

Fuel Cell Electric Vehicles and Hydrogen Infrastructure: Deployment and Issues

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California Fuel Cell Partnership



3/19/2013

The cars are coming



Hyundai Tucson ix35 FCEV
production launch [2/26/13](#)



Daimler/Nissan/Ford joint development
announces 2017 launch of affordable FCEV
[1/28/13](#)



Akio Toyoda Norbert Reithofer



Toyota partnership with BMW [1/24/2013](#)
Toyota announces sedan-type FCEV
launch in 2015 [9/24/12](#)

The buses are coming

Fuel Cell Buses too!

- CA Roadmap
- National Strategy paper



Toyota announces sedan-type FCEV
launch in 2015 9/24/12

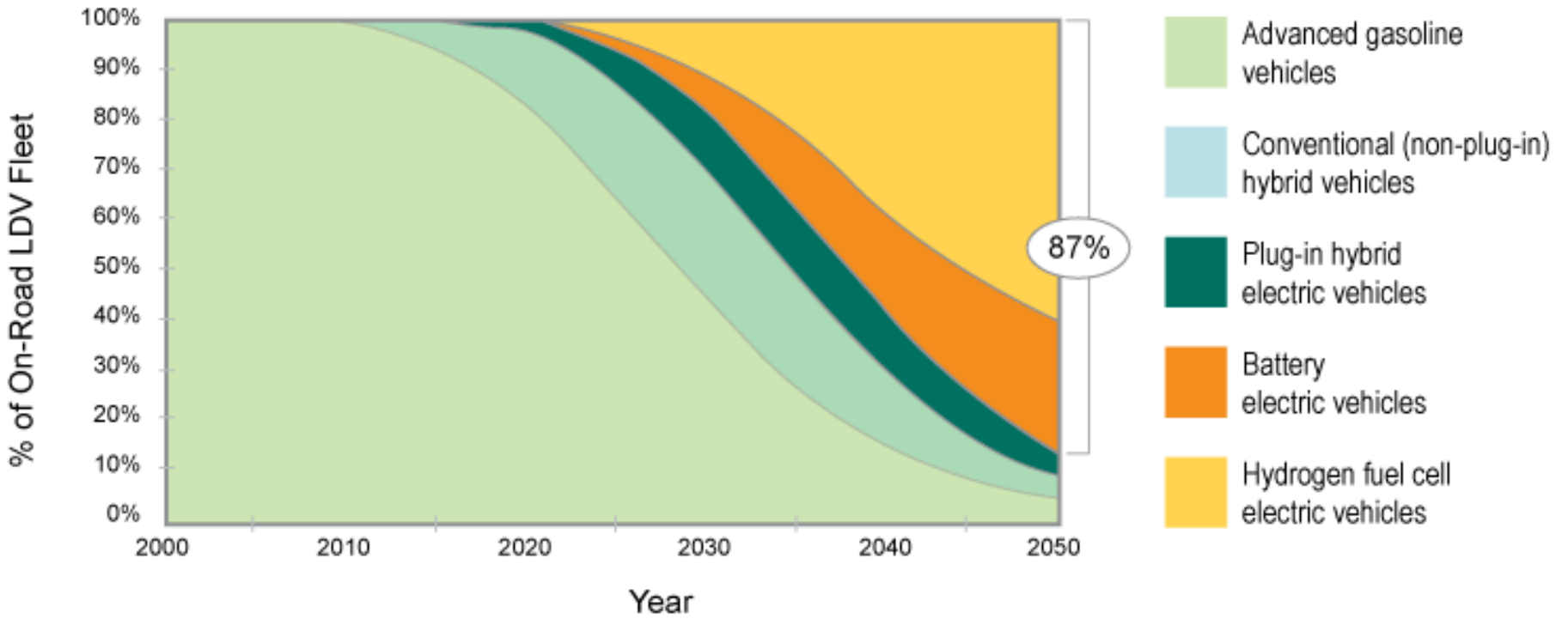
Zero emission vehicles in California

- ▶ ZEV Regulation - (www.arb.ca.gov/msprog/zevprog/zevprog.htm)
 - Fuel cell electric vehicles
 - Plug-in electric vehicles
- ▶ Governor's Executive Order & ZEV Action Plan
 - By 2015: Major metropolitan areas "ZEV-ready" with infrastructure and streamlined permitting
 - By 2020: ZEV infrastructure can support up to 1 million vehicles
 - By 2025: Over 1.5 million ZEVs in California



