

California Hydrogen Highway Network

April 3, 2008

California Air Resources Board



California Blueprint Plan

- Phased approach to infrastructure implementation
- Environmental goals
- Shared risk



CaH2Net Background

- Governor's Executive Order, S-7-04 formed the CaH2Net in April 2004
- A Blueprint Plan, May 2005
- Legislative Authority
 - SB76, \$6.5 Million, stations, vehicles, support
 - Budget Act 2006, \$6.5 Million, ZBuses, stations
 - Budget Act 2007, \$6 Million, stations, support



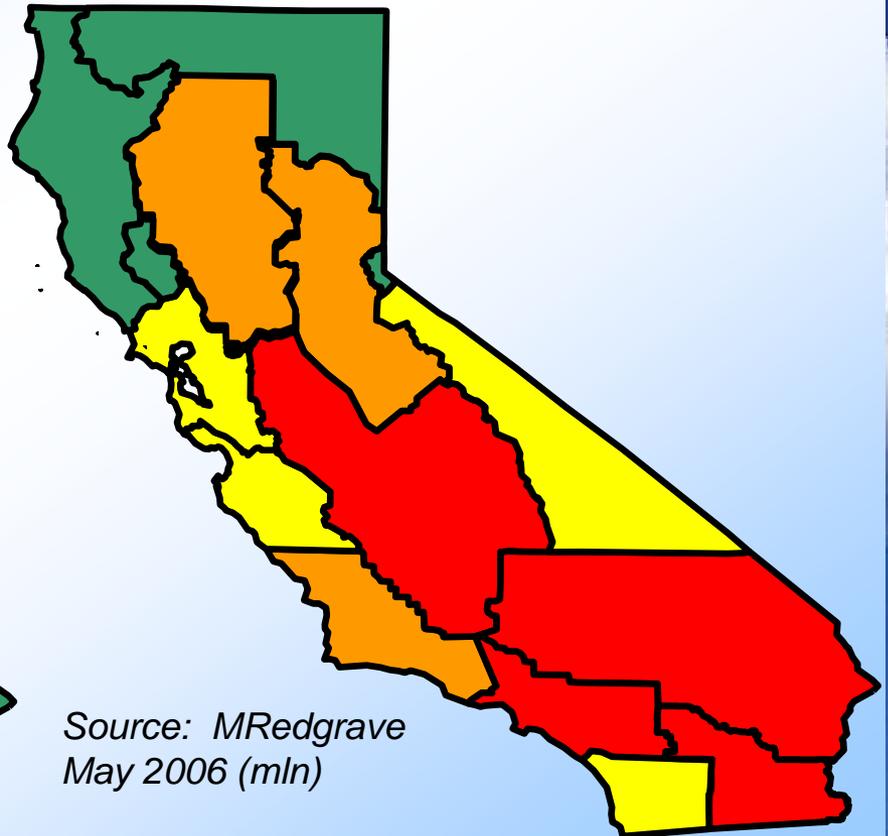
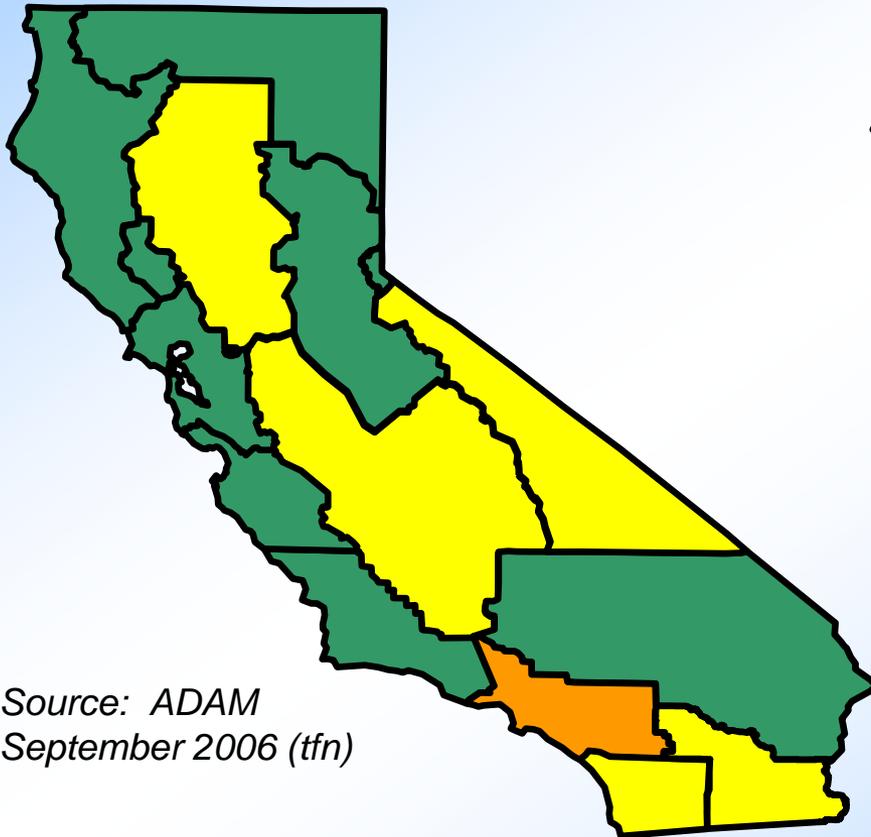
The State's Contribution

