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**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>2009</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Cell Stack Durability</td>
<td>2000 hours</td>
<td>5000 hours</td>
</tr>
<tr>
<td>Vehicle Range</td>
<td>250+ miles</td>
<td>300+ miles</td>
</tr>
<tr>
<td>Hydrogen Cost at Station</td>
<td>$3/gge</td>
<td>$2-3/gge</td>
</tr>
</tbody>
</table>
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
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
  - 1200 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
Session Schedule

- Analysis of the data from the Learning Demonstration Project – NREL
- Learning Demonstration Projects
  - Chrysler, Daimler and BP
  - Ford and BP
  - Chevron and Hyundai-Kia
  - GM and Shell
- Hydrogen Energy Station – APCI
- California Hydrogen Infrastructure Project – APCI
- Hawaii Hydrogen Center – Hawaii Natural Energy Institute
- Automotive cryogenic capable storage - LLNL
Session Instructions

- Presentations will begin precisely at the scheduled times.

- If a review presentation ends early, there will be a short break before the next review.

- Talks will be <20 minutes, Q&A <10 minutes.
Session Instructions

- Reviewers have priority for questions over the general audience.

- Reviewers should be seated in front of the room for convenient access by the microphone attendants during the Q&A.
Reviewer Reminders

- Reviews should be submitted at the end of the day.
- Reviews must be submitted before departure from the Annual Merit Review & Peer Evaluation meeting.
Reviewer Reminders

- After the session today there will be a brief (5-15 minutes) reviewer feedback session.
For More Information

Technology Validation Team

John Garbak
(202) 586-1723
John.Garbak@ee.doe.gov

Field Office Project Officers:
Doug Hooker
Lea Yancey
Jim Alkire