts along transportation corridors and near high-emission sources
- Diesel PM is a contributing factor to health impacts in every community
- Mobile sources account for **45 percent** of exposure disparity for the Black populations, and **37 percent** of exposure disparity for people in disadvantaged communities
- West Oakland Community Emissions Reductions Plan identifies suite of strategies to deploy ZEVs
- AB 617 Grant funds currently targeted at Diesel PM reductions



# Grants and Incentives



# Grants & Incentives – Clean Cars for All



Low-income residents\* in communities disproportionately burdened by pollution\*\* who turn in older vehicle



## Advanced Technology

- Purchase or lease
- Hybrid, plug-in hybrid, electric vehicle, fuel cell electric vehicle
- Home charger or portable charger and public charging for plug-in and electric vehicles



## Mobility Options

- Public Transit Card (PEX Visa)
  - Clipper, bike sharing
- Electric bicycles and carsharing (future options)

\* ≤400% Federal Poverty Level

\*\* CalEnviroScreen 3.0

# Technology Implementation Office



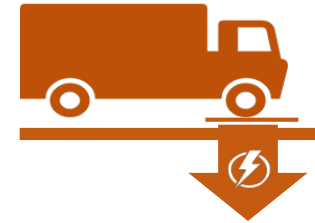
4,000 residential battery systems



150 renewable microgrids on municipal buildings



100 battery-boosted EV fast chargers



60 road plates generating electricity



10 all-hydrogen fuel cell ferries



2,600,000 tons of aggregate in concrete

**Total Greenhouse Gas Reductions**

**500,000 MTCO<sub>2</sub>**

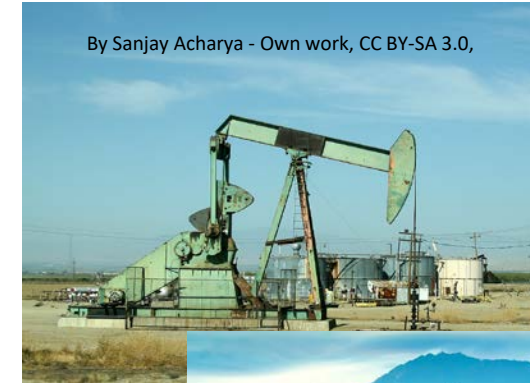
Timeframe: 5 years



# Permitting and Enforcement



- Off-Road Equipment
- Changes to Oil Production Facilities
- Changes to Petroleum Refineries
- Enforcement of ARB Regulations



# Strategic Partnerships



- State Agencies
- Regional Partners
- Transit Agencies
- Communities
- Industry Groups



