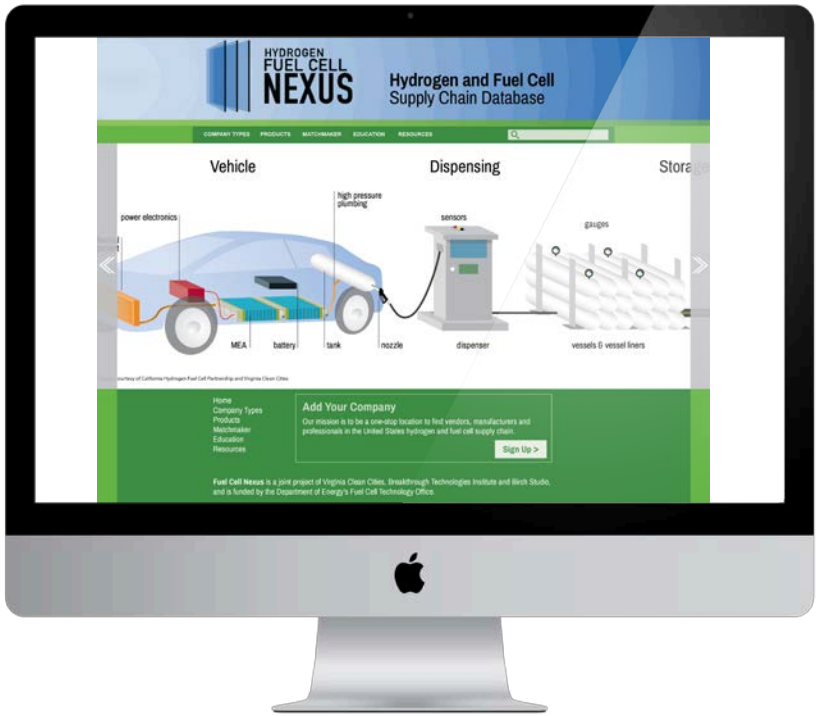
HFCNEXUS.COM



Fuel Cell and Hydrogen Opportunity Center

Project ID # - MN013

June 6, 2017

PI: Alleyn Harned

Virginia Clean Cities

1401 Technology Drive

Harrisonburg, VA 22802

This presentation does not contain any proprietary, confidential, or otherwise restricted information

Virginia Clean Cities Snapshot

One designated statewide Coalition in Virginia - since 1996

501c3 not-for-profit & James Madison University partnership

Supported by stakeholder members, DOE, DMME, and grants

Managing alt fuel deployment and education programs on behalf of governments, fleets, and other stakeholders

Strategies:

- Partner with States & Local Organizations, Public and Private fleets
- Provide Outreach, Education, & Information Resources
- Facilitate Infrastructure Development
- Provide Technical & Financial Assistance

Overview

Timeline

- Commence: July 1, 2015
- End: June 30, 2018

Budget

- Total Project Budget
  - $475,743
- Federal Share
  - $450,000
- Recipient Share
  - $25,743
- Total DOE Funds Spent*
  - $369,091

*As of 2/28/17

Barriers

- Barriers Addressed
  - The lack of updated readily available, objective, national and accurate supplier information
  - Holes in supply chain information – high soft costs of collaboration

Partner/Collaborators

- VCC at James Madison University, Alleyn Harned and John Hulvey
- Birch Studio, David Robinson
- Breakthrough Technologies Institute (BTI), Robert Rose

Relevance

- Expand the domestic supply chain of hydrogen components and systems through website.
- Scale-up the fuel cell and hydrogen supply chain by building and populating a comprehensive communications database.
- Drive U.S. companies to the website via an aggressive 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
- Project website successfully launched, information readily available, visitors connecting with U.S. businesses
- Supply chain needs filled with business information

Approach – Budget Periods 1 & 2

TASKs and SUBTASKS	START	END	MONTHS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1: WEBSITE CONTENT AND DATABASE DEVELOPMENT	1	24	
1.1 Solicitation of Input	1	3	x
1.2 Comprehensive List of Fuel Cell System Components	1	6	x
1.3 Creation of the Opportunity Center	1	9	#
1.3.1 Develop Web Portal	1	12	O x
1.3.2 Develop the Initial Database	1	3	x
1.4 Develop Matchmaker Interface	6	15	x
1.5 Maintenance and Iteration	6	36	
1.6 Gap Analysis and Plan	1	24	x
2: FACILITATE FUEL CELL SUPPLY CHAIN GROWTH	2	36	
2.1 Data Collection From Fuel Cell Industry	6	32	#
2.2 Materials Development	10	24	x
2.2.1 Materials Dissemination	13	36	
2.2.2 Advertising and Earned Media	16	24	x
3: PROJECT MANAGEMENT	1	36	
3.1 Document, Report, and Share Project Information	3	36	
3.2 Evaluation of Project Goals	3	30	
3.3 Project Administration	1	36	

