VI.3 Fuel Cell and Hydrogen Opportunity Center, www.hfcnexus.com

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Contract Number: DE-EE0006932

Subcontractors:
- Birch Studio, Charlottesville, VA
- Breakthrough Technologies Institute, Washington, D.C.

Project Start Date: July 1, 2015
Project End Date: May 31, 2018

Overall Objectives

- To expand the domestic supply chain of hydrogen components and systems.
- Scale-up of the fuel cell and hydrogen supply chain by building and populating a comprehensive communications database.
- Drive U.S. companies to the free website via an engaging outreach campaign.
- Advance hydrogen fuel cell suppliers in the transportation, utility, industrial, commercial, and residential sectors, with a focus on the transportation sector in fuel and infrastructure supply chain systems.
- Reduce greenhouse gas emissions, and air pollution and contribute to a more diverse and efficient energy balance by facilitating the widespread commercialization of hydrogen and fuel cell technologies.

Fiscal Year (FY) 2016 Objectives

- Input and feedback will be collected from DOE and laboratories on the visually accessible public interface to ensure critical parties' interests are addressed. The survey was created and administered at the 2015 Fuel Cell Seminar; survey data were able to provide an initial baseline of categories and contacts. A second collaborative data gathering process was used to gain feedback from National Renewable Energy Laboratory, DOE, and project partners on a website project name.
- The list of fuel cell system components to be initially included in the database is completed.
- The opportunity center will be up and running within six months of sub agreement completion and be populated with the information collected to date.
- The web portal will be developed to house the opportunity center for industry to gather and input information.
- Input and feedback from project partners on technical specifications of the opportunity center including user experience and functionality is obtained.
- An interface will be developed to allow fuel cell companies and hydrogen companies to partner based off of similar needs.
  - Status: Ongoing
- The project team will update the database continuously and technical specification will be monitored and updated quarterly.
  - Status: Ongoing
- The project team will identify the fuel cell system gaps and cater the opportunity center to narrow the gaps identified.
  - Status: Ongoing

Technical Barriers

This project addresses the crosscutting technical barriers of supply chain transparency and business and product information of the manufacturing R&D section. The project also addresses the following specific barrier from the Education and Outreach section of the Fuel Cell Technologies Office Multi-Year Research, Development, and Demonstration Plan.

(A) Lack of Readily Available, Objective, and Technically Accurate Information

Contribution to Achievement of DOE Milestones

This project will directly contribute to achievement of DOE milestones from the Education and Outreach section of the Fuel Cell Technologies Office Multi-Year Research, Development, and Demonstration Plan. The project is a

cross-cutting effort to publish available supply chain business content and connect industry partners. As such, milestones associated with development and demonstration in the Manufacturing R&D section are supported, and this project takes those milestones to deployment.

FY 2016 Accomplishments

- Focus groups initiated with Department of Energy and hydrogen fuel cell industry. Comments collected and reviewed.
- First and second gap analyses initiated with Breakthrough Technologies Institute.
- Birch Studio developed and continues to refine the website's user interface and user account controls.
- Permanent server space engaged at James Madison University.
- A baseline of 220 company entries verified and entered into the database.
- Review of companies for accuracy. Several have been removed, all have been updated.
- Soft launch of website on June 1, 2016. Live launch on July 11, 2016.
- Staff attended the Fuel Cell Seminar in Los Angeles, California, and the ACT Expo in Long Beach, California and co-located hydrogen business connection events and seminars to beta-test the project and network with hydrogen and fuel cell companies.

INTRODUCTION

The Fuel Cell and Hydrogen Opportunity Center, renamed the Hydrogen Fuel Cell Nexus (and live at www.hfcnexus.com and www.hfcnexus.org, Figure 1) will expand the domestic supply chain of components and systems necessary for the manufacture and distribution of the hydrogen and fuel cell equipment. The supply chain will benefit through the development of a comprehensive online database. This effort will advance hydrogen fuel cell suppliers in the transportation, utility, industrial, commercial, and residential sectors, with a focus on the transportation sector in fuel and infrastructure supply chain systems.

