

X.10 Development of Hydrogen Education Programs for Government Officials

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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 Hydrogen, Fuel Cells and Infrastructure 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 Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- **Milestone 17:** Hold "Hydrogen 101" seminars. (4Q, 2008 through 4Q, 2012)

Accomplishments

- Created 97 slides and four class demonstrations for use as needed based on the interests of the particular audience being addressed. The materials created were based on audience tastes as indicated by project partner representatives.
- Reached 120 state and local government officials and decision makers.



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.

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. 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.

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 the local audience and sub-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 project 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 are planned.

Results

Q4 2008

- Task 1. State and Local Government Officials Education
 - Subtask 1.1 - Assess, Design, Develop, Implement and Evaluate (Year 1)
 - Discussions with project partners and additional relevant groups identified broad areas of interest to the local target audience. This information was used to focus the development of materials.
 - Design of hydrogen education modules for local officials began in municipalities that are interested in the opportunities presented by hydrogen and fuel cell technologies.
 - These modules present an introduction to hydrogen technologies, show examples of how they are used and demonstrate the competitive advantages in niche applications such as material handling and telecommunications back-up power. The modules are also meant to provide an educational foundation so that local government officials can understand how hydrogen related state initiatives can benefit their region.
- Task 2. Hydrogen Education for Codes Officials
 - Subtask 1.1 - Assess, Design, Develop, Implement and Evaluate (Year 1)
 - Currently, the SCHFCA is working with DOE/ National Renewable Energy Laboratory (NREL) to host a Codes Workshop in conjunction with the National Hydrogen Association (NHA) conference in Columbia in March 2009. During the session with the DOE, training materials for codes officials will be discussed.

Q1 2009

- Task 1. State and Local Government Officials Education
 - Subtask 1.1 - Assess, Design, Develop, Implement and Evaluate (Year 1)
 - The initial project presentation was conducted in February hosted at the Municipal Association of South Carolina (MASC). This session focused on officials within the municipal government system in South Carolina. The MASC, a project partner, provided meeting space and assisted in marketing the project to its members.
 - A trial webinar was conducted on March 24th one week prior to the NHA Conference in Columbia and was intended to provide state and local government officials that were planning on attending the NHA Conference with adequate background knowledge prior to their arrival at the convention.
 - A presentation was given at the 2009 NHA Conference highlighting the objectives and accomplishments of the Hydrogen 101 project in South Carolina.
- Task 2. Hydrogen Education for Codes Officials
 - Subtask 1.1 - Assess, Design, Develop, Implement and Evaluate (Year 1)
 - The SCHFCA continues work with DOE and NREL to host a codes workshop in conjunction with the NHA conference in Columbia in March 2009.

Q2 2009

- Task 1. State and Local Government Officials Education
 - Subtask 1.1 - Assess, Design, Develop, Implement and Evaluate (Year 1)
 - The SCHFCA team conducted a working meeting in May to discuss next steps and action items. Work began on setting up sessions for the upcoming quarter and beyond. A presentation was given to the Upper Savannah Council of Governments. The audience was particularly interested in the environmental and human health impacts of the technology. The room was mostly community leaders (decision makers) that work on revitalization and low income housing issues. They are well-recognized in their communities and respected for their opinions and work.
 - Greenway Energy completed the draft of its curriculum report that outlines the teaching objectives for hydrogen and fuel cells as well as the training formats best suited to different

audiences. This assessment has been used in the creation of the presentations for different audiences and will continue to be revised based on feedback from presentations.

- Task 2. Hydrogen Education for Codes Officials
 - Subtask 1.1 - Assess, Design, Develop, Implement and Evaluate (Year 1)
 - The SCHFCA partnered with DOE/NREL to coordinate a Codes Officials Permitting Workshop conducted at the South Carolina Fire Academy in Columbia, SC on April 3, 2009. This provided several opportunities. First, it allowed the project team to interact and observe hydrogen codes experts deliver relevant materials to a segment of our target audience. Second, the event facilitated our objective of connecting our audience to relevant and up to date educational materials. The materials gathered at the event will be integrated into the curriculum already created by the SCHFCA team.

FY 2009 Publications/Presentations

1. Baxter-Clemmons, S., “Status of Hydrogen 101”, presentation to the Merit Review panel at the 2009 DOE Annual Merit Review, Crystal City Marriott, Washington, D.C., May 21, 2009.
2. Greenway, S., “Hydrogen 101: Education for State and Local Decision Makers”, presentation made to the Municipal Association of South Carolina, Columbia, SC, February 19, 2009.
3. Baxter-Clemmons S., Greenway, S., “Hydrogen 101: Education for State and Local Decision Makers”, webinar presented to officials attending the NHA Conference 2009, Online, March 24, 2009.
4. Baxter-Clemmons S., “Hydrogen 101: Education for State and Local Decision Makers”, presentation to the Upper Savannah Council of Governments, Myrtle Beach, SC, May 7, 2009.

Conclusions and Future Directions

The project is moving in the right direction and is on track. An increase in event frequency will begin in Q3 of 2009 with the addition of monthly webinars for an undetermined duration. The team plans to continue in-person events every 1-2 months. Three seminars and presentations are planned as of the final draft of this report, including one to the Waccamaw Council of Governments, Central Midlands Council of Governments and the South Carolina Rural Water Association. Many additional prospects are in development. The curriculum and materials will be updated as needed.