***Year three represents Closeout. Significantly reduced efforts and budget to maintain website while closing out the 2015 federal awarded funding for the project**

Expected completion	
Milestone Report Quarterly Emphasis	**x**
Go/No-Go Point	**#**
Hard Launch of Website	O

Budget Period 3 Timeline

TASKs and SUBTASKS	START	END	MONTHS 25	26	27	28	29	30	31	32	33	34	35	36
1: WEBSITE CONTENT AND DATABASE DEVELOPMENT	1	24												
1.5 Maintenance and Iteration	6	36				x				x				x
2: FACILITATE FUEL CELL SUPPLY CHAIN GROWTH	2	36												
2.1 Data Collection From Fuel Cell Industry	6	32												
2.2 Materials Development	10	24												
2.2.1 Materials Dissemination	13	36												
2.2.2 Advertising and Earned Media	16	24												
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3.3 Project Administration	1	36											@	

***Year three represents Closeout. Significantly reduced efforts and budget to maintain website while closing out the 2015 federal awarded funding for the project**

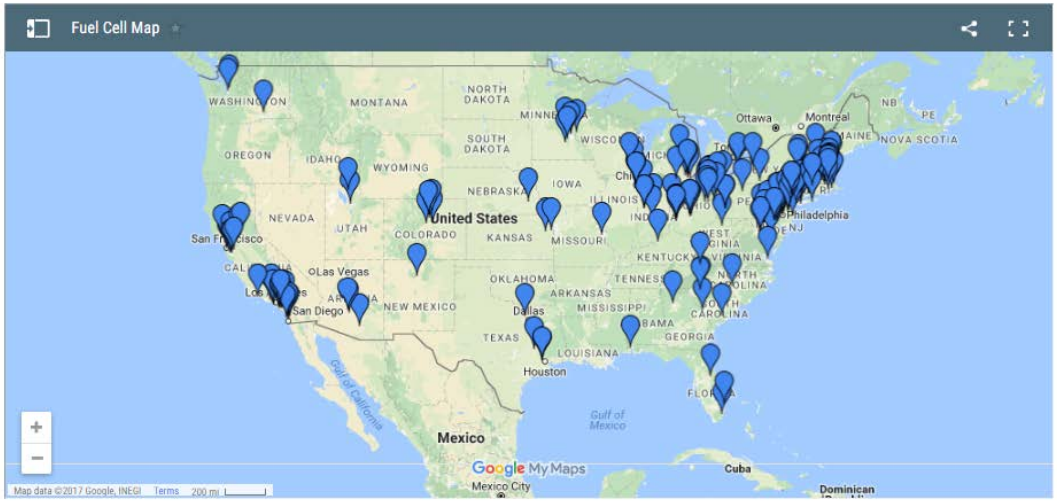
Expected completion	
Milestone Report Quarterly Emphasis	**x**
Go/No-Go Point	**#**
Project Closeout Period Begins	@

2: FACILITATE FUEL CELL SUPPLY CHAIN GROWTH

In the second year, partners gather national supplier information, encourage suppliers to become engaged in the hydrogen industry, and maintain a public directory tool for interaction with the data.

US MAP

The map below shows the locations of organizations in the Hydrogen and Fuel Cell Database across the US. You can zoom in and click on pins to navigate.



Approach for FY 2017

- **2.1 Data Collection From Fuel Cell Industry**: The team will collect data and research suppliers. Currently, there are multiple thousands of suppliers in the U.S. alone and the existing BTI database consists of only 1,000 suppliers. When we reach a critical mass of users, suppliers will hear about the database and be able to sign up on their own initiative, long after our outreach campaign has ended. Rich content will allow for new ways to search and for companies to connect, and also allow organic scaled growth of fuel cell industry sectors.
- Input new suppliers into the opportunity center database
  - **Status: Complete**
- **2.2 Materials Development:** First generation materials submitted and approved by DOE.
  - **Status: Ongoing**

