

**South Coast AQMD
Technology Advancement Office
Advisor's Meeting Summer 2009**



**Infrastructure Program
Larry Watkins**

Natural Gas Infrastructure Update

- New additions:
 - Cal Cartage – 2 LNG Refueling Station
 - Waste Management - CNG
 - County of Orange - CNG



Natural Gas Infrastructure Update

(cont'd)

- New additions:



- Bear Valley USD – Temporary CNG
- Port of Long Beach – Clean Energy LNG Station



- Newport Mesa USD – CNG Station
- Downs Commercial Fueling – LNG Station

Natural Gas Infrastructure Update

(cont'd)

- New / Pending:
 - USA Waste of California (WM) - LNG from LFG at Altamont
 - California Cartage CNG Drayage Truck Demonstration
 - Foothill Transit / Clean Energy – CNG Station



Natural Gas Infrastructure Update

(cont'd)

- New / Pending:

- USA Waste of California (WM) - New LNG Storage Tank at Long Beach LNG Refueling Station



- Consolidated Waste Disposal – LNG Station

Hydrogen Infrastructure Update

- Five City Program
 - Burbank Station update
- CARB Solicitation ARB Solicitation 08-606 for Mobile Refueling Stations
 - UCLA, Harbor City Chevron, Newport Beach Shell
- AQMD Hydrogen Station Maintenance Contract
- 700 bar Home Fueling Appliance

Hydrogen Demonstration Stations



Hydrogen Infrastructure Update

(cont'd)

- AQMD Hydrogen Station Maintenance Contract
 - 24 hour auto-dialing “Help Phone” at the fueling dispenser area
 - Train staff in the proper use of the fueling dispenser, card-lock system and vehicle fueling procedures
 - Repair unsafe or inoperable equipment or parts of the fueling system as needed
 - Detailed vehicle fueling reports (paper and electronic)
 - Total station monthly summary reports (paper and electronic)

Hydrogen Infrastructure Update

(cont'd)

- University of California, Los Angeles
 - Hydrogenics HyStat-A Electrolyzer
 - 350 & 700 bar dispensing
 - 33.3% renewable from LADWP
 - Generate 140 kg/day of hydrogen on-site
 - SMR
 - Electrolysis
 - Publicly accessible from major freeways and downtown LA
 - Funding of \$1,723,753 from AQMD in the form of used equipment (\$1,323,753), and cash (\$400,000).

Hydrogen Infrastructure Update

(cont'd)

- Chevron / Mebtahi Station Services
 - Pacific Coast Hwy and Western Ave., Harbor City (CaFCP Action Plan)
 - 350 & 700 bar dispensing
 - High pressure 3 pack composite tube trailer @ 430 bar + small booster compressor
 - Carbon fiber overwrapped steel tubes @ 15,000 psig for 700 bar cascade fills
 - 100 kg/day H₂,

Hydrogen Infrastructure Update

(cont'd)

- Shell Hydrogen
 - 1600 Jamboree Blvd., Newport Beach (CaFCP Action Plan)
 - Will competitively bid equipment components
 - 100 kg/day at 350 and 700 bar
 - Forecourt hydrogen production (SMR) along with compression, storage and dispensing
 - Open 24/7, retail setting

Hydrogen Infrastructure Update

(cont'd)

- 700 bar Residential Home Fueling Appliance
 - Chrysler, Daimler AG, Ford, GM, Honda, Hyundai, Nissan, Toyota, Volkswagen
 - Phase 1 - Feasibility Study
 - comprehensive world-wide search Of Commercially available technology
 - near term component development
 - Phase 2a includes validated performance specifications, develop an RFP for potential system integrators create Alpha prototype

Partners	Funding	Percent
DOE	\$417,600	80%
NEC	41,000	8%
AQMD	63,400	12%
Total*	\$522,000	100%