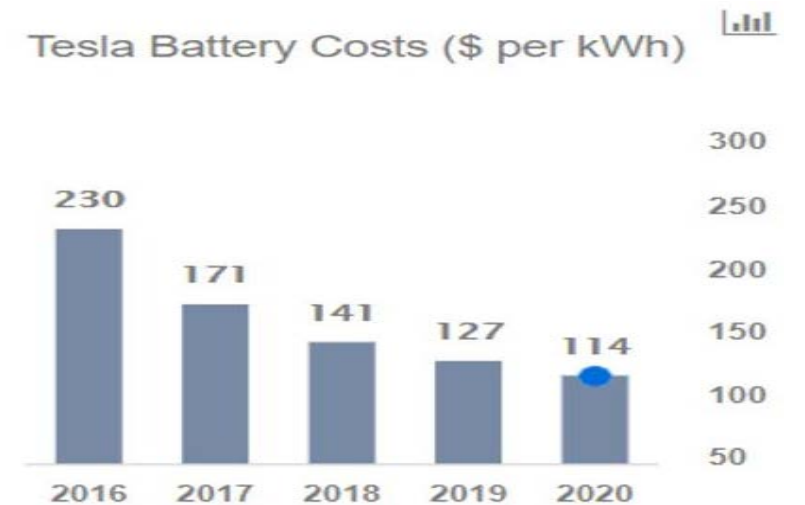
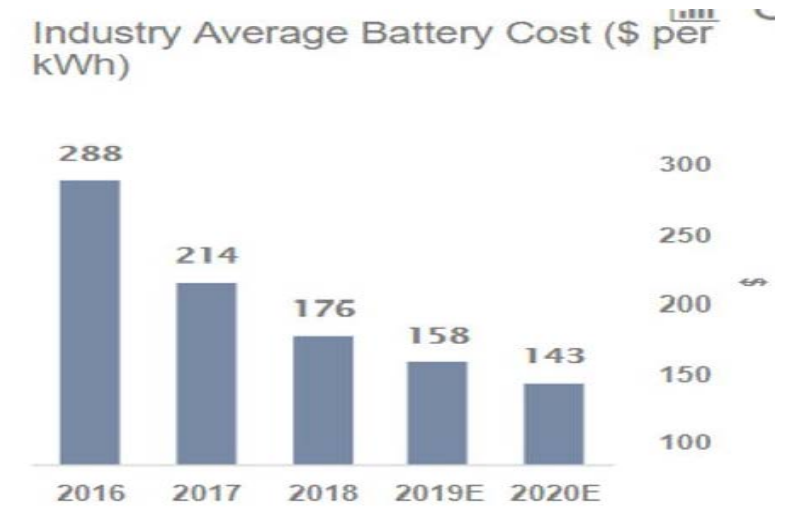
