HYDROGEN AND FCEV EFFORTS

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Gerhard Achtelik
Zero Emission Vehicle Infrastructure, Manager
Gerhard.Achtelik@arb.ca.gov
Tackling Clean Air

U.S. EPA
Sets & enforces national air quality standards
Regulates interstate transportation
Regulates national vehicle standards

California Air Resources Board
Regulates mobile sources of air pollution, greenhouse gases, and consumer products

Local Air Districts
Regulates stationary & local sources of air pollution
Current Scenarios for Emissions Targets

Passenger Vehicle Fleet

- 2025: 0.7 M ZEVs, 1.7 M ZEVs+PHEVs
- 2030: 1.7 M ZEVs, 4.2 M ZEVs+PHEVs
- 2050: 15 M ZEVs, 24 M ZEVs+PHEVs

Heavy Duty Truck Fleet
Medium- and Heavy-Duty ZEV Programs

Zero-Emission (ZE) Operation
- ZE Airport Shuttle
- ZE truck certification
- Advanced Clean Trucks
- Rail yard idling
- ZE TRUs
- ZE forklifts
- ZE truck fleets
- ZE drayage trucks
- ZE cargo equipment

Innovative Clean Transit ✔
- CA GHG Phase 2 ✔
- Truck OBD ✔
- Truck Smoke Tests ✔

2018
- Handbook-1 Warehouses

2019
- Heavy-duty Omnibus
- Harbor craft

2020
- Heavy-duty I/M
- Low-emission diesel fuel

2021
- Handbook-2 Ports, Rail

2022
- Non-preempted locomotives

Lower Emissions
California’s Efforts

• Statutory Requirements
  • AB 8: Hydrogen station funding and analysis
    • $20M/year until January 1, 2024
    • At least 100 stations by January 1, 2024
  • SB 1505: 33% renewable H2

• Directives
  • EO B-16-12: 1.5M ZEVs by 2025
  • EO B-48-18: 200 H2 stations by 2025, 5M ZEVs by 2030, 250,000 chargers by 2025

• Programs
  • Station operations testing (accuracy, purity, fueling protocols)
  • Clean Vehicle Rebate Project
  • Low Carbon Fuel Standard credits
  • Network planning and analysis
  • Incentive programs for MD/HDV
  • Public-private collaboration
California’s Light-Duty FCEV Progress

2018 Year in Review

Network Summary
- Number of Stations
  - 39 Open + 25 Coming Soon
- Total Open Capacity
  - 7,890 kg/day
  - Fuel for Approx. 1,800 FCEVs per day
  - Enables Deployment of Approx. 10,400 FCEVs
- FCEV Deployment Status
  - Oct 2018 DMV Registrations: 5,014
  - Dec 2018 Fuel Cell Partnership Sales: 5,658

Auto Manufacturer Survey-Based FCEV Count
- Range of Mandatory Period Data
  - Reported Mandatory Period Estimates
  - April Registrations
- Range of Optional Period Data
  - Reported Optional Period Estimates
  - October Registrations

Map of California showing new and previously open stations.
Paths Forward
Paths Forward
Paths Forward

1,000 H2 Station Proj. (2030)

High Density

Low Density

Benefits by the Numbers

1,000 STATIONS

+ 1,000,000 CARS =

693.5 million gallons
per year of gasoline displaced

2.7 million metric tons
per year of CO2 avoided*

3,900 metric tons
per year of NOx avoided

97% of disadvantaged communities
within the station network coverage

*with incline average mix of 30% renewable hydrogen
Paths Forward

Benefits by the Numbers

BY 2030

1,000 STATIONS
+ 1,000,000 CARS =

- 693.5 million gallons per year of gasoline displaced
- 2.7 million metric tons per year of CO2 avoided*
- 3,900 metric tons per year of NOx avoided
- 97% of disadvantaged communities within the station network coverage

* with higher energy mix of 32 percent renewable hydrogen

H₂@Scale!
Resources

www.arb.ca.gov/hydrogen

www.energy.ca.gov/transportation/report_ab8.html

Joint Agency Staff Report on Assembly Bill 8: 2018 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California

California Energy Commission
California Air Resources Board

www.business.ca.gov/ZEV-Action-Plan

www.businessportal.ca.gov/zero-emission-vehicle-program/zev-resources/

www.cafcp.org
Contact Information

Gerhard Achtelik
Gerhard.Achtelik@arb.ca.gov

California Air Resources Board
1001 I Street
Sacramento, California 95814