

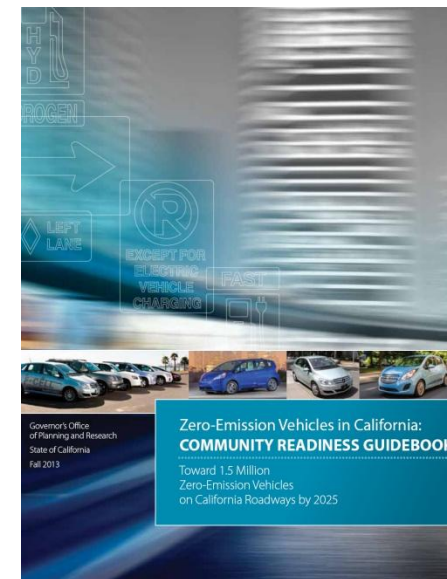
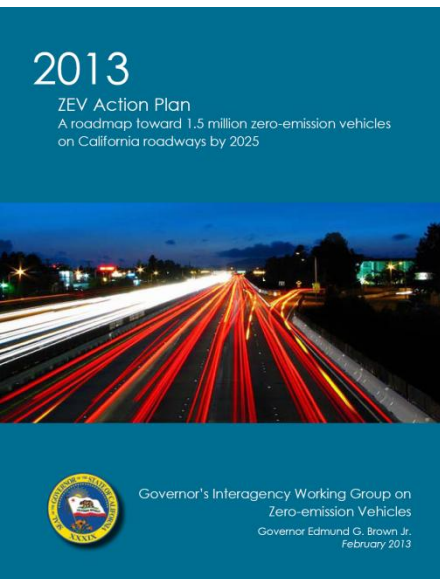
# FCEVs and H<sub>2</sub> in California

July 2014



# California ZEV Action Plan

- By 2015: California major metropolitan areas “ZEV-ready” with infrastructure and streamlined permitting
- By 2020: California ZEV infrastructure can support up to 1 million vehicles
  - Including widespread use of ZEVs for freight and public transit
- By 2025: Over 1.5 million ZEVs in California