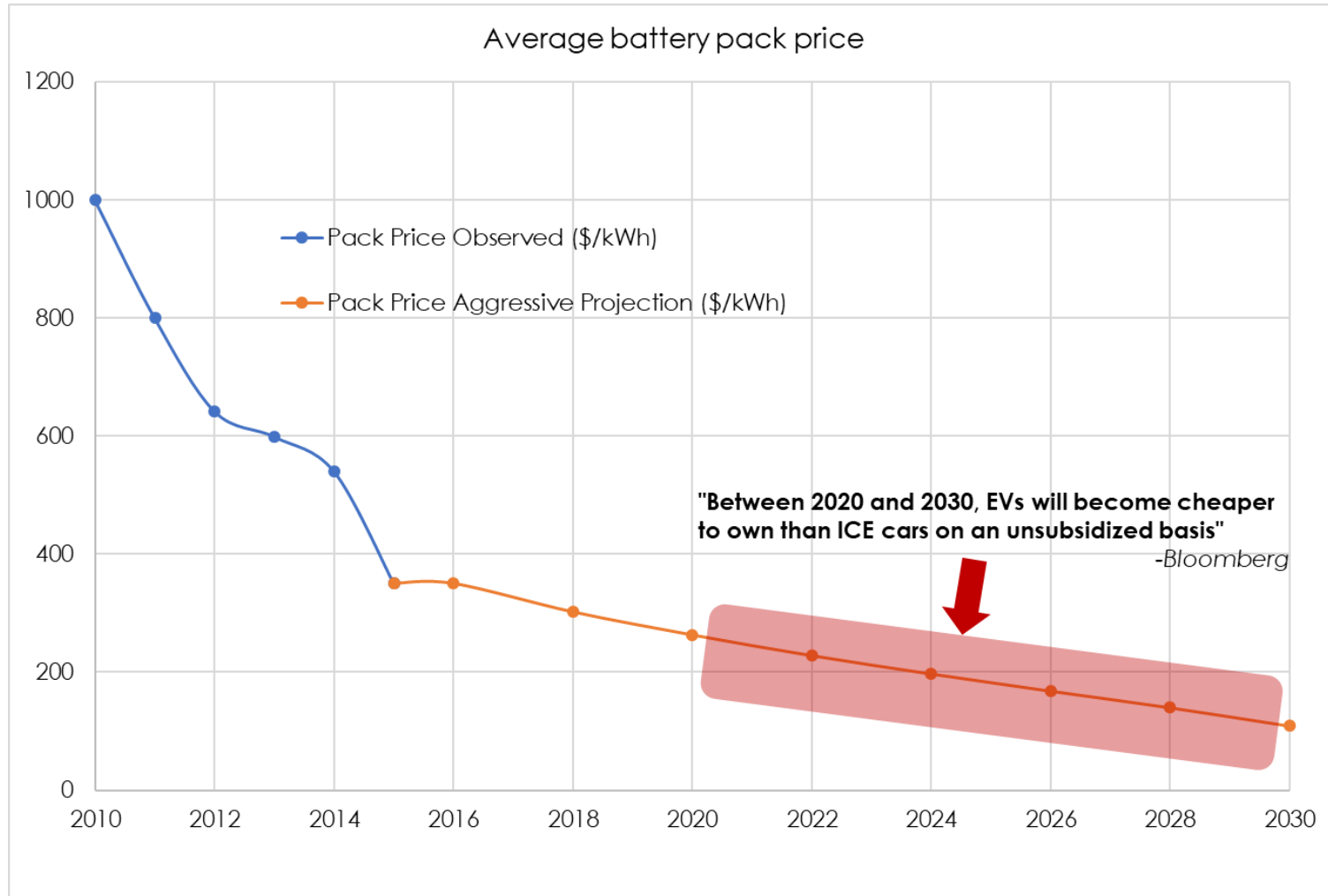
# Market and Technology Status Regulations



