

X.10 Development of Hydrogen Education Programs for Government Officials

Shannon Baxter-Clemmons (Primary Contact),
Chris Daetwyler

South Carolina Hydrogen and Fuel Cell Alliance
(SCHFCA)
Post Office Box 12302
Columbia, SC 29211
Phone: (803) 727-2897
E-mail: baxterclemmons@schydrogen.org

DOE Technology Development Manager:
Carole Read

Phone: (202) 586-3152
E-mail: Carole.Read@ee.doe.gov

DOE Project Officer: Gregory Kleen

Phone: (303) 275-4875
E-mail: Greg.Kleen@go.doe.gov

Contract Number: DE-FG36-08GO18113

Subcontractor:

Greenway Energy, Aiken, SC

Project Start Date: October 1, 2008

Project End Date: September 30, 2011

Objectives:

- Synthesize objective and technically accurate information that will be made available to a wide audience through the internet, a national meeting, and training sessions.
- Design and develop educational programs that will clarify the benefits and challenges of moving to a hydrogen economy that avoid over-selling hydrogen technologies.
- Leverage relationships with project team organizations in South Carolina to deploy hydrogen education materials to government and code officials.
- Train a group of hydrogen educators at the project team institutions (The South Carolina Energy Office, The State Fire Marshal's Office, the SCHFCA and Greenway Energy) who will be resources on hydrogen and fuel cells to the target audiences.

Technical Barriers

This project addresses the following technical barriers from the Education section (3.9.5) of the Fuel Cell Technologies Program Multi-Year Research, Development and Demonstration Plan:

- (A) Lack of Readily Available, Objective, and Technically Accurate Information
- (B) Mixed Messages
- (C) Disconnect Between Hydrogen Information and Dissemination Networks
- (D) Lack of Educated Trainers and Training Opportunities
- (E) Regional Differences
- (F) Difficulty of Measuring Success

Contribution to Achievement of DOE Education Milestones

This project will contribute to achievement of the following DOE milestones from the Education (3.9) section of the Fuel Cell Technologies Program Multi-Year Research, Development and Demonstration Plan:

- Milestone 11: Develop set of introductory materials suitable for a non-technical audience. (4Q, 2006)
- Milestone 13: Develop materials for community seminars. (4Q, 2008)
- Milestone 14: Hold community seminars to introduce local residents to hydrogen. (4Q, 2008 through 4Q, 2012)
- Milestone 17: Hold "Hydrogen 101" seminars. (4Q, 2008 through 4Q, 2012)
- Milestone 29: Evaluate knowledge and opinion of hydrogen technology of key target audiences and progress toward meeting objectives. (4Q, 2009)

Accomplishments

- Conducted in-person presentations to over 20 groups of targeted South Carolina decision makers.
- Held eight Webinars to provide information to stakeholders throughout South Carolina.
- Reached 1,446 targeted additional state and local government officials and decision makers.
- Created a SlideShare channel through which Webinar presentations can be viewed.
- Placed hydrogen education videos on the SCHFCA YouTube channel.
- Developed over 20 topic specific slides that included value proposition for telecommunications, permitting of fuel cells, etc.
- Produced a tri-fold handout that summarizes key messages with a fun quiz.
- Maintain a Web site that keeps a running log of industry news and allows access to fact sheets at www.schydrogen.org.

- Updated fact sheets that are easily understandable for a wide audience and some are targeted to specific audiences.
- Hosted two “Lunch-and-Learn” activities. One for state educators and another for staff on the state capitol grounds.
- Made presentations to groups including: the South Carolina Municipal Association, the South Carolina Association of Counties, Councils of Government, law firms, gubernatorial candidates, and mayoral candidates.
- Utilized Hydrogen 101 materials were in wider public education efforts that reached additional stakeholders.
- Supported through educational efforts the passage of the South Carolina Hydrogen and Fuel Cell Permitting Act that is now law. The law in South Carolina and the movement to win support can serve as a case study for other states that want to implement central permitting authority, at the state level, as recommended by industry.



