Project ID # ED010

Development of Hydrogen Education Programs for Government Officials

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SC HYDROGEN & FUEL CELL ALLIANCE
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Project Overview

- **Timeline**
  - August 1, 2008 thru July 31, 2011
- **Budget**
  - DOE Share: $191,611
  - Recipient Share: $12,000
  - Funding received in FY 09: $129,194
  - Funding for FY 10: $0
- **Barriers**
  - Mixed Messages can create potential for conflicting public messages
  - Disconnects between hydrogen information and dissemination networks
  - Difficulties of measuring success
- **Partners**
  - Municipal Association of South Carolina (MASC)
  - South Carolina Energy Office (SCEO)
  - South Carolina Fire Marshal's Office (SFMO)
  - SC American Planners Association (SCAPA)
  - Greenway Energy LLC

Hydrogen 101: State and Local Government Education

- To accelerate the on-going construction of the hydrogen economy in South Carolina and the Southeast by providing accurate and reliable information to state and local decision-makers.

- Challenges to overcome:
  - Lack of adequate educational materials
  - Mixed messages about hydrogen and alternative energy technologies
  - Inefficient dissemination of hydrogen educational materials
  - Lack of educated trainers

Hydrogen 101: State and Local Government Education

2009 – 2010

- Goals
  - Identify key messages for decision-makers
  - Develop varying presentation formats
    - Available time
    - Audience interest & technical level
  - Develop webinars for state and local government officials
  - Give H_2 101 presentations to a variety of stakeholders
  - Give monthly webinars for interested stakeholders
  - Collect feedback and improve presentations

Approach

Hydrogen 101: State and Local Government Education

Milestone Number	Project Milestones	Task Completion Date				Progress Notes
		Original Planned	Revised Planned	Actual	Percent Complete	
1	Strategy & Curriculum	3/2/2009	5/31/2009	5/31/2009	100%	Completed
2	NHA Presentation	4/1/2009	4/1/2009	4/1/2009	100%	Completed
3	Y1 Annual Report	9/30/2009	9/30/2009	9/30/2009	100%	Completed
4	Y2 Annual Report	9/30/2010	9/30/2010		40%	Ongoing
5	Y3 Annual Report	9/30/2011			0%	Not started
6	Project Management	12/31/2010			50%	Ongoing

Hydrogen 101: State and Local Government Education

2009 – 2010

- Specific Metrics
  - In person presentations & meetings
    - 4 originally scheduled
    - Over 20 completed
  - Webinars
    - 3 originally scheduled
    - 8 completed
  - Decision-makers reached
    - 1,566

Approach

- Assess the needs of the program and the team
- Design the decision-maker targeted program
- Develop the training materials
- Deploy materials to the audience to be educated
- Evaluate the educational program

Activities

March 2009 – April 2010

- Activities
  - 8 Monthly H_2 101 Webinars.
  - Seminar for Code Officials with NREL Program
  - State Councils of Government (COGs)
    - Reached 6 out of 10 COGs in SC
  - Municipal Association of SC (MASC) Annual Convention
  - Legislative Staff Luncheon
  - Presentations at Technical Outreach Activities (TEDx Greenville)
  - Slideshare site (www.slideshare.net/greenwayenergy)
  - Youtube channel (www.youtube.com/greenwayenergy)

Activities (continued)

- Gubernatorial Candidates: Vincent Sheheen & Jim Rex
- Energy Summit organized by Congressman Clyburn
- South Carolina Association of Counties (SCAC) Annual Conference
- Moore Van Allen law firm
- EPI Conquering Climate Change event
- SC Rural Water Association meeting
- Hydrogen House groundbreaking
- SCAC County Council Coalition meeting
- Florence County meeting
- Several Rotary and Chamber meetings

