

Report Title: Final Report

Raising H2 and Fuel Cell Awareness in Ohio

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Project Start Date: March 2009

Project End Date: March 31, 2013

Objectives:

- Increase understanding of hydrogen and fuel cell technologies among state and local governments by 10% compared to 2004 baseline
- Increase knowledge of hydrogen and fuel cell technologies among key target populations (state and local governments) by 20 percent compared to 2004 baseline

Technical Barriers

This project addresses the following technical barriers from the education section of the Hydrogen, Fuel Cells and Infrastructure Technology Program Multiyear Research Development and Demonstration Plan:

- a) Lack of Readily Available, Objective and Technical 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 Technology Validation/Safety, Codes & Standards/Education/Manufacturing R&D/Systems Analysis Milestones

This project will contribute to the following DOE Milestones from the education section of the Hydrogen Fuel Cells and Infrastructure Technologies Program Multiyear Research Development and Demonstration Plan.

- **Milestone 11: Develop set of introductory materials suitable for a non-technical audience (complete)**
- **Milestone 13: Develop material for community seminars (complete)**

- **Milestone 16: Develop database of state activities (complete)**
- **Milestone 17: Hold “Hydrogen 101” seminars (complete)**

Accomplishments

- On May 27 and 28, over 250 people attended the 2009 Ohio Fuel Cell Symposium at Kent State Stark Branch, North Canton Ohio
- On May 27, 2 Fuel Cell community leaders' forums were educated on Fuel Cells and the Hydrogen economy. Over 100 people attended these 2 events.
- On May 28 the audience was educated on Fuel Cells as they relate to power generation solutions for the grid and additionally on Fuel Cells in the market today.

The Ohio Fuel Cell Coalition was tasked with raising the awareness and understanding of Fuel Cells and the Hydrogen economy. In 2009 through 2010 the Ohio Fuel Cell Coalition held 19 community leaders forums. A community leader's forum was held in conjunction with the 2009 Ohio Fuel Cell Symposium. On May 27 and 28 hundreds of people gathered at Kent State Stark for the 2009 Ohio Fuel Cell Symposium. The Symposium presented by the Ohio Fuel Cells Coalition began with 2 USDOE Community Leader forums where participants had an opportunity to learn about Fuel Cells and the Hydrogen Economy. Day 2 of the symposium opened with the focus on the theme of Fuel Cells as it relates to power generation solutions for the grid. Lionel Batty, chairman of the Board of Directors for the Ohio Fuel Cell Coalition kicked off the day with opening remarks followed by the morning featured speakers, which included Elizabeth Shaw of First Energy Corp., Ethan Brown of Ballard Power System, John M. Schneider of American Power (AEP), and Mark Fleiner of Rolls-Royce Fuel Cell (US) Inc.

The 2009 Ohio Fuel Cell Symposium drew over 250 people from around the State of Ohio and across the country. Additionally attendees had an opportunity to interact with and visit the booths of more than 35 exhibitors, which included companies from Fuel Cells integrators, to manufacturers, to component suppliers and research entities.

- August 21, 2009 – ADA – Ohio Northern University – 50 people
- September 2, 2009 – Youngstown University – 50 people
- September 14, 2009 – Dayton, Ohio – 25 people
- October 19, 2009 – AFRL 10 people
- October 20, 2009 – Akron Sierra Club 20 people
- November 12, 2009 – Wayne County Sustainability Forum 25 people
- November 16, 2009 – US Fuel Council Seminar 20 people
- December 12, 2009 – State House of Representatives Hearing 10 people
- January 13, 2010 – Ohio Board of Regents – Green Pathways Inaugural Meeting, Columbus, Ohio – 25 people
- February 4, 2010 – Presentation at Great Lakes Educational Partnership at Stark State College – 20 people
- February 23, 2010 – Ohio Economic Education Summit III – 50 people
- March 2, 2010 – STEM Education Panel at COSI in Columbus, Ohio – 40 people
- April 9, 2010 – Dublin, Ohio – 75 people – Fuel Cells Opportunity for Growth in Central Ohio
- April 16, 2010 – Aurora, Ohio – 20 people – Industrial Advisory Board for the College of Technology of Kent State University
- May 4, 2010 – Columbus, Ohio – 40 people – 2010 Ohio State University Sustainability Conference
- May 6 and 7, 2010 – Cleveland, Ohio – 180 people-2010 Symposium
- May 21, 2010 – Mansfield, Ohio – 40 people – Fuel Cells Opportunity for Growth in North Central Ohio
- June 7, 2010 – Youngstown, Ohio – 125 people – Youngstown Sustainability Conference
- June 17, 2010 – Dublin, Ohio – 20 people – Ohio Fuel Cell Coalition Board of Directors Meeting

