

California
FUEL CELL
PARTNERSHIP



DRIVING FOR THE FUTURE



Fueling with hydrogen: Moving from research to retail

NHA Annual Conference 2008

“Fueling Stations Deployment and Analysis”

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On the way to retail

- California now past the “research” stage
- Visited 20 of 23 stations for station accessibility
- CaFCP & CaH2Net
- CaFCP projects increased accessibility awareness



Agreements

Generally

- Define responsibilities and liability
- Need to be signed before fueling

But

- Time consuming and causing significant delays
- Not similar to gasoline fueling

Largest barrier to improved accessibility

Physical access

Findings

- Access controlled at majority of the stations
 - Gated area, security guard, fueling attendant
- Dispensers similar to CNG dispensers
 - But CNG stations don't have restricted access
- Only four stations unrestricted 24/7 access



Limited access hours are a barrier

Safety

General safety measures similar overall, but:

- Customer safety requirements vary greatly
 - Five stations have “safety-zone”
 - PPE not required at 2/3 of stations
 - Grounding practices differ greatly
- OEM vehicles considered “safer”



Inconsistent safety requirements limit access

Training

Findings

- Fueling instruction is specific to each station
 - Trained fuelers receive a station-specific PIN
 - APCI involved with most instruction sessions
- Training consists of general H₂ info and site-specific module
- Two stations offer self-training

Different instruction materials add barrier

2007 activity

Common fueling training

- Consensus instruction materials for the industry
 - Only one session needed on “hydrogen 101”
- Shifts instruction to vehicle orientation
- System to track trained users
 - Creates confidence for station operators
 - www.fleet.cafcp.org

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FLEET CUSTOMER LOGIN
 USERNAME
 PASSWORD

If you have problems logging in, please contact us.

REGISTER A TRAINED FLEET CUSTOMER
Instructions
Please enter all trainer information for the first section and trainee information for the second section.

Trainer Information
 Trainer First Name
 Trainer Last Name
 Trainer Organization
 Trainer Phone
 Trainer Email

Trainee Information
 Trainee First Name
 Trainee Last Name
 Trainee Organization
 Trainee Phone
 Trainee Email

Date of Training

☐ This individual has received instruction regarding the safe use and refueling of hydrogen.

Open access stations

- Meet customer needs
- Establish usable infrastructure
- Extend the driving range
- Increase number of miles driven
- Increase learnings for station providers
- Increase learnings for car manufacturers



Bench mark station: **Shell Washington DC**

Conclusions

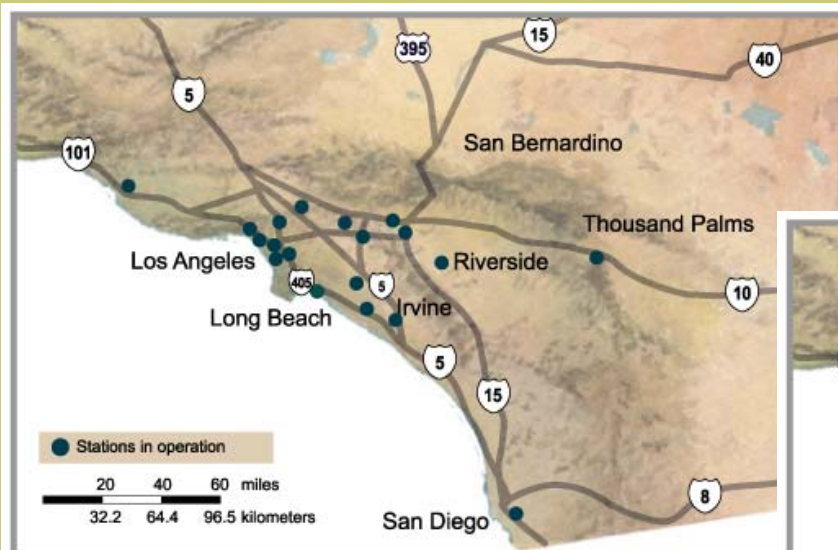
Station accessibility is crucial for progress!

- Significant progress made in a short time
- Consistency needed
 - Fueling agreements
 - Opening hours stations
 - Training
 - PPE requirements

No access = No fuel

No access = no fuel

Current stations Southern CA



Accessible stations Southern CA

Recommendations

- Pursue “No fueling agreements” policy
- Provide 24/7 physical access
- Reduce use of PPE
- Allow every person to self-fuel after training
- Make station information widely available

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Thank you!
Questions?

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