U.S. Department of Energy Hydrogen Program

Technology Validation

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2008 DOE Hydrogen Program
Merit Review and Peer Evaluation Meeting

June 9, 2008

Goal and Objectives

GOAL: Validate complete systems of integrated hydrogen and fuel cell technologies for transportation, infrastructure and electricity generation applications under real-world operating conditions

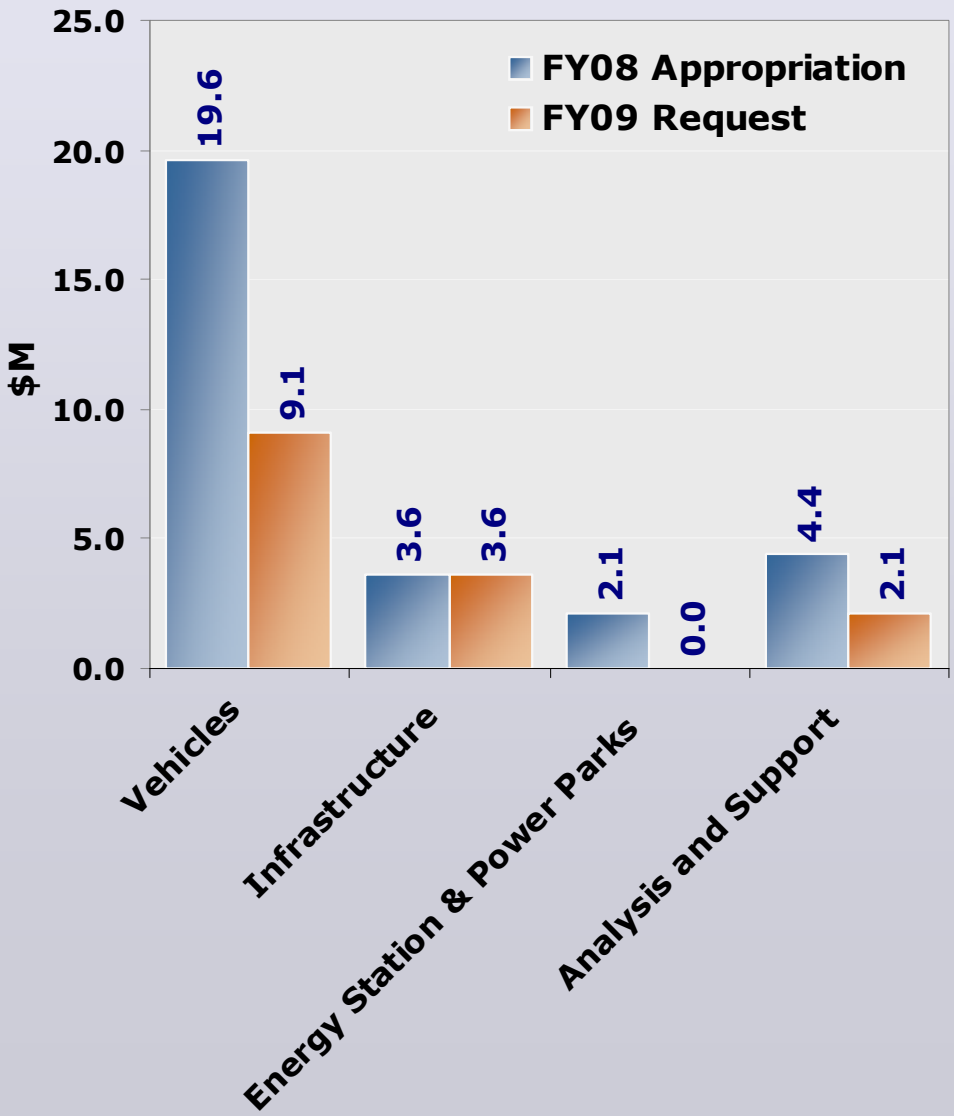
Objectives:

- Validate H_2 FC Vehicles and Infrastructure in Parallel
- Identify Current Status of the Technology
  - Assess Progress Toward Technology Readiness
  - Provide Feedback to H_2 Research and Development

Key Targets

Performance Measure	2009	2015
Fuel Cell Stack Durability	2000 hours	5000 hours
Vehicle Range	250+ miles	300+ miles
Hydrogen Cost at Station	$3/gge	$2-3/gge

Budget



FY2009 Budget Request = $14.8M

FY2008 Budget = $29.7M

FY09 Emphasis

- Gen 2 vehicles and fueling stations in operation using advanced technology hardware to meet program objectives
- Verify 2,000 hour fuel cell durability target by 2009
- Collect vehicle operational and maintenance data and conduct dynamometer testing to evaluate fuel cell performance and range
- Begin planning for phase 2 of the learning demonstration, subject to appropriations

Challenges

- Lack of fuel cell vehicle performance and durability data
- Lack of refueling infrastructure performance and availability data
- Need to assess fuel cell start-up and operation in 3 different climatic conditions
- Need to assess the ability to start fuel cells in cold climates
- Evaluation of filling vehicles at 700 bar
- Determine fuel cell vehicle and infrastructure interface issues that need to be addressed

2008 Progress & Accomplishments

- 92 fuel cell vehicles and 15 hydrogen fueling stations in operation
- Gen 2 vehicles in operation now
- Total of 130 vehicles to be in the project
- Fuel cell durability
  - 1,200 hours actual (36K miles)
  - 1,900 hours projected (57K miles)
- Over 1.1 million miles traveled
- Over 52K total vehicle hours driven
- Fuel cell efficiency 53-58%
- Over 44,000 kg of hydrogen produced or dispensed
- 2 hydrogen stations at 700 bar

Future Plans

- Continue testing and operation of generation 1 and 2 fuel cell vehicles
- Verify
  - 2,000 hour fuel cell durability
  - $3.00/gasoline gallon equivalent
- Build and operate a power park in Hawaii
- Develop plans for Phase 2 of the Learning Demonstration

For More Information

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