# Here come the FCEVs....



**BE PART OF THE  
NEXT BIG THING**

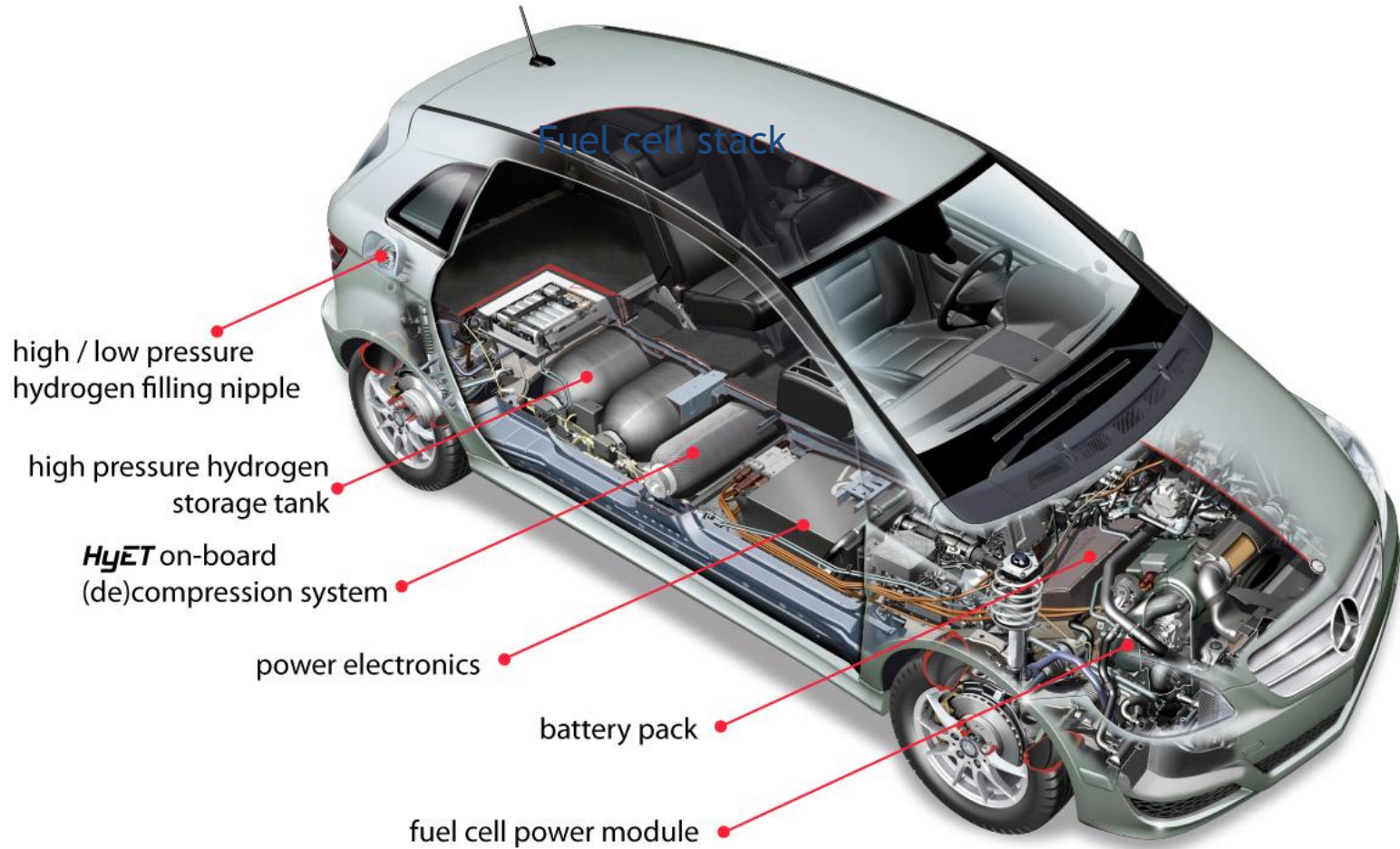
Because of your interest in our Fuel Cell Vehicle, we'd like to invite you to an exclusive research event. Your feedback will help researchers understand what customers expect from alternative fuel vehicles.

Take our survey to find out if you qualify for the in-person event.\* If you do qualify and take part, you'll be compensated for your time and participation.

[Take survey](#) 

Prototype vehicle shown with optional equipment. Production model may vary.

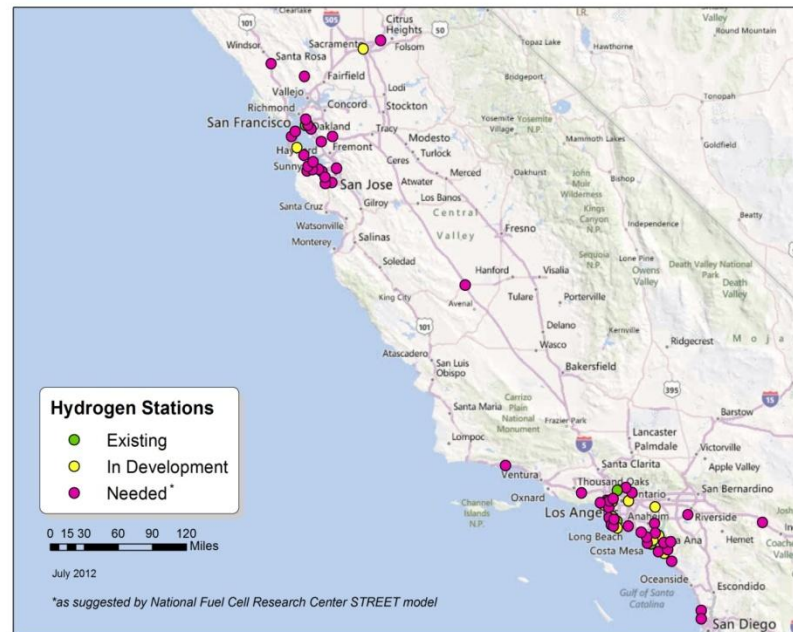
# FCEVs are electric vehicles



# Stations must come first

- 68 stations provide coverage to enable market launch
  - Supports customer convenient fueling in early markets
  - Enables travel throughout early market regions and state
- 100 stations to support market growth

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



**A CALIFORNIA ROAD MAP**

Bringing Hydrogen Fuel Cell Electric Vehicles to the Golden State

**COMMERCIAL LAUNCH OF FCEVS EXPECTED AROUND 2015**

250-400 mile range  
Zero-emissions  
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.caftp.org/roadmap](http://www.caftp.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.