Feedback

March 2009 – April 2010

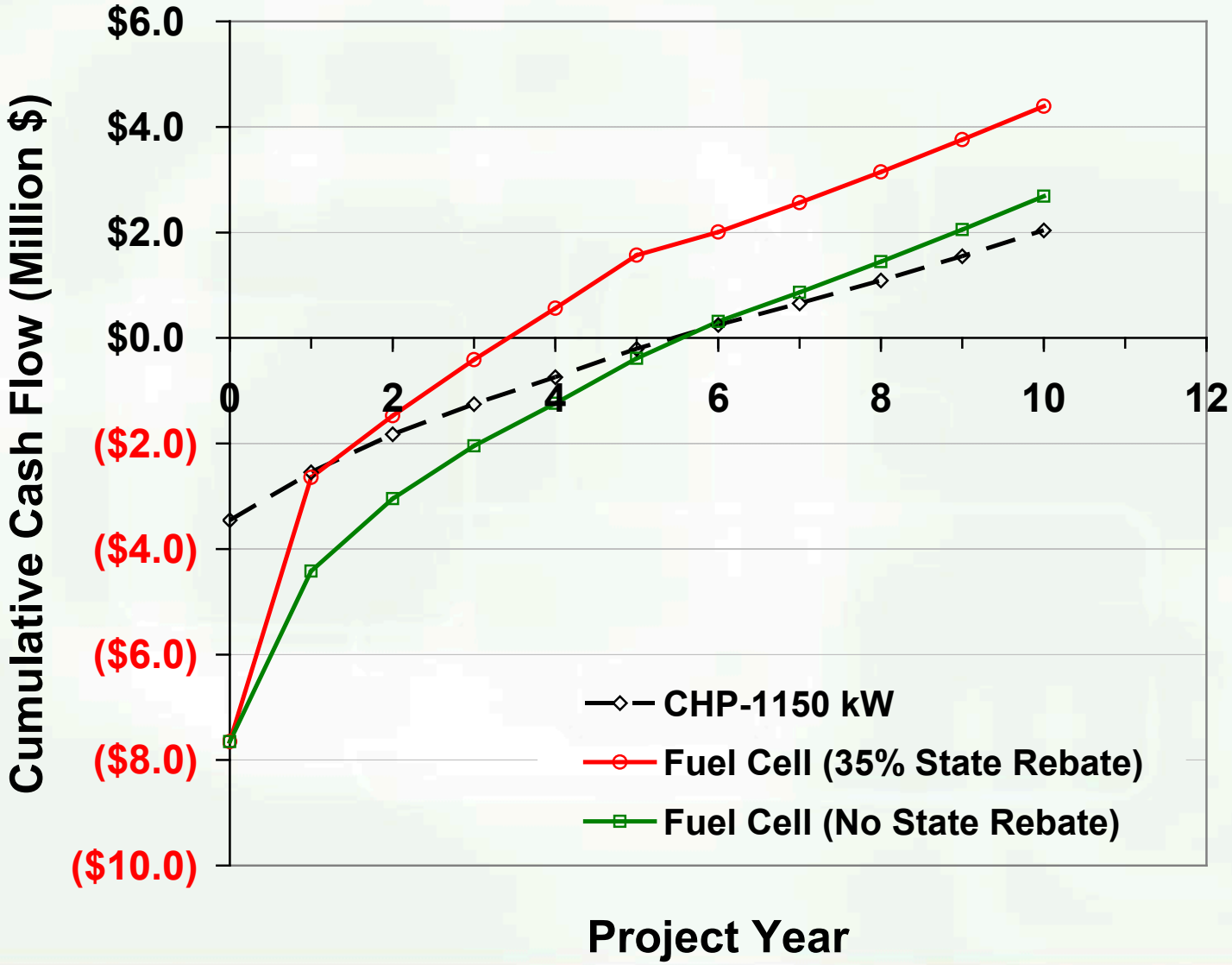
- Feedback
  - H_2 technologies sound good, but it would be good to better understand applications where they financially make sense
  - If state government will incentivize fuel cells, how do we know it will improve market adoption and that taxpayer money is not being unwisely invested?
  - How can South Carolina improve market adoption to the same level as other leading states?
  - What early markets would be the easiest and best to incentivize?
  - Would incentivizing fuel cells lead to job creation?

Activities

March 2009 – April 2010

- H_2 501 – Early Markets for Hydrogen Technologies
  - H_2 Technology Case Studies
    - H_2 Lift Truck Case Study
    - Telecom Backup Case Study
    - Combined, Heat, and Power (CHP) Study
  - White Paper and Publication on Case Studies
  - Presentations to Elected Officials & Candidates on the Effect that State Level Incentives can have on Fuel Cells
  - Presentations to Manufacturers on Fuel Cell Payback

CHP Technology Payback



Early Market Case Studies

- Financing gap creates barrier for fuel cell system adoption
- No positive rate of return on capital without tax incentive
- After a 35% state incentive, the internal rate of return is 5.5%
- Rate of return large enough for businesses to consider technologies a good investment
- Return small enough to prevent large investors from dominating the market

Technical Accomplishments
Early Market Case Studies

- Finishing case study development and testing message with different audiences
- Developing summaries of studies to be published online and in journals
- Running model scenarios that are of most interest to government officials, industry, and business
- Continuing to schedule presentations with decision-makers and government officials

The South Carolina Hydrogen and Fuel Cell Alliance

- A non-profit partnership of academic, government and businesses coordinating resources in South Carolina to advance the commercialization of hydrogen and fuel cells.

- Areas of focus:
  - Education and Outreach
  - Infrastructure Development
  - Policy Development and Implementation
  - Research and Technology Transfer

Collaborations

- Municipal Association of South Carolina (MASC)
- State Energy Office
- Greenway Energy

Summary

- Completed and exceeded 2009 targets for presentations and have reached a wide variety of decision-maker stakeholders
- Audiences are engaged in presentations and want to learn more about hydrogen and fuel cells
- Presentations have focused mostly on a basic understanding of fuel cells and market status
- Updates to material will focus on case studies of the value proposition for lift truck fleets
- Updated presentation and web materials will be produced