Zero emission vehicles in California

▶ Meeting 2050 GHG reduction target in California



A California Road Map

- ▶ Develop station network
 - 68 stations to launch
 - 100 stations to self-sustaining
- ▶ Accelerate station implementation
 - Timeliness, performance, path to profitability
- ▶ Promote hydrogen readiness
 - Communities, businesses, consumers

www.cafcp.org/roadmap

A CALIFORNIA ROAD MAP
Bringing Hydrogen Fuel Cell Electric Vehicles to the Golden State

COMMERCIAL LAUNCH OF FCEVS
EXPECTED AROUND 2015

Zero-emissions → 250-400 mile range
Minutes to refuel
Domestically produced hydrogen

THE NETWORK:
CLUSTERS
CONNECTORS
DESTINATIONS

"Consumers need CONFIDENCE in a hydrogen fueling network"
Initial station deployments will focus on geographic clusters in key markets with additional stations connecting these clusters into a regional network.

68 STATIONS
NEEDED TO LAUNCH THE EARLY FCEV MARKET

\$65 MILLION
IN ADDITIONAL FUNDING NEEDED!

Download A California Road Map at www.cafcp.org/roadmap

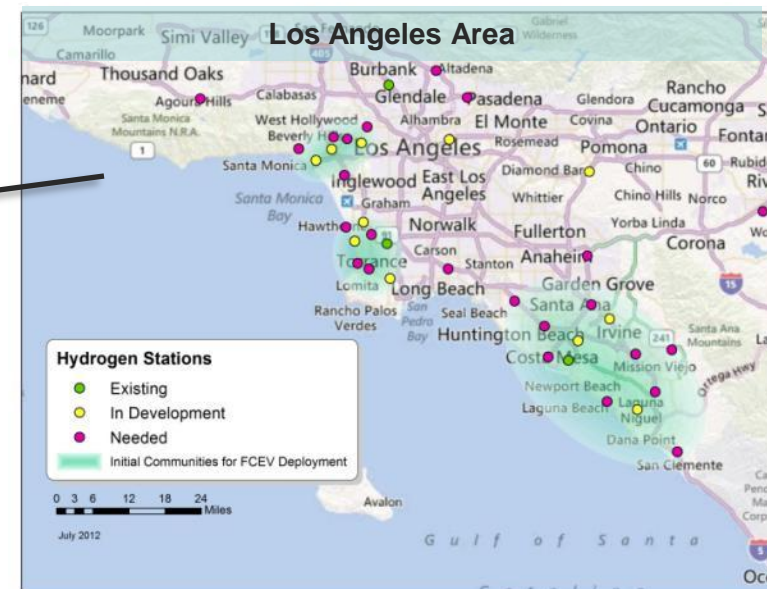
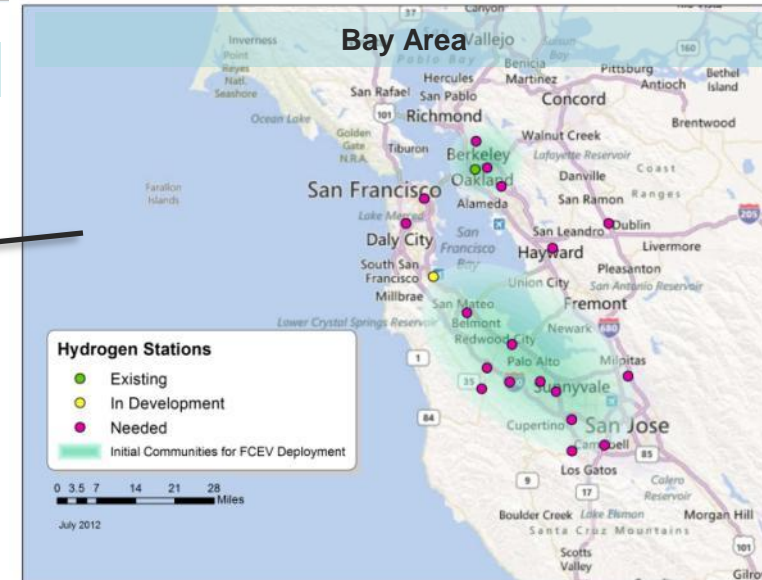
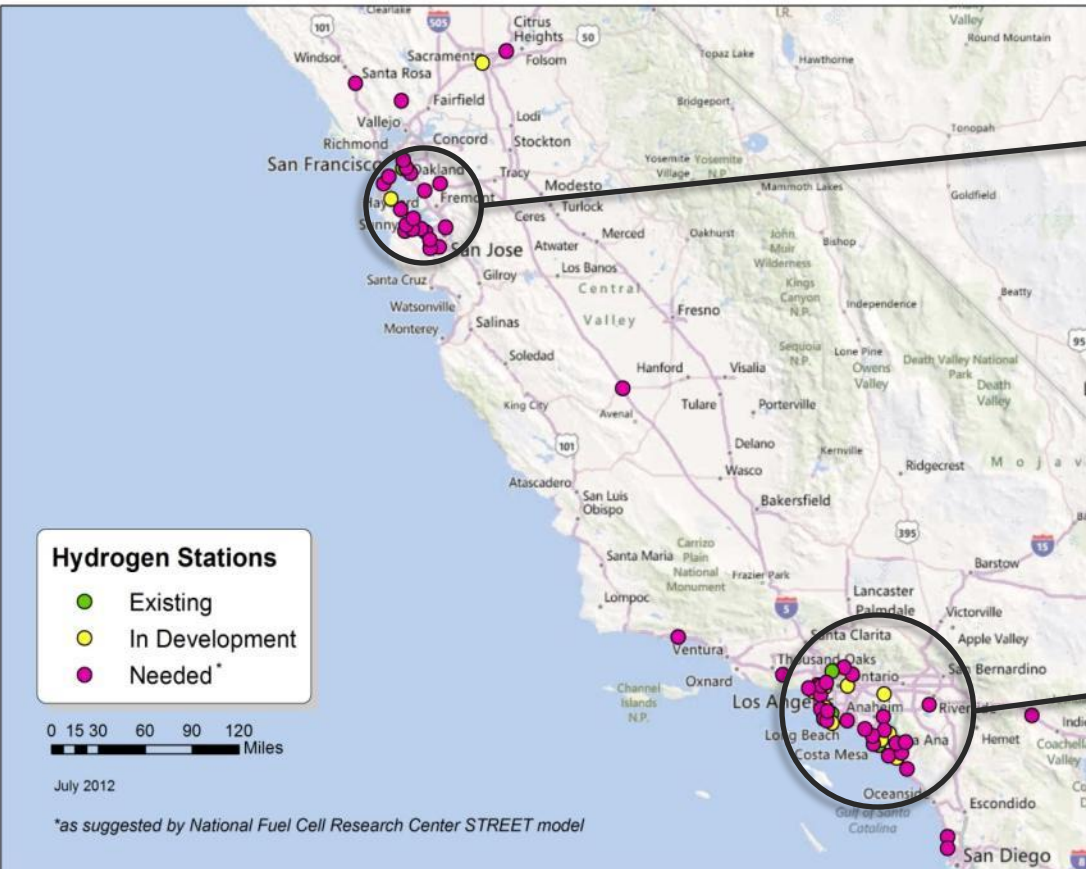
The California Fuel Cell Partnership is a collaboration of organizations that work together to promote the commercialization of hydrogen fuel cell electric vehicles.

By working together, we help ensure that vehicles, stations, regulations and people are in step with each other as the technology comes to market.