APPROACH

VCC and project partners addressed the main objective of the Fuel Cell and Hydrogen Opportunity Center project by collaboratively identifying gaps and developing elements of interest for a comprehensive supplier tool, gathering national supplier information to fill the database, identifying and encouraging new suppliers to become engaged in the hydrogen industry, and releasing and maintaining a public directory tool for interaction with the data. Birch Studio developed the user interface for the website. Virginia Clean Cities populated the database with U.S. companies from the FuelCells2000 directory. After the website was launched, VCC began an aggressive outreach campaign using trade association outreach, webinars, social media, and personal contact to drive companies to this resource.

RESULTS

The FY 2016 efforts of the Fuel Cell and Hydrogen Opportunity Center project team culminated in the release of a live and interactive website directory on July 11, 2016. The website directory has an initial population of 220 companies (Figure 2). These companies were verified that they are active in the hydrogen or fuel cell industries. Phone numbers, email addresses, and mailing information for employees at each company was uploaded for each company to provide a method for website users to contact the company (Figure 4).

CONCLUSIONS AND FUTURE DIRECTIONS

During the third quarter of 2016, the project team will be active in several areas of the project related to improving the website and adding companies. The project team will continue verifying data and company information and revising as needed. The website will go live on July 11, 2016 at which time the project team will begin direct marketing and outreach to hydrogen and fuel cell companies. During this period VCC will develop and disseminate marketing and outreach materials that describe the website and how

FIGURE 1. www.HFCnexus.com homepage

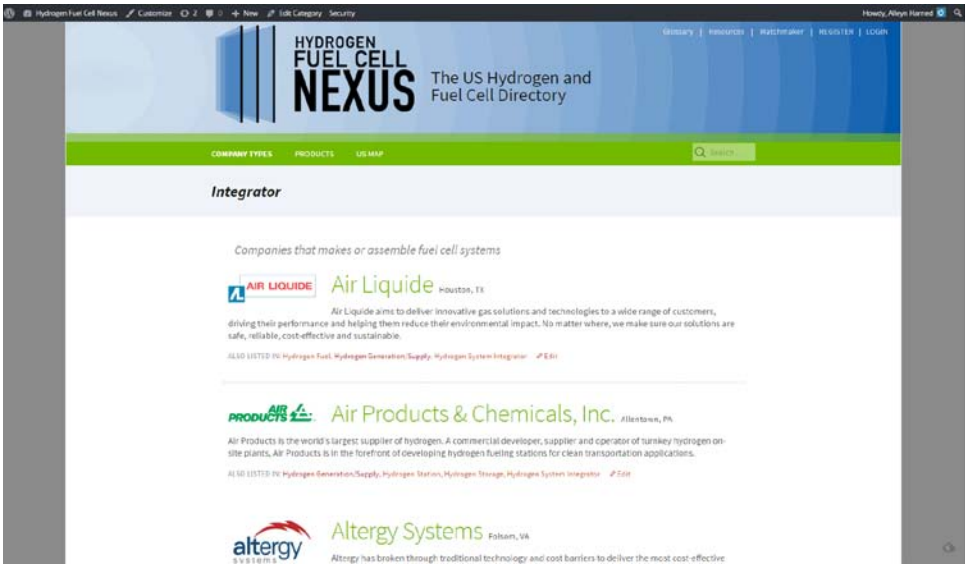
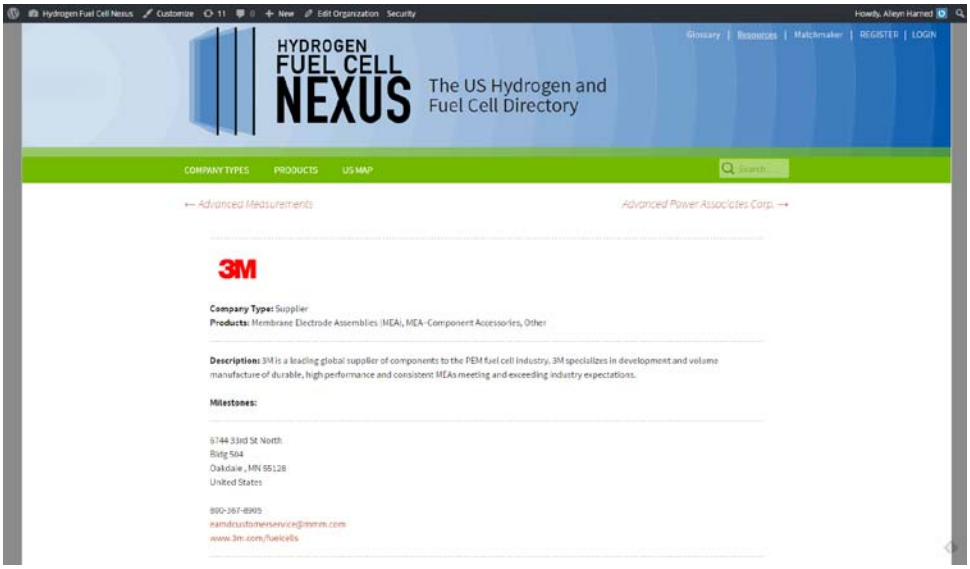