A community leader's forum was held in conjunction with the 2010 Ohio Fuel Cell Symposium. On May 6 and 7 over 200 people gathered at the Great Lakes Science Center for the 2010 Ohio Fuel Cell Symposium. The Symposium presented by the Ohio Fuel Cell Coalition began with two community leaders forums where participants had an opportunity to learn about fuel cells and the hydrogen economy. Day 2 of the symposium opened with the focus in the morning on the theme of "Ten Years of Success and Beyond" and in the afternoon "Fuel Cells in the Commercial Market." In the morning of the first day we honored Governor Bob Taft and Chairman Emeritus of the Ohio Fuel Cell Coalition, Trevor Jones for their lifetime achievements in advancing the fuel cell initiative in the State of Ohio. A panel discussions followed were Rodger McKain of Rolls-Royce, Lionel Batty of GrafTech, Bill Dawson of NexTech and Frank Svet of EMTEC discussed their successes over the last 10 years. In the afternoon, we started out with a panel discussion on the proposed Great Lakes Science Center Electrolysis Project. On that panel were Valerie Lyons of the National Aeronautics and Space Administration (NASA), Pete Buca of Parker Hannifin and George Shaw of NASA. They were followed by Bill Whittenberger of Catacel, Bob Rose of the US Fuel Cell Council and Mike McKay of the Ohio Department of Development. This event allowed the Coalition to educate over 200 individuals on fuel cells and the hydrogen economy which exceeded our expectations.

- July 13, 2010 – Ohio Fuel Cell Coalition Board Meeting – Dublin Ohio – 45 people
- July 14, 2010 – China Export Commission – Toledo Ohio – 15 people
- July 22, 2010 – Cleveland Ohio – 40 people
- August 7, 2010 – Akron Ohio – 25 people
- August 26, 2010 – Columbus Ohio – 100 people
- September 16, 2010 – Canton Ohio – 25 people
- September 30, 2010 – Dublin Entrepreneur Center Presentation – Dublin Ohio – 50 people
- October 18-21, 2010 – Annual Fuel Cell Seminar – San Antonio Texas – 25 people
- October 26, 2010 – Youngstown Ohio – 35 people
- November 2, 2010 – Presentation at First Energy – Eastlake Ohio – 50 people
- November 23, 2010 – Regional Economic Development Forum – Mansfield Ohio – 35 people
- December 2, 2010 – Kent Ohio – 20 people
- December 20, 2010 – IAB Board Meeting – Canton Ohio – 10 people
- January 7, 2011 – Cincinnati Ohio – 10 people
- January 25, 2011 – Ohio Fuel Cell Coalition Board Meeting – Logan Ohio – 20 people
- February 15, 2011 – Ohio Fuel Cell Members Forum – Washington DC – 20 people
- March 1, 2011 – Dayton Ohio – 20 people
- March 23, 2011 – Kent City Leadership – Kent Ohio – 20 people
- April 18&19, 2011 – North Canton Ohio – Ohio Fuel Cell Symposium – 210 people
- April 26, 2011 – Wayne County Chamber – Orville Ohio – 10 people
- May 21, 2011 – Ohio Society of Professional Engineers – Cleveland Ohio – 50 people
- June 7, 2011 – Regional Leadership Forum – Lima Ohio – 50 people
- June 8, 2011 – Northwest Ohio Leadership Forum – Perrysburg Ohio – 30 people