- Airport Shuttles – 100% ZEV by 2035
- Trucks – ZEV sales by 2035:
  - 55% of Class 2b – 3, 75% of Class 4 – 8, and 40% of tractors
- Shorepower – Ocean Going Vessels at Berth
  - Container, reefer, and cruise vessels: 2023, Auto carrier: 2025; Tanker vessels: 2025 (Los Angeles and Long Beach) and 2027 (Northern California)
- Transit buses – 100% new purchases ZEV by 2029
- Passenger Cars and Light Duty Trucks – ZEV “Credits” – 8% of Sales by 2025

# Market and Technology Status

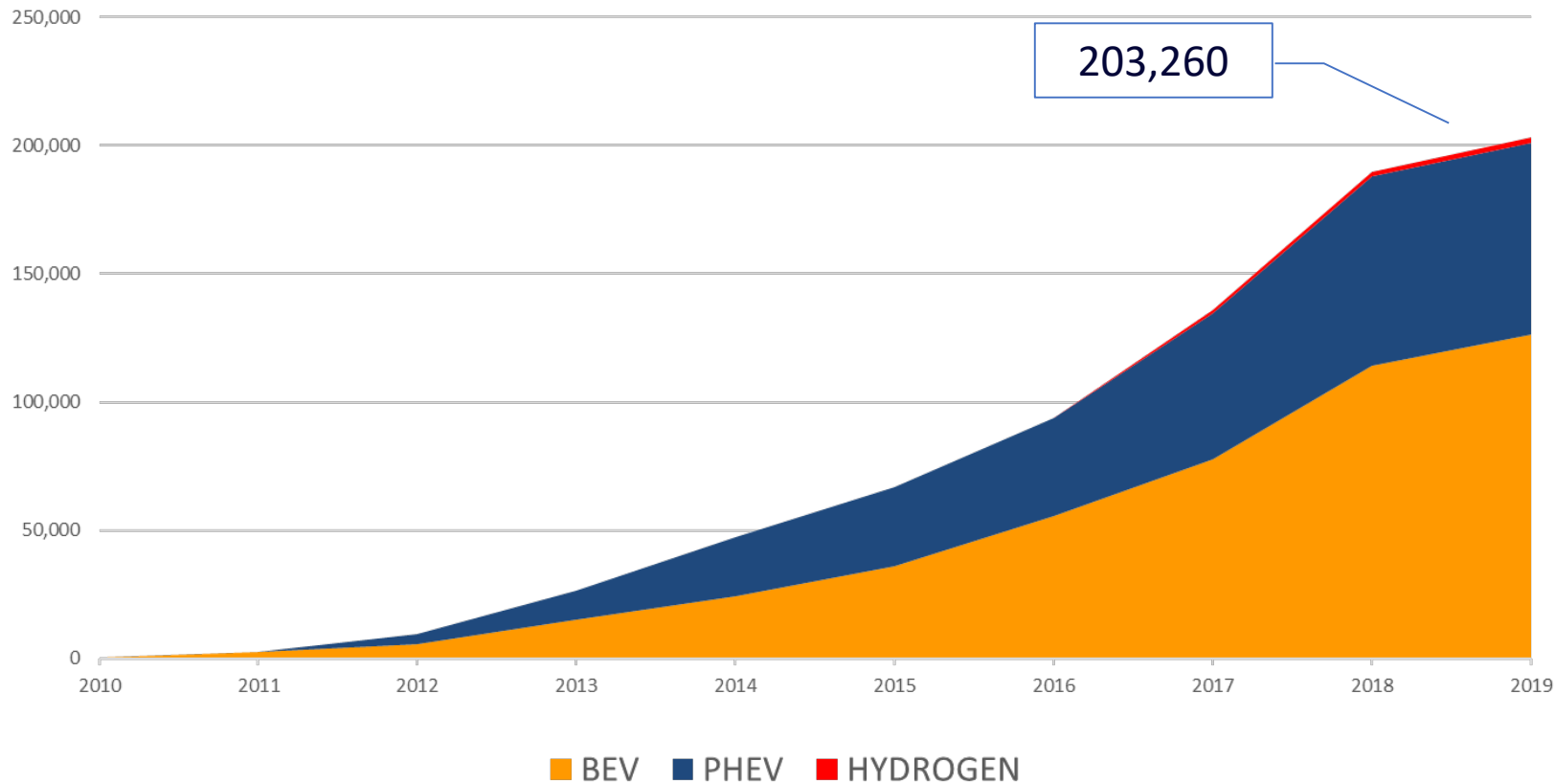
## Battery Costs



# Market and Technology Status Light-Duty Vehicles



Number of EVs Registered in Bay Area by Year (Cumulative)