- Vehicles
- Stations
- CaH2Net Membership
- Hydrogen Fuel Quality Standard
- Environmental Standards for Hydrogen
- Public outreach and education

Over 90% of Californians Breathe Unhealthy Air at Times

*Days Over State 24-Hour
PM10 Standard*

*Days Over State 8-Hour
Ozone Standard*



Source: ADAM
September 2006 (tfn)

Source: MRedgrave
May 2006 (mln)



Zero Emission Vehicle Regulation (March 27, 2008)

- Requires market share of FCV totals:
- 2009 – 2011, 2500 fuel cell vehicles

ZEV Vehicle Type	Vehicles Required 2012-2014
> 300 miles-fast refuel (Type IV)	5,357
Shorter-range FCV-fast refuel or >200 mile BEV (Type III)	9,375
> 100 mile BEV (Type II)	12,500
75-99 mile BEV (Type 1.5)	15,000
50-75 mile BEV (Type I)	18,750



Zero Emission Bus Regulation

- Part of Fleet Rule for Transit Agencies
- Transit Agencies > 200 urban buses
- Demonstration and purchase requirements
 - Diesel Path Transit Agencies
 - 12 Bus demonstration starting in 2009
- Purchase Requirement starts in 2011



CaH2Net Efforts

- Fund public hydrogen stations
 - 3 awarded in 2006 (2 awards rescinded)
- Fund hydrogen vehicles
 - 1-GM Fuel Cell Equinox,
 - 4-Quantum Hydrogen internal combustion engine Toyota Prius,
 - 2-Ford HICE Shuttle Buses



Station Network Challenges

- CaH2Net Funding
 - Contract and indemnification
 - California State budget priorities
 - Environmental requirements
- Closure of existing stations
 - DOE partnerships
 - Energy Companies profit outlook
 - Alt Fuels compete with each other

What Happened?

- CSU Los Angeles
 - Contracting issues
 - Alignment of agreements
- San Diego Schools
 - Site changes
- Was there a core business case for these entities to provide hydrogen?

H2 Highway Station RFP

- www.cscr.dgs.ca.gov/cscr
- \$7.7 M made available (Year 1, 2, and 3 Funds)
- Includes SB 1505 requirements
- Clustered in LA, SF, Sacramento, San Diego
- Retail-like stations
- Technical Specifications
- Proposals Due: June 13th

Lessons Learned

- More focused geographic approach
 - Focuses demand and vehicle deployment
 - Assists with community preparation
- Solid partnerships needed
- Target the right providers
 - Business case to provide fuel long term

Summary

- Hydrogen Highway is moving forward
- Cars are coming soon
- Dire need for infrastructure
- Looking for partners, private and public