[www.caftp.org](http://www.caftp.org)

# Hydrogen stations



Emeryville: H<sub>2</sub> from solar electrolysis and liquid delivery



Fountain Valley: H<sub>2</sub> from wastewater



Newport Beach: H<sub>2</sub> reformation



Harbor City: H<sub>2</sub> gaseous delivery



## H<sub>2</sub> station funding

- Guarantees \$20M annually through 2023 to achieve 100 hydrogen stations in California
- Annual survey, evaluation and reporting
- Increases certainty that stations will be in place to support early market FCEVs





# Hydrogen Infrastructure

## Funding to Date = \$90 million

- 45 new stations (\$72.7 million)
- 3 station upgrades (\$6.7 million)
- 4 O&M grants (\$1.2 million)
- 1 mobile fueler (\$0.9 million)

### Other funding support

- AC Transit Oakland station (\$3 million)
- CDFA DMS retail dispensing (\$4 million)
- UC Irvine STREET model (\$1.5 million)
- GO-Biz ZEV infrastructure project manager support





January 2015

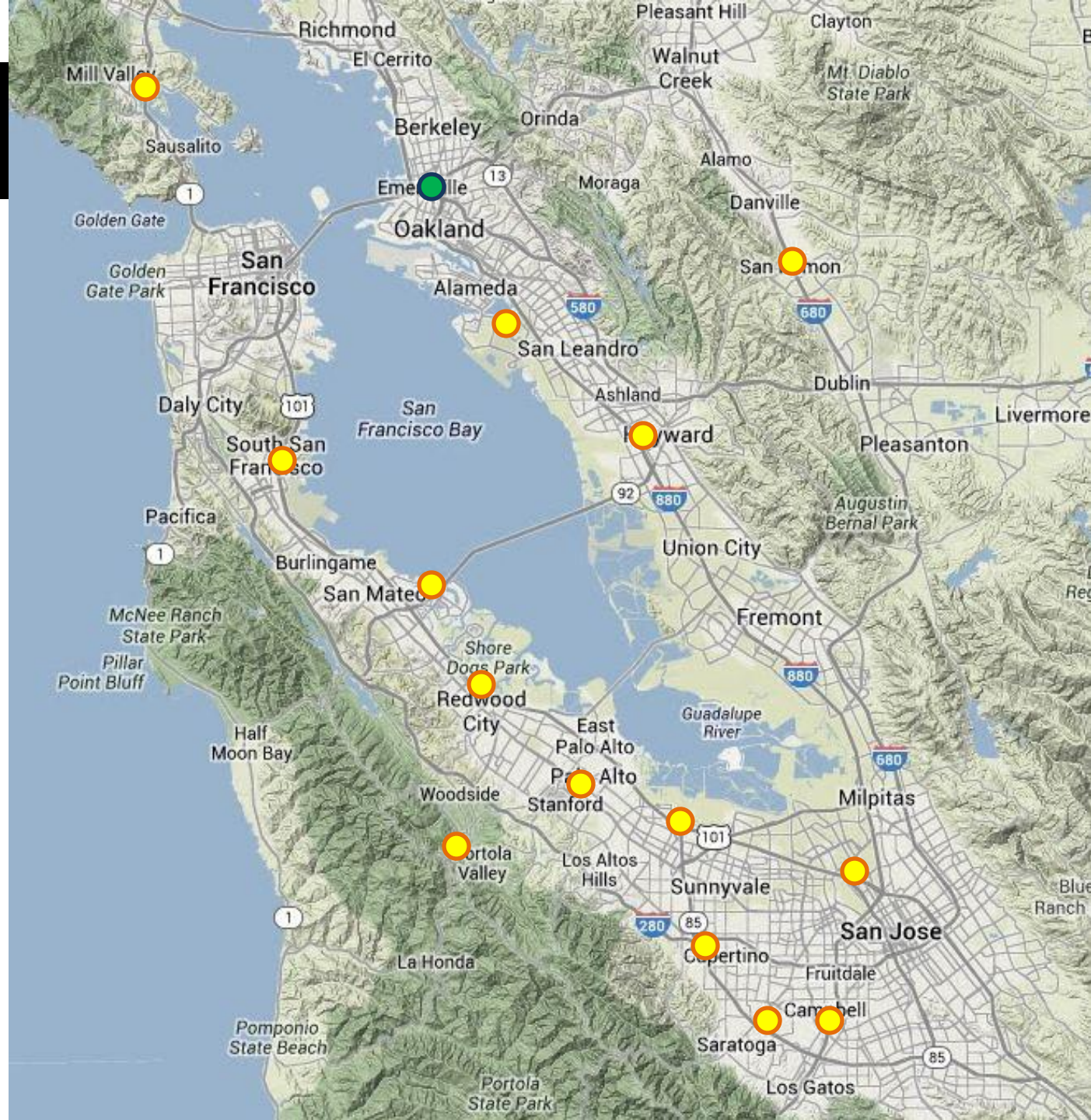
# Northern CA Hydrogen Stations

 **Open**  
Emeryville - AC Transit

 **In Development**  
Cupertino  
Foster City  
Mountain View  
\*West Sacramento

Campbell  
Hayward  
Mill Valley  
Oakland  
Palo Alto  
Redwood City  
\*Rohnert Park  
San Jose  
San Ramon  
Saratoga  
South San Francisco  
\*Truckee  
Woodside

*\*Not shown on map*



# Southern CA Hydrogen Stations

## Open

- Burbank
- Fountain Valley - OCSD
- Irvine - UC Irvine
- Los Angeles - Harbor City
- Newport Beach
- \*Thousand Palms - SunLine Transit
- Torrance

## In Development

- Anaheim
- Chino (upgrade)
- Diamond Bar (upgrade)
- Irvine - UC Irvine (upgrade)
- Irvine - Walnut Ave.
