DOE/OHVT Natural Gas Vehicle Fueling Infrastructure Program

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Natural Gas Vehicle Program Technology Barriers

- Current natural gas engines less efficient than diesel engines
- On-board fuel storage for natural gas is prohibitively expensive, heavy and inconvenient for operators to refill
- Natural gas as a transportation fuel not widely available
- Fueling facilities too expensive
DOE recognizes the criticality of the natural gas infrastructure for expanding the market for clean, highly-efficient NGVs developed under its research programs.
Organization of NGV-IWG

* Industry-Government Partnership

* Infrastructure Working Group was formed, in November 1998, to

“...identify technical obstacles to a self-sustaining NGV infrastructure and develop plans and programs to overcome them.”

IWG Program Integration

Infrastructure Working Group

Research plan for economic, self-sustaining vehicle fueling infrastructure
IWG Membership is a Diverse Industry / Government Coalition

- **OEM**
  - Ford Motor Company

- **Gas Utilities**
  - Atlanta Gas Light Co.
  - Consolidated NG Co.
  - East Ohio Gas Co.
  - Lone Star Gas Co.
  - PG&E
  - Providence Energy Co.
  - Southern California Gas
  - Southwest Gas Corp.
  - Wisconsin Electric Power
  - PEPCO

- **Fuel Distributors/Suppliers**
  - Natural Fuels
  - Liberty Fuels
  - Questar Gas
  - Applied LNG Technologies

- **Equipment Suppliers**
  - Sulzer Compression Inc.
  - Power Systems Associates
  - Marathon Technical Services

- **Government / Consortia**
  - DOE, GRI, NGVC, SCAQMD, CEC, etc.

1999 IWG Results

- The IWG developed and presented its first report to DOE and GRI in August of 1999
  - *Recommendations for Programs to Overcome Obstacles to a Sustainable NGV Fueling Infrastructure*

- DOE, GRI and the natural gas industry assembled a package of over $5.3 million to fund infrastructure RD&D programs in FY2000
  - $2M DOE; $825K GRI; $2.5M Industry
FY2000 Gas Infrastructure Programs & Projects

- Majority of Work Funded Competitively
- Three Programs
  - LNG Infrastructure Program
    - 6 Projects — 2 Lab, 4 RFP
  - CNG Infrastructure Program
    - 6 Projects — 1 Contract, 5 RFP
  - Infrastructure Technical Strategy Program
    - 4 Projects — 2 Contracts, 2 Internal

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LNG Infrastructure Program

- Small-Scale Liquefaction Plant
- Low-cost LNG Fueling Station
- Cost-effective LNG Pump
- Standardized Nozzle and Receptacle for LNG Vehicle Fueling
- Breakaway for LNG Dispensing Hose
- Economical Odorant for LNG fuel
CNG Infrastructure Program

- Recommended Practices for CNG Fueling Station Design, Construction, Permitting, and Operation
- CNG Fueling Station Bid Specification Handbook
- CNG Infrastructure Technology Exchange
- Electronic Access and Billing Network for CNG Fueling Stations
- Consistent Fuel Metering Methodology
- Enhanced CNG Fuel Nozzles to Avoid Freeze-Up

NG Infrastructure Technical Strategy Program

- Planning and Analysis Activities (DOE HQ)
- Leveraging an Integrated OHVT/OTU Infrastructure Program (DOE HQ & NREL)
- Economic and Strategic Assessment of NGV Infrastructure Development (Battelle)
- Continued Operation and Administration of the NGV-IWG (GRI)
Future Directions

- First CNG RFP imminent
  - In review now
  - Release date: May 1, 2000
- First RFP is Best Practices for CNG Station Design, Construction, Permitting and Operation.
- After first RFP, others will follow approximately one every two weeks

Future Directions

- Teams currently being formed to evaluate proposals for RFPs
  - Resolve conflict-of-interest problems
  - Review proposals and select partners
- Issue and monitor contracts
- IWG developing FY ‘01 recommendations to further advance objective of overcoming obstacles to sustainable NGV fueling infrastructure