**2019 Bay Area Vehicle Statistics**



**EVs**  
203,260



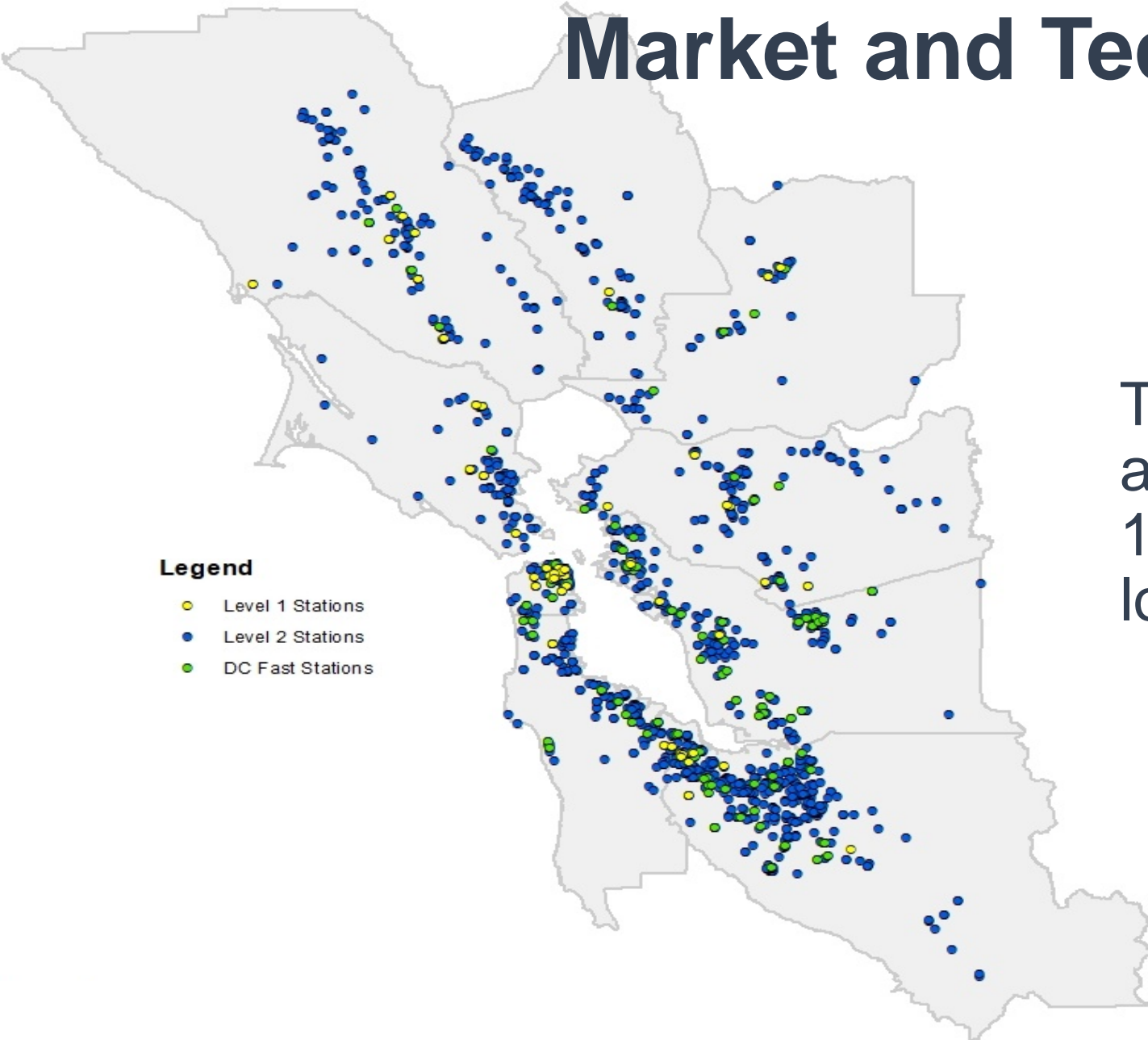
**All Cars**  
5,465,494

# Market and Technology Status Regulations



## Legend

- Level 1 Stations
- Level 2 Stations
- DC Fast Stations



The 9,500 public charging ports are located across a total of 1,923 charging station locations

# Market and Technology Status Trucks and Buses



- Four (4) largest Truck Manufacturers in USA bringing ZEV to market in 2022 timeframe
- Both Battery and Hydrogen Drive trains being explored
- 149 different vehicle types eligible for State Heavy Duty Voucher
- Commitments by delivery companies to go “carbon neutral”



# Market and Technology Status Off-road Vehicles and Equipment



- Most challenging
  - Construction and grading
  - Cargo handling
  - Agriculture
  - Backup Power
  - Water Pumps
  - Rail?
  - Aviation?
- New Technologies emerging but significantly more work needed







**Light-Duty  
Cars &  
Fueling  
Stations**

**Shared &  
Connected  
Vehicles**

**On-Road  
Trucks and  
Buses**

**Off-Road &  
Rail**

**Shore Power**

**Wood Smoke**

**>1,600 cars  
>5,000  
charging  
stations**

**Bike Sharing  
Car Sharing  
Shared  
autonomous  
vehicles**

**>300 Medium  
& Heavy-Duty  
Vehicles**

**~160 cargo  
handling & airport  
ground support  
equipment  
Caltrain  
>250 Lawn &  
Garden**

**14 Berths at  
Port of  
Oakland**

**>50  
residential  
electric heat  
pumps**

# Challenges and Opportunities



## Challenges

- California's Legal Standing
- Cost - \$15 to \$30 billion over next five (5) years
- Grid and Power Issues

## Opportunities

- Technology Coming into Market Quickly
- Green Jobs and Economy
- Possibility of Federal Stimulus