- Lawndale
- Los Angeles - Cal State LA
- Los Angeles - West LA 2
- Los Angeles - Woodland Hills
- Los Angeles - Beverly Blvd.
- Mission Viejo
- Redondo Beach
- San Juan Capistrano
- Santa Monica

- \*Coalinga
- Costa Mesa
- La Canada Flintridge
- Laguna Niguel
- Lake Forest
- Long Beach
- Los Angeles - LAX (upgrade)
- Los Angeles - Lincoln Blvd.
- Los Angeles - Hollywood Blvd.
- Ontario
- Orange
- Pacific Palisades
- \*Riverside
- \*San Diego
- \*Santa Barbara
- South Pasadena

\*Not shown on map



California Fuel Cell Partnership  
[www.ca-fcp.org/stationmap](http://www.ca-fcp.org/stationmap)

# Selling hydrogen as fuel

- Field testing to determine practical meter accuracy
- Adopt additional accuracy classes that sunset over time
- Enable legal commercial sale of H<sub>2</sub> by the kg
  - Temporary use permit
  - Certificate of approval



# More than cars...



'Stratosphere 2020'



# Fuel cell buses and trucks

- 16 fuel cell buses
- >1.5M miles in service
- >2.5M passengers carried
- FCEB roadmap
  - 40 bus fleets
  - 12-year operation
  - <\$1M per bus
- MD/HD roadmap
  - In process



# H2 readiness

- Extend existing EV readiness plans and partnerships to include FCEVs and hydrogen
- Include high-level policy objectives about ZEVs in general plan updates
- Examine zoning codes to see if alt fuels require a condition use permit
- Consider including H<sub>2</sub> stations as an option for obtaining density bonuses
- Ensure local policies for battery vehicles extend to FCEVs
- [www.h2readiness.org](http://www.h2readiness.org)



# We're here to help

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