IX.2 Baseline Knowledge Assessment of Hydrogen and Fuel Cells

Tykey Truett (Primary Contact), Rick Schmoyer
Oak Ridge National Laboratory
P.O. Box 2008, Building 3156, Bethel Valley Road
Oak Ridge, TN 37831-6073
Phone: (865) 574-4225; Fax: (865) 574-3895
E-mail: TruettLF@ornl.gov

DOE Technology Development Manager:
Christy Cooper
Phone: (202) 586-1885; Fax: (202) 586-9811
E-mail: Christy.Cooper@ee.doe.gov

Start Date: 2003
Projected End Date: Project continuation and direction determined annually by DOE

Objectives

- To measure, in 2004, the level of awareness and understanding of hydrogen and fuel cell technologies and the hydrogen economy in four target populations:
  - General public
  - Students and educators
  - State and local government agencies
  - Potential large-scale users
- To establish a baseline of knowledge levels and opinions for each of the four populations surveyed; this baseline will be used with results of future evaluations of the same target populations to compare changes in understanding.
- To re-measure, in 2008 and 2011, the knowledge and understanding of the same four populations that were surveyed in 2004 and to compare the results with the baseline

Technical Barriers

This project addresses the following technical barriers from the Education section (3.8.4.1) of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

(A) Lack of Awareness
(C) Institutional Barriers and Access to Audiences
(D) Regional Differences

Accomplishments

- The final report documenting the survey results was reviewed and revised. The document was published in April 2006.
- Presentations were prepared for three professional meetings (see reference list).
- The archive of 2004 survey data, programs, and documents was compiled in draft format.
- The Baseline Knowledge Assessment results were presented at the Tuesday luncheon at the Annual Program Review.

Introduction

It is important to know the level of knowledge of hydrogen and fuel cells in the United States in order to design an appropriate education program. It is also important to establish a baseline of this knowledge level in order to assess the effectiveness of the education program in the future. This baseline knowledge level was determined through surveys of four distinct population groups. While recognizing that knowledge-assessment surveys cannot pinpoint causality of changes in knowledge and opinions, subsequent surveys identical in methodology to the baseline surveys can measure changes from baseline knowledge levels. The effect of the education program will be measured in terms of program activities designed to impact baseline knowledge levels.

Approach

Scientific sampling was used to survey four populations: (1) the general public, ages 18 and over; (2) students, ages 12-17; (3) state and local government officials from state departments of transportation and environmental protection, state energy offices, and functionally similar personnel from cities and counties; and (4) potential large-scale hydrogen users in three business categories: transportation, businesses requiring uninterrupted power supplies, and industries with large power requirements. It was decided that the survey design should include about 1,000 individuals in each of the general public and student surveys, about 250 state and local officials, and almost 100 large-scale users.

Results

The baseline knowledge and opinions surveys were conducted for the four population groups, and the results were statistically analyzed in 2004-2005. The baseline criteria for comparison with future surveys were established.

During 2005-2006, the final report of the baseline surveys was published; several presentations were made at conferences and other meetings; and articles were prepared for the conference proceedings.

Conclusions and Future Directions

This methodology was successful in measuring knowledge levels and opinions of the target populations. Because survey instruments were very similar, comparisons could be made among the target populations; these comparisons showed, for example, wide differences in knowledge levels between the government agencies and the other populations. When repeated in the future, the survey results will be able to compare knowledge levels and opinions about hydrogen and fuel cells to ascertain any changes over time.

Planning and preliminary arrangements for the next survey (2008) will be conducted in 2007.

FY 2006 Publications/Presentations

1. R. L. Schmoyer, Tykey Truett, and Christy Cooper, *Results of the 2004 Knowledge and Opinions Surveys for the Baseline Knowledge Assessment of the U.S. Department of Energy Hydrogen Program,* ORNL/TM-2006/417 (April 2006).

2. Tykey Truett, R. L. Schmoyer, and Christy Cooper, "Results of the 2004 U.S. Department of Energy Surveys Measuring Knowledge of and Opinions on Hydrogen and Fuel Cells," Transportation Research Board (TRB) 85th Annual Meeting, January 22-26, 2006, Washington, D.C., poster presentation and paper in compendium of papers CD-ROM (paper 06-0607).

3. Christy Cooper, Tykey Truett, and R. L. Schmoyer, "The U.S. Department of Energy Hydrogen Baseline Survey: Assessing Knowledge and Opinions about Hydrogen Technology," paper prepared for the National Hydrogen Association (NHA) Annual Hydrogen Conference 2006: Global Progress Toward Clean Energy, Long Beach, California, March 12-16, 2006.

4. Christy Cooper, Tykey Truett, R. L. Schmoyer, "The U.S. Department of Energy Hydrogen Baseline Survey: Assessing Knowledge and Opinions about Hydrogen Technology," paper prepared for the World Hydrogen Energy Conference, Lyon, France, June 13-16, 2006.

5. Christy Cooper, "The DOE Baseline Knowledge Survey: Measuring H2IQ," 2006 Peer Review and Merit Evaluation Meeting, May 16, 2006 [luncheon presentation].