Fuel Cell Vehicles and Hydrogen in California

Preparing for market launch

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A fuel cell vehicle is electric!

- 300-400 mile range
- Zero-tailpipe emissions
- Minutes to fill the tank
- Passenger & cargo capacity
Why hydrogen?

- Zero tailpipe pollution
- Reduce GHGs
- Sustainable, domestic fuel
- Vehicles people want to drive
Progress to date

- ~200 FCVs & FCBs today
- >4 million road miles
- 8 public H₂ stations
- 14 new/upgrade stations in development
- California is on track to have approx. 20 public H₂ stations by end of 2013
### Projected FCEVs in CA

<table>
<thead>
<tr>
<th>Survey Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015 – 2017*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-2011</td>
<td>312</td>
<td>430</td>
<td>1,389</td>
<td>53,000</td>
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</tbody>
</table>

*For competitive reasons, detailed volume assessments have not been provided during 2015-2017.*
Developing station clusters
We’ve learned

- Stations must come before vehicles
- People want fuel near home, work and in weekend destinations
- Stations must be customer friendly
- Six minutes is the target maximum travel time
  - For early market clusters
Building a statewide network

Legend
- Initial Communities for FCEV Deployment
- Existing Hydrogen Stations
- Hydrogen Stations Pending or Under Construction
- Hydrogen Stations Needed in 2015

Existing, Pending, and Needed Hydrogen Stations in 2015 for the State of California

Legend
- Initial Communities for FCEV Deployment
- Existing Hydrogen Stations
- Hydrogen Stations Pending or Under Construction
- Hydrogen Stations Needed in 2015

Existing, Pending, and Needed Hydrogen Stations in 2015 for the San Francisco Bay Area

Legend
- Initial Communities for FCEV Deployment
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Existing, Pending, and Needed Hydrogen Stations in 2015 for the South Coast Air Basin

Legend
- Initial Communities for FCEV Deployment
- Existing Hydrogen Stations
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What is the “right” number?

Through a collaborative effort among CaFCP members, we have identified the need for 68 stations by 2015

- 45 stations in five urban clusters in California
- 23 stations to seed new clusters and build the statewide network
How much does it cost?

Ensure we can build out the 68 station network
  • 37 stations already in process or expected to be funded
    • Assumes CEC AB118 $18.7M (current) and $11M (FY 2012/13) will be spent on H2.
    • 31 more stations needed by 2015

Keep all stations operating as vehicle volume grows
  • O&M costs for “existing” and new stations

$65M additional funding needed
The “right” number provides...

**Coverage**
- Fueling opportunities

**Confidence**
- Automakers build volume
- Customers purchase FCVs

**Commercial**
- To launch market and build capacity
H₂ stations and vehicle growth

Developing the Hydrogen Infrastructure

- Core (Coverage)
- Expanded (Capacity)

Number of vehicles

- 31 stations (Needed, but not yet funded)
- 37 stations (Open, in construction and/or funded)

Number of stations

Tipping Point

Fuel cell vehicle volumes

Toward Commercialization