Introduction

Hydrogen and fuel cell technologies are moving out of the laboratory and into economically competitive niche markets such as cell phone tower back-up power and forklift operations. As hydrogen technologies become competitive in these early markets, communities will need to be educated about the opportunities afforded by hydrogen technologies and about safety concerns associated with them. The Hydrogen 101 program led by the SCHFCA seeks to raise awareness about hydrogen and fuel cells to community leaders within South Carolina and the Southeast.

South Carolina is among a small, but growing, number of states that have a hydrogen implementation strategy and is on the leading edge of fuel cell research and adoption. The state has been recognized as one of the top five fuel cell states by Fuel Cells 2000 in 2010 but a lack of information regarding the hydrogen and fuel cell industry still exists among state and local leaders. In order to maximize the resources existing in the state and surrounding region, it is imperative that an effective outreach and education program be conducted so that the decision to accept hydrogen technologies in the local community is informed and wise.

During the legislative process to pass the South Carolina Hydrogen and Fuel Cell Permitting Act into law, a need for additional educational efforts within the South Carolina legislature was identified. We learned that there was very little opposition to hydrogen and fuel cells in state government but quite a bit of ambivalence. The ambivalence grew from a lack of exposure and

understanding to the potential for a hydrogen and fuel cell industry in South Carolina.

Approach

The project team is composed of South Carolina-based hydrogen experts with connections to technically accurate information; and, civic organizations and associations with the communications networks and events with our target audience already established. The entire team works together to identify specific messaging that local audiences are interested in. Based on the feedback we gather from the civic organizations and other community opinion leaders, education materials and demonstrations are developed.

The marketing of the program is conducted through the existing Web sites, e-mail distribution lists and communication networks. The distribution of the material is primarily conducted at events associated with each of the civic associations partnered on the project, however, several stand-alone events and Webinars were conducted.

Results

A major achievement of the SCHFCA was the creation of a support base among community leaders to champion hydrogen related initiatives at the state level. The support base was built through the DOE Hydrogen 101 program by delivering presentations and webinars to groups of leaders throughout the state. A good example of the progress achieved through the Hydrogen 101 program was the passage of the South Carolina Hydrogen and Fuel Cell Permitting Act that had support from project partners such as the South Carolina Municipal Association, the State Fire Marshal's Office, local stakeholders and SCHFCA members.

After focusing mostly on maximizing the messaging to state leaders from the National Hydrogen Association meeting in Columbia in 2009, the Hydrogen 101 program in 2010 expanded its audience to include state and local government officials from a wide variety of groups impacting the adoption of hydrogen and fuel cells. The program performed outreach to these groups through group presentations, Webinars, and focused small group and individual meetings. Presentation materials and fact sheets were updated and expanded depending on the audience and tri-fold brochures were printed to summarize key messages.

The SCHFCA Hydrogen 101 program far exceeded the original goal of three Webinars and eight in-person presentations with eight Webinars and over 20 presentations. The direct number of targeted, high-quality stakeholders reached was 1,446 and the wider educational efforts that leveraged Hydrogen 101 materials reached over 1 million people. In addition to

education of leadership groups, the SCHFCA has started reaching out to candidates for political offices who will be filling vacated offices in 2010. This includes talking with candidates to replace the current term-limited governor and candidates running for three Congressional seats without an incumbent.

Groups have been overwhelmingly supportive of hydrogen and fuel cell technologies as a result of the presentations and view the technologies as having the potential to foster economic development within the state. There was significant interest in the value proposition for the fuel cell technologies and additional information regarding the economics of these technologies was of interest to the audiences.

Conclusions and Future Directions

The SCHFCA Hydrogen 101 program has met all of the yearly goals and our efforts are having an impact in creating wider support for hydrogen. A concrete goal that was assisted by Hydrogen 101 was the passage of the South Carolina Hydrogen and Fuel Cell Permitting Act. In 2011, our efforts will focus on:

- Finalizing the market value proposition case studies for cell tower backup power, material handling equipment and combined heat and power units.
- Using the case studies as an educational tool with government leaders and business decision-makers within industries that can utilize fuel cells (i.e. forklifts).
- Work with the South Carolina Department of Health and Environmental Control to investigate the streamlining of air permits for hydrogen and fuel cell technologies.