FIGURE 2. Example of a company's directory page



FIGURES 3. Examples of company category page

to utilize it. Birch Studio will develop the Matchmaker Interface for companies to connect to one another. Birch Studio will being a maintenance and iteration phase to continue improving the website interface. VCC staff will continue promoting the database at events and collecting data on hydrogen and fuel cell companies to include in the database. Project staff will develop website branding with DOE guidance.

Throughout the rest of the year and moving through to June 30, 2017, the project team will enter a supply chain growth phase. Throughout the second budget year the team will engage in an outreach campaign to drive appropriate suppliers to the site, by initiating friendly partnerships with business-to-business marketing associations and other business associations in areas of critical need.

The database and website tools will have three main areas for public access, supplier secure access, and system administrator's access. The content will be accessible 24/7.

FY 2016 PUBLICATIONS/PRESENTATIONS

1. *Virginia Clean Cities at James Madison University*
VCC's Deputy Director Matthew Wade attended the Fuel Cell Seminar in Los Angeles to present an update on the Hydrogen

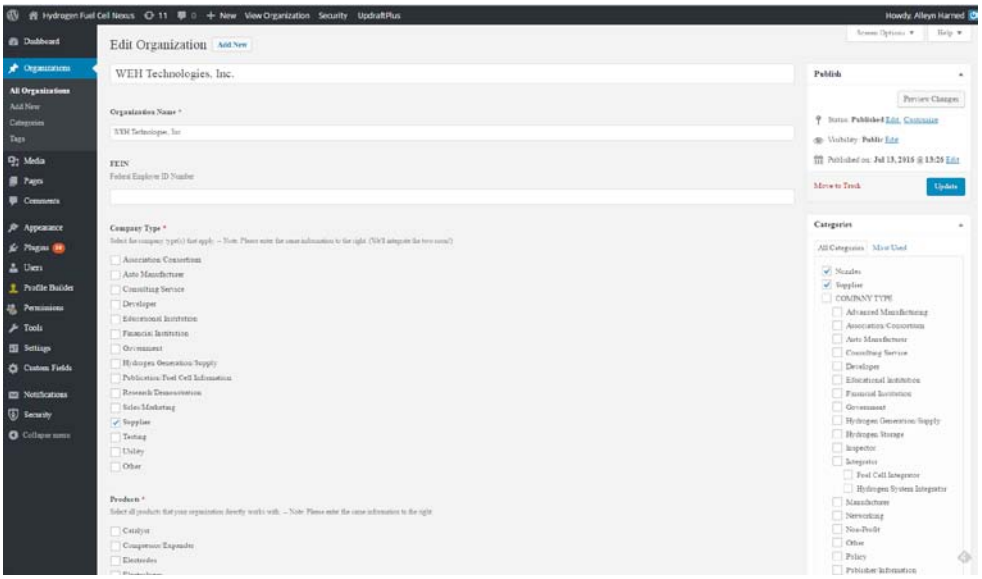


FIGURE 4. Example of company information page

Opportunity Center on November 18, 2015. Principal Investigator Alleyn Harned presented at the Annual Merit Review, Washington, D.C. June 8, 2016. Alleyn Harned presented an early release mobile version of the website to individuals at two hydrogen summits at ACT Expo from May 2 to May 6, 2016.

2. *Birch Studio*
David Robinson presented an early release mobile version of the website to individuals at two hydrogen summits at ACT Expo from May 2–May 6, 2016.

3. *Breakthrough Technologies Incorporated*
Robert Rose made a presentation to the Hydrogen and Fuel Cell Technical Advisory Committee in October 2016.