In 2010 through 2011 the Ohio Fuel Cell Coalition held 23 community leaders forums. An annual community leader's forum was held in conjunction with the 2011 Ohio Fuel Cell Symposium. On April 18 and 19 over 210 people gathered at the Kent State Stark Campus for the 2011 Ohio Fuel Cell Symposium, the theme this year was Economic Opportunities Through the Fuel Cell Supply Chain. The Symposium presented by the Ohio Fuel Cell Coalition began with 2 USDOE Community Leaders forum where participants had an opportunity to learn about Fuel Cells and the Hydrogen Economy. On Day 2 of the symposium the audience heard from a series of Fuel Cell Integrators and Fuel Cell Leaders, on the importance of the supply chain in fuel cell development. In the morning of the first day we heard from Mark Fleiner of Rolls-Royce Fuel Cell Systems and John O'Donnell, President of Stark State College of Technology discussed the

emerging fuel cell clusters in North Canton Ohio. A panel discussion was held in the afternoon with Steve Sinsabaugh, Lockheed Martin; Tim Lowe, VP Sales of Energy Technologies and Vince Contini from Battelle who discussed the Ohio's strength in the Fuel Cell Genset Arena. This event allowed the Coalition to educate over 210 individuals on fuel cells and the hydrogen economy which exceeded our expectations.

- August 12, 2011 – Lorain County Community College, Elyria, OH - 20 people
- September 14 – 15, 2011 - NorTech B2B Conference, Cleveland, OH - 70 people
- September 19, 2011 - Global Business Forward, Gahanna, OH - 30 people
- September 22, 2011- Community Leaders Forum, Dayton, OH - 60 people
- October 3, 2011 - Manufacturing Educational Council, Akron, OH - 25 people
- November 2, 2011 - Ohio Reception at Fuel Cell Seminar, Orlando, FL - 100 people
- November 15, 2011 - Community Leaders Forum, Athens, OH - 40 people
- May 1, 2012 - Supply Chain Exchange at Ohio Fuel Cell Coalition Symposium, Elyria, OH - 100 people
- May 1-2, 2012 – Ohio Fuel Cell Coalition Symposium, Elyria, OH - 200 people
- June 7, 2012 – TechSolve, Cincinnati, OH – 10 people
- June 12, 2012 – Lima Editorial Board, Lima, OH – 15 people

In 2011 through 2012 the Ohio Fuel Cell Coalition held 11 community leaders forums. On May 1 and 2 over 200 people gathered at the Lorain County Community College Campus for the 2012 Ohio Fuel Cell Symposium, the theme this year was Fuel Cell Collaborations, Trends & Applications. The Symposium presented by the Coalition began with the first ever Members' Only Meeting where participants had an opportunity to be engaged in a strategic planning process. This was followed by a Supply Chain Exchange event where 8 integrators were matched up with 30 suppliers from throughout the United States. On Day 2 of the symposium we had a series of speakers opening with Dr. Roy Church, President, Lorain County Community College followed by Dr. Roger Saillant, Case Western Reserve University. The speakers also included David Mustine, JobsOhio; Ed Cohen, Honda; Morry Markowitz, Fuel Cell Hydrogen Energy Association; Greg Kleen, Department of Energy; and Julie Cairns, CSA Group. This event allowed the Coalition to educate over 200 individuals on fuel cells and the hydrogen economy which certainly exceeded our expectations.

Approach

The approach we used for all the Community Leaders Forums were presentations by the Ohio Fuel Cell Coalition in conjunction with regional leaders. The presentations were followed by question and answers periods followed up by informal discussions on Fuel Cells and the Hydrogen Economy.

Results

In summary, as you see the Community Leader Forums have been very successful over the period of the grant with over 2,780 people being drawn to the forums. As always, we followed up the forums with a survey and the survey results were very positive in that the participants had a significant increase in knowledge and awareness of Fuel Cells and the Hydrogen Economy.