Approach for FY 2017

- **2.2.1 Materials Dissemination:** The project team will track the materials distribution by using the number distributed, website hits, webinar participants, and video views. Milestone will be successful with 300 webinar participants in first outreach year and 500 overall and 100 total associated supplier contacts from conferences.
  - **Status: Ongoing**
- **2.2.2 Advertising and Earned Media:** The team will seek opportunities for information placement in trade journals, which often make space available for nonprofits. The team will use free sources and a limited budget to purchase internet based advertising through Google AdWords and Facebook in order to reach people as they search for words or phrases and browse websites with themes related to fuel cells.
  - **Status: Adwords launch complete, earned media ongoing**

Accomplishments and Progress

2016

- Website Launched in July 2016
- Expanded to 337 Organizations
- 63 Users
- 400 unique site visits per month
- Launched Matchmaker Interface
- AdWords campaign
  - 127,039 views
  - 2,108 clicks
- Three Instructional Videos created and posted to YouTube – 100 views
- Earned Media
  - http://www.whsv.com/content/news/Valley-organization-creates-a-website-for-emerging-technology-387695541.html
  - NGT News http://ngtnews.com/doe-announces-14-million-to-advance-hydrogen-fuel-technologies

Company Landing Page

Glossary | Resources | REGISTER | LOGIN

HYDROGEN FUEL CELL NEXUS The US Hydrogen and Fuel Cell Directory

COMPANY TYPES PRODUCTS US MAP MATCHMAKER 3m

Search Results for: 3m

3M Fuel Cell Components

Oakdale, MN

3M is a global supplier of components to the PEM fuel cell industry. 3M specializes in development and volume manufacture of durable, high performance, and consistent MEAs.

ALSO LISTED IN: Component Accessories, Dispersions, Gas Diffusion Layers, Gaskets, Manufacturer, MEAs, Membranes, Plates, Supplier Edit

UPDATED: October 12, 2016

Company Detail Page

HYDROGEN FUEL CELL NEXUS The US Hydrogen and Fuel Cell Directory

Glossary | Resources | REGISTER | LOGIN

COMPANY TYPES PRODUCTS US MAP MATCHMAKER Search ...

3M

Company Type: Supplier
Description: 3M is a global supplier of components to the PEM fuel cell industry. 3M specializes in development and volume manufacture of durable, high performance, and consistent MEAs.

Products: Membrane Electrode Assemblies (MEA), MEA–Membranes, MEA–Dispersions, MEA–Gaskets, MEA–Gas Diffusion Layers, MEA–Plates, MEA–Component Accessories, Other
Other Product: Ultra Low Viscosity Fluoroelastomer, Fluoropolymers, Ceramic Fibers
Fuel Cell Type: Polymer Electrolyte Membrane Fuel Cell

6744 33rd St North
Bldg 504
Oakdale, MN 55128
United States
800-367-8905
eamdcustomerservice@mmm.com
www.3m.com/fuelcells

In Business Since: 1902
# of US Employees: 1000+
Stock Symbol: MMM

3M

Company Type: Supplier
Description: 3M is a global supplier of components to the PEM fuel cell industry. 3M specializes in development and volume manufacture of durable, high performance, and consistent MEAs.

Products: Membrane Electrode Assemblies (MEA), MEA–Membranes, MEA–Dispersions, MEA–Gaskets, MEA–Gas Diffusion Layers, MEA–Plates, MEA–Component Accessories, Other
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6744 33rd St North
Bldg 504
Oakdale, MN 55128
United States
800-367-8905
eamdcustomerservice@mmm.com
www.3m.com/fuelcells

Matchmaker Function

COMPANY TYPES PRODUCTS US MAP MATCHMAKER Search ...

OFFERING

This page lists organizations that are offering products, goods, services, etc in hydrogen and fuel cell markets.

