



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

# Electric Vehicle Charging Infrastructure

League of Women Voters of the Bay Area  
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# Overview

- Who is the BAAQMD?
- Why Electric Vehicles?
- Electric Vehicle/Charging Types
- Potential Barriers To EV Adoption
- Current rollout of EV infrastructure



# Bay Area Air Quality Management District (BAAQMD)

NINE COUNTY JURISDICTION OF THE BAAQMD



- Established in 1955
- 9 Counties
- 7 million population
- 5,340 square miles
- **Mission:** To protect and improve public health, air quality, and the global climate



# Why Electric Vehicles?

- In the Bay Area passenger vehicles and trucks account for more than:
  - 25% of Air Pollution
  - 28% of Greenhouse Gas (GHG) emissions
- Electric vehicle technology is a promising solution to meeting health improvement and greenhouse gas emission reduction targets



# Cleaner Vehicles Key to Cleaner Air



**1955**

- 3 million people
- 1.7 million cars
- 35 million vehicle miles driven daily



**2010**

- Over 7 million people
- 5.3 million cars
- 170 million vehicle miles driven daily



# Electric Vehicle Types

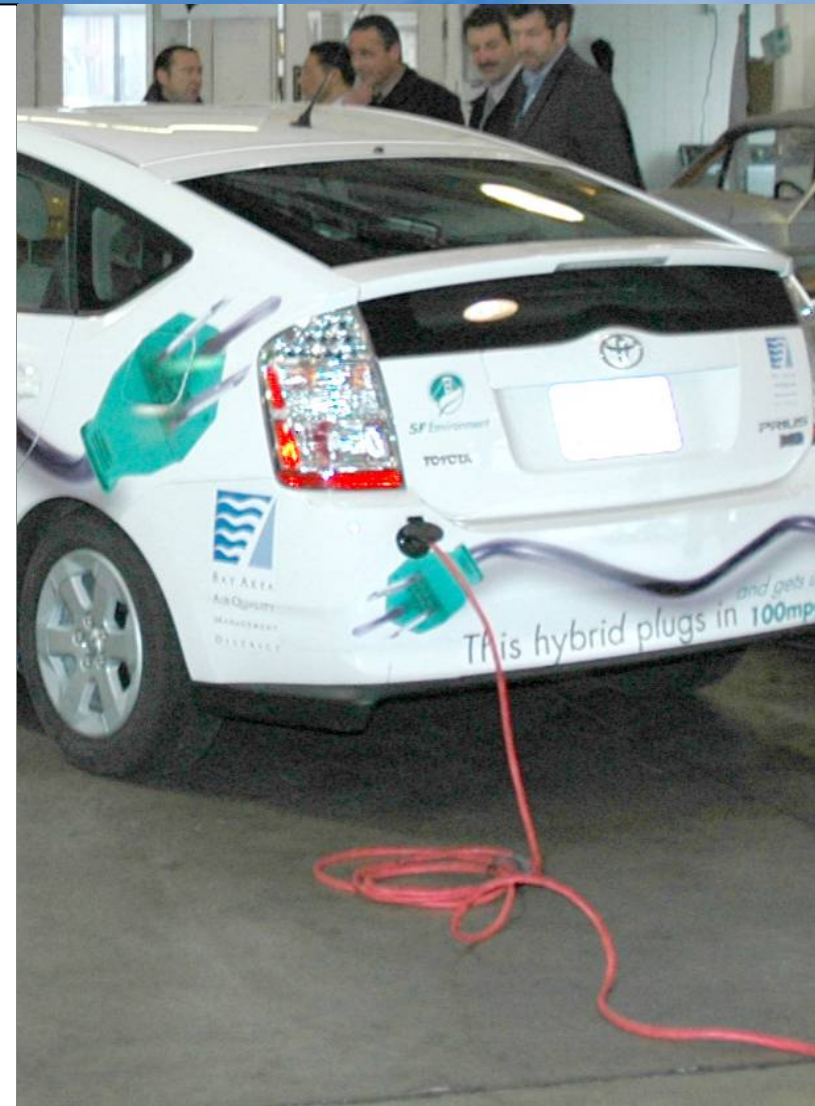
- **NEIGHBORHOOD ELECTRIC VEHICLES (NEV)** - Zero emissions, low-mileage vehicle with speeds between 20-25mph
- **HYBRID ELECTRIC VEHICLES (HEV)** – Partial-zero emissions, hybrid EV with either gas/diesel engine. Light, Medium and Heavy-Duty vehicles readily available, cost-effective and reduces petroleum use





# Electric Vehicle Types

- **PLUG-IN HYBRIDS (PHEV)** - Partial-zero emissions, hybrid engine with plug-in capabilities allowing for extended range over conventional HEV (Chevy, Ford)
- **ELECTRIC VEHICLES (EV)** – Zero emissions vehicle. Initial deployment in 2010 (Tesla, Nissan), with mass deployment by all auto manufactures by 2012





# Electric Vehicle Charging Types

- **LEVEL 1**
  - 120V / ~ 8-30 hours for full charge
- **LEVEL 2**
  - 240V / ~ 2-6 hours for full charge
- **DC Fast Charging**
  - 480V / 50% of battery charged in ~ 10 min – 40 min
  - For commercial fleets and “quick” emergency charging
- **Battery Exchange/”Switch Station”**
  - Batteries swapped-out in ~ 5 minutes
  - Requires designated vehicle







# Potential Barriers To Electric Vehicle Adoption

- High incremental costs associated with EVs and charging infrastructure
- “Range anxiety” concerns due to lack of public charging infrastructure
- Non-standardized and slow local permitting process for home and public charging



# BAAQMD Electric Vehicle Charging Stations By 2012:

466 - Public L2 Chargers  
2,750 - Home L2 Chargers  
36 - Fast Chargers  
1 - Battery Swap Station  
**TOTAL = 3,253**  
**More to Come?**

