V.E Vehicle Demonstrations

V.E.1 Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Project (New Project)

This demonstration will be the first effort of its kind to bring together, at a national level, nearly every major automobile and energy company in a hydrogen fuel and vehicle demonstration project. The project will be a learning demonstration that will help DOE focus its research and development efforts, provide insight into vehicle and infrastructure interface issues, and help address codes, standards and safety issues. The project will develop complete system solutions to address hydrogen infrastructure and vehicle development in parallel to validate that a commercialization decision by 2015 is on schedule.

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Fleet Demonstration Lead Contractors:
Air Products and Chemicals, Inc., Allentown, PA
ChevronTexaco Technology Ventures, LLC, Houston, TX
DaimlerChrysler Corp., Auburn Hills, MI
Ford Motor Co., Dearborn, MI
General Motors Corp., Warren, MI

Objectives

• Validate 2009 Performance Targets
  – Fuel Cell Stack Durability: 2000 hours
  – Vehicle Range: 250+ miles
  – Hydrogen Cost at the Station: $3.00/gge
• Validate 2015 Performance Targets
  – Fuel Cell Stack Durability: 5000 hours
  – Vehicle Range: 300+ miles
  – Hydrogen Cost at the Station: $1.50/gge

Technical Barriers

This project addresses the following technical barriers from the Technology Validation section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

• A. Vehicles
• B. Storage
• C. Hydrogen Refueling Infrastructure
• D. Maintenance and Training Facilities
• E. Codes and Standards
**Approach**

The Technology Validation activity is focusing on conducting learning demonstrations that emphasize co-development of hydrogen infrastructure in parallel with hydrogen fuel cell-powered vehicles to allow a commercialization decision by 2015. Technology Validation will test, demonstrate, and validate optimum system solutions and use the results to refocus the Hydrogen R&D Program as appropriate.

Five demonstrations have been selected to operate from October 2004 through September 2009. Each of these demonstrations will provide the following deliverables:

- Two generations of vehicles will be provided by vehicle manufacturers, with engineering improvements incorporated in the second generation.
- Hydrogen fueling stations will be installed in at least three geographic regions of the country to allow vehicle data to be collected in cold, hot/arid and moderate climates in urban and rural areas.
- Chassis dynamometer testing or equivalent will be conducted on fuel cell vehicles from each geographic region at least twice a year to collect fuel cell efficiency, fuel cell durability and vehicle fuel economy data.

The following are brief summaries of each controlled fleet demonstration.

**Air Products and Chemicals, Inc.**

David E. Guro  
7201 Hamilton Blvd.  
Allentown, PA 18195-1501  
Phone: (610) 481-4625; E-mail: gurode@airproducts.com

**Subcontractors:**  
Toyota Motor Sales, Torrance, CA  
Nissan North America, Gardena, CA  
American Honda Motors, Marysville, OH  
ConocoPhillips, Bartlesville, OK  
UTC Fuel Cells, South Windsor, CT  
Proton Energy Systems, Wallingford, CT  
BMW, Woodcliff Lake, NJ  
University of California, Davis, Davis, CA  
University of California, Irvine, Irvine, CA  
South Coast Air Quality Management District, Diamond Bar, CA

**Vehicles:** TBD

**Fueling Stations:** Potential fueling station locations include several sites in northern and southern California; Las Vegas, NV; Lake Tahoe, CA; and State College, PA.

*(Note: This award is still under negotiation.)*
ChevronTexaco Technology Ventures, LLC

John M. Brady
ChevronTexaco Technology Ventures, LLC
3901 Briarpark
Houston, TX 77042
Phone: (713) 954-6069; E-mail: JohnBrady@ChevronTexaco.com

Subcontractors:
Hyundai Motor Co., S. Korea
UTC Fuel Cells, South Windsor, CT
Hyundai Kia America Technical Center, Inc. Chino, CA
University of California, Davis, Davis, CA
AC Transit, Oakland, CA
Southern California Edison, Rosemead, CA

Vehicles: 32 fuel cell vehicles (SUVs)

Fueling Stations: A variety of hydrogen generation, storage and dispensing methodologies will be utilized within the project. Potential fueling station locations include Chino, Rosemead, Palm Desert, Davis, and Oakland, CA, as well as a cold weather site which is to be named in the future.

DaimlerChrysler Corporation

Andreas Schell, Senior Manager
Fuel Cell Systems
Advanced Vehicle Engineering
CIMS 483 00 08
800 Chrysler Drive
Auburn Hills, MI 48326-2757
Phone: (248) 512-3642; Fax: (248) 512-0679; E-mail: as675@daimlerchrysler.com

Subcontractors:
DiamlerChrysler AG, Stuttgart, Germany
BP America, Warrenville, IL
Mercedes Benz USA LLC
DTE Energy, Detroit, MI
NextEnergy, Detroit, MI
Ballard, Vancouver, BC

Vehicles: 33 fuel cell vehicles
(A-Class “F-Cells” and Sprinter delivery van Generation 1 vehicles)

Fueling Stations: Nine potential fueling station locations include Sacramento and Los Angeles, CA, and Michigan.
Ford Motor Company

Frank Balog, Chief Product Analyst
Sustainable Mobility Technologies Lab I Room 1027
15050 Commerce Drive North
Dearborn, MI 48120-1261
Phone: (313) 594-0845; Fax: (313) 390-1903; E-mail: fbalog@ford.com

Subcontractors:
BP America, Warrenville, IL
NextEnergy, Detroit, MI

Fleet Operators:
California Department of General Services, Sacramento, CA
Sacramento Municipal Utility District, Sacramento, CA
Florida Department of Environmental Protection, Orlando, FL
Progress Energy, Orlando, FL
City of Taylor, Taylor, MI
City of Ann Arbor, Ann Arbor, MI

Vehicles: 26 fuel cell vehicles
(Ford Focus Fuel Cell Generation 1 vehicles)

Fueling Stations: Potential fueling station locations include Orlando, FL; Sacramento, CA; and Taylor, MI.

General Motors Corporation

Roz Sell, Manager, Fleet Mobility Solutions
General Motors Fuel Cell Activities
30500 Mound Road
Warren, MI 48090
Phone: (586) 986-7676; E-mail: roz.sell@gm.com

Subcontractors:
Shell Hydrogen, LLC
Quantum Technologies, Inc., CA
NextEnergy, Detroit, MI
Viewpoint Systems, Inc., NY
U.S. Army, Ft. Belvoir, VA
State of Maryland, Annapolis, MD

Vehicles: 40 fuel cell vehicles
(Opel Zafira Generation 1 vehicles)

Fueling Stations: Potential fueling station locations include Washington, DC; Ft. Belvoir, VA; Southern and Northern, CA; Detroit, MI; and New York City Metropolitan area, NY.