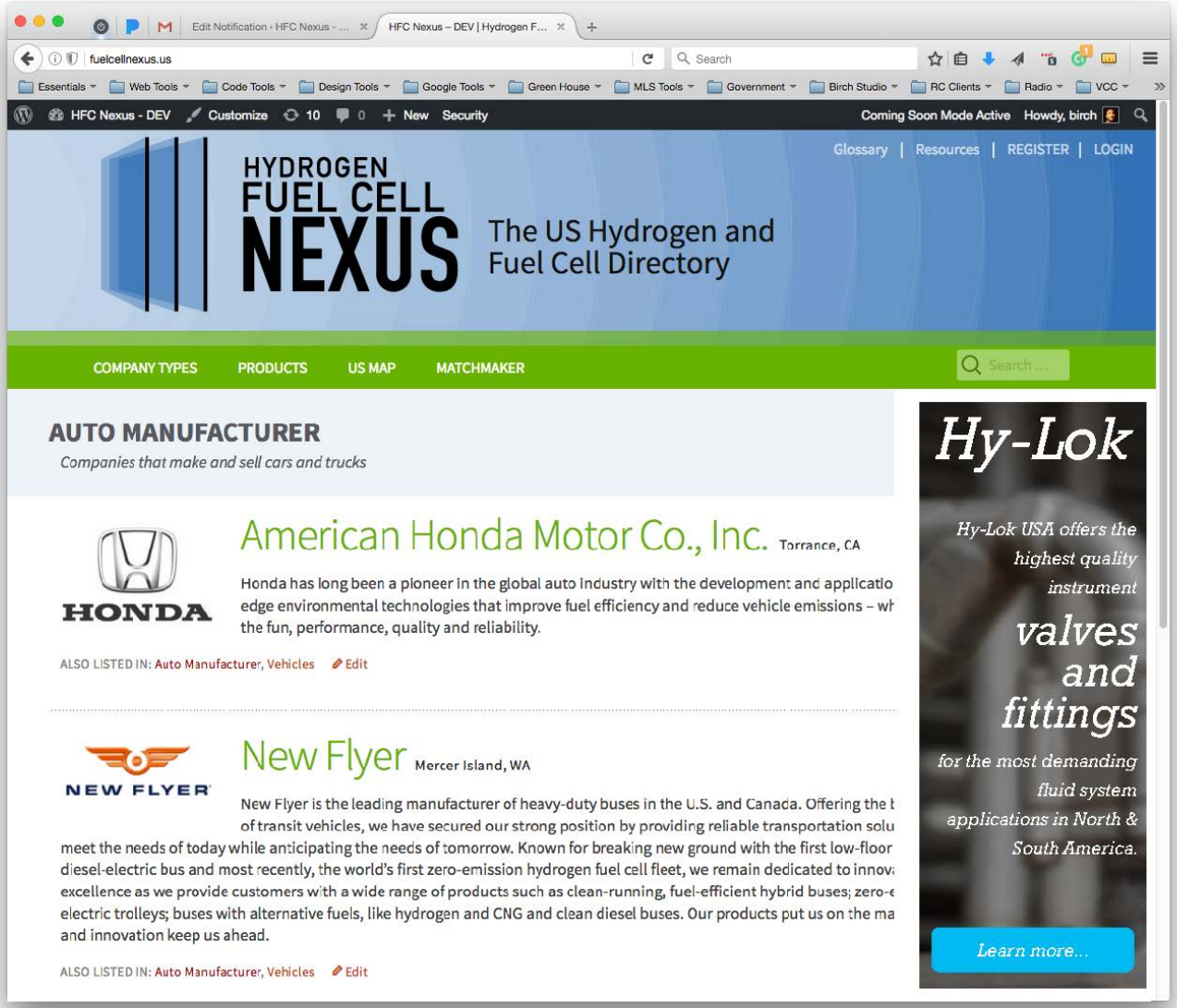
VIRGINIA CLEAN CITIES

Request for Submissions

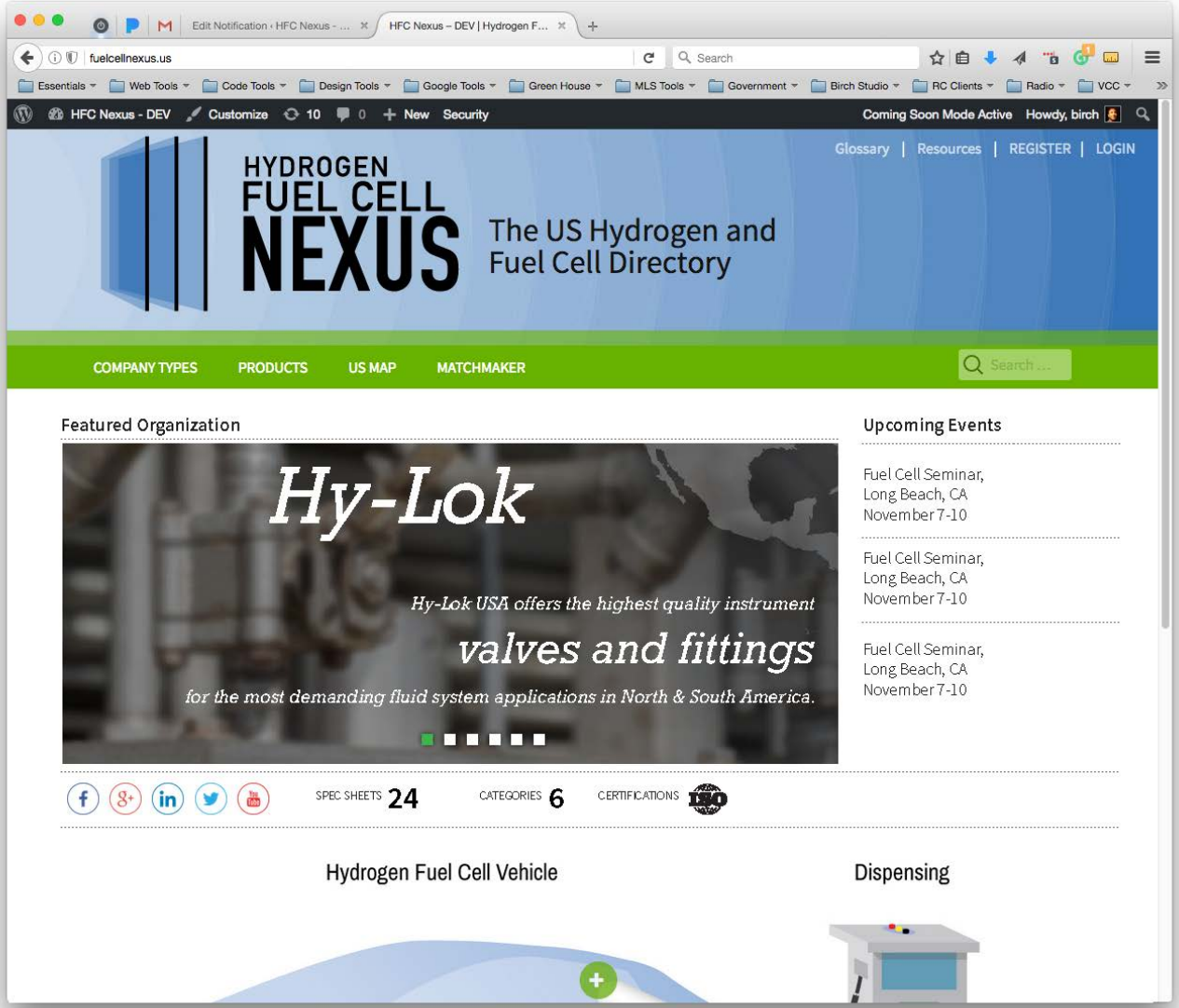
The Matchmaker module is now live. Its goal is to help you connect with others in the supply chain to help improve communications and speed up development of this critical technology. Please consider adding a listing.

Matchmaker Function Tutorial Video

Activating Web-based Advertising



Proposed Web-based Advertising



Proposed Future Work

Remainder for FY 2017

- Site Maintenance and Iteration
  - Additional Companies
  - Additional active users
- Final Gap Analysis
- For Advertising and Marketing
  - Materials Development
  - Materials Dissemination
  - Initial Sponsor Acquisition for FY 2018
- Document, Report, and Share Project Information

Collaborations

- Virginia Clean Cities at James Madison University
  - Manages project through Virginia Clean Cities – 20 year old program with past hydrogen education project with DMME /DOE
- Birch Studio
  - an experienced branding agency that has advanced a diversity of online informational tools and networking opportunities and focused visualization and user interface design in the alternative energy sector. Birch has advanced thousands of projects and currently hosts over 100 websites.
- Breakthrough Technologies Institute
  - an independent, non-profit educational organization dedicated to promoting advanced environmental and energy technologies from the perspective of the public benefit

Remaining Challenges

- Website Development and Database Management
  - VCC will work with DOE and program partners to find additional third-party funding to maintain the database
  - The primary barriers to success for this task are obtaining additional funding from organizations to support the continued development and management of this database
- Facilitating Fuel Cell Market Growth
  - VCC will continue the process of marketing the website through advertising and earned media.
  - VCC will work with DOE and project partners to develop informational and promotional materials that will highlight the benefits of participating in this database.

Summary

- **Objective**: Build and market a comprehensive hydrogen and fuel cells database for U.S. companies interested in alternative fuels.
- **Relevance**: Reducing barriers to education on hydrogen and fuel cells as an industry and expand market opportunities for the fuel
- **Approach**: Develop a comprehensive list and database of hydrogen and fuel cell system components. Begin work with partners on the creation of the Fuel Cell and Hydrogen Opportunity Center and Web Portal. Develop marketing plan for the promotion of the website.
- **Accomplishments**: **www.HFCnexus.com**, 337entries, UI and website deployed, Gap Analysis, and Plan
- **Collaborations**: JMU, Birch Studio, and BTI

Virginia Clean Cities

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