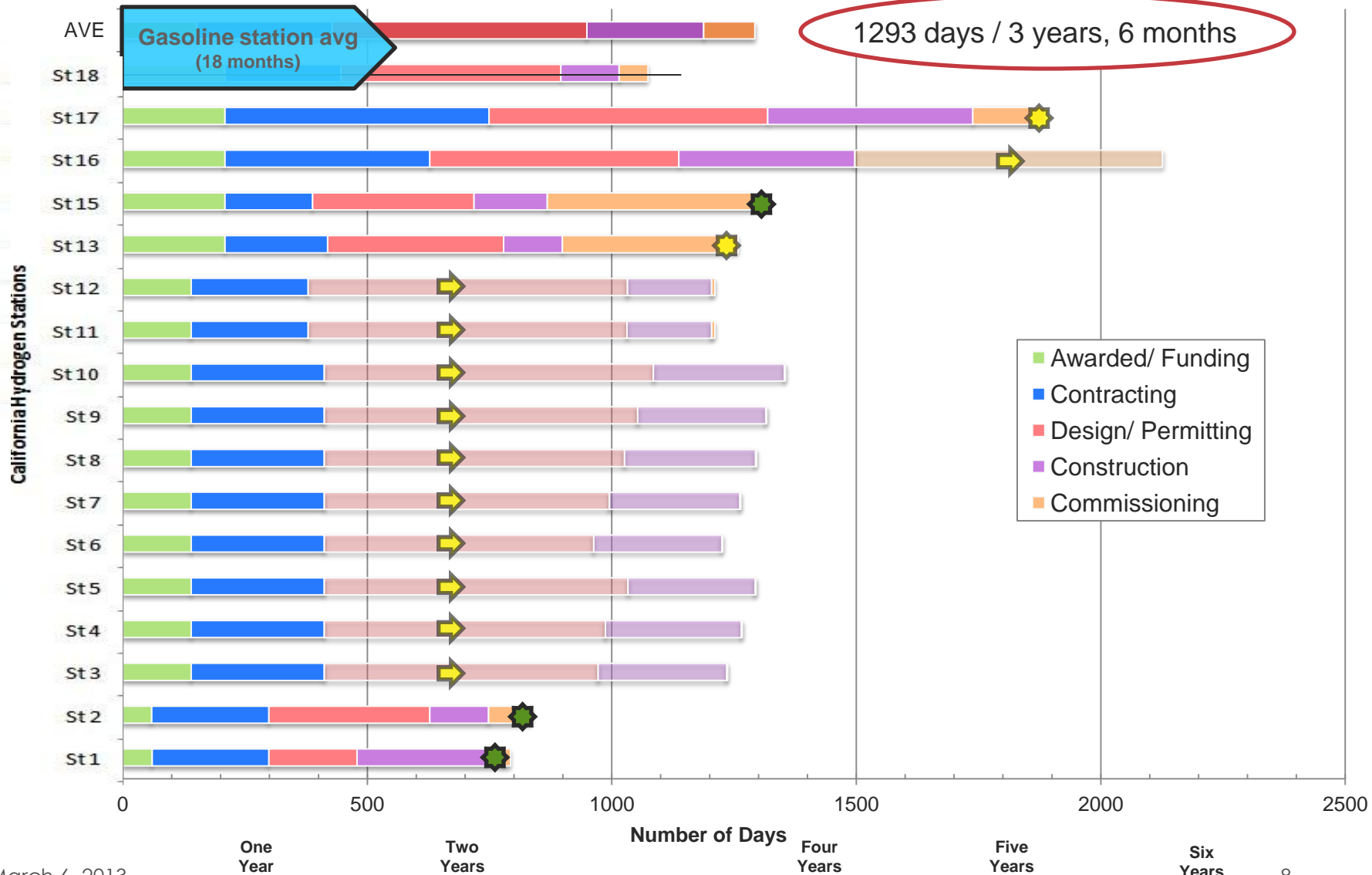
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Building a statewide network

Map of 68 Hydrogen Fueling Stations: Existing, In Development and Needed

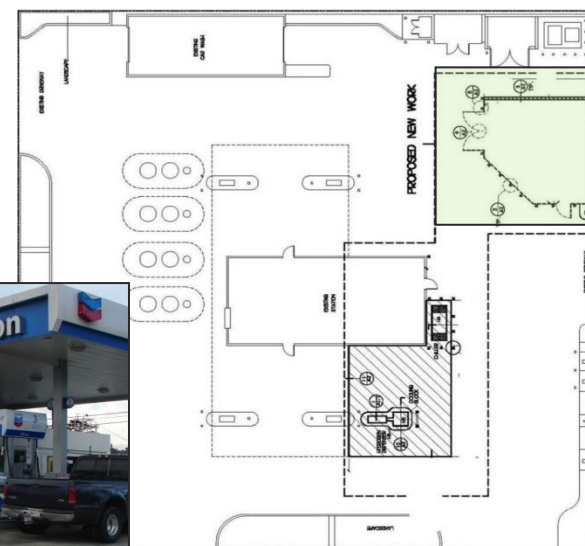


Deployment tools: Station Report Card



Deployment challenges

- ▶ Standardization
- ▶ Supply competition & chain integration
- ▶ Size of hydrogen equipment vs. station size
- ▶ Data collection and dissemination
- ▶ Balance of short vs. long term
- ▶ Industrial to retail
- ▶ Liability and insurance
- ▶ Global demand
- ▶ Customer focused
- ▶ Long term vision



Questions or Comments?

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