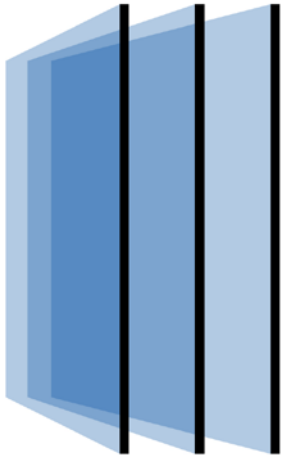
Virginia Clean Cities



FUEL CELL NEXUS

Connecting the Fuel Cell Supply Chain

Fuel Cell and Hydrogen Opportunity Center

Project ID # - DE-EE0006932

October 28, 2015

PI: Alleyn Harned
Virginia Clean Cities
1401 Technology Drive
Harrisonburg, VA 22802

Virginia Clean Cities Snapshot

One designated statewide Coalition in Virginia - since 1996

501c3 not-for-profit & James Madison University (JMU) 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

Sponsors & Strategic Partners

Project Overview

Timeline

Commence: April 1, 2015

End: March 31, 2018

Budget

- Total Project Budget
  - $475,743
- Federal Share
  - $450,000
- Recipient Share
  - $25,743
- Total DOE Funds Spent
  - $25,000 Pre-award Approved

Barriers Addressed

A. Lack of readily available, objective, and technically accurate information

B. 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

Collaborations

James Madison University

Manages project through Virginia Clean Cities – 20 year old program with past hydrogen education project with DMME/DOE.

Birch Studio

A design agency that creates a diversity of online informational tools, data visualization and user interface design projects. Birch has advanced thousands of projects and is focused on the intersections of branding, data, clean energy, efficiency, housing and transportation.

Breakthrough Technologies Institute

An independent, non-profit educational organization dedicated to promoting advanced environmental and energy technologies from the perspective of the public benefit and operator of Fuel Cells 2000 which advances the commercialization of fuel cells including sharing information in a website that attracts 15,000 visitors monthly.

Project 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 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
- 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.

Project Timeline

TASKS and SUBTASKS	START	END	MONTHS
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	0 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	

***Represents Closout. Reduced efforts and budget to maintain opportunity center while closing out the project**

Expected completion	
Milestone Report Quarterly Emphasis	**x**
Annual Go/NoGo Point	**#**
Hard Launch of Website	0

Progress as of October 28, 2015

- We have reserved a name FUEL CELL NEXUS
- Technical Accomplishments Period – server space has been secured and website design is being developed
- Initial database is being populated
- Survey being developed for hydrogen and fuel cell industry's input

Remaining Challenges and Barriers

Website Development and Database Management

- The primary barrier to overcome in this task is in the identification and selection of a manageable list of components and suppliers.
- The primary barriers to success for this task are obtaining meaningful cooperation from organizations that can share the opportunity with target audiences and a lack of interest in the fuel cell and supplier marketplace at this stage.

Facilitating Fuel Cell Market Growth

- A barrier to developing marketing materials is the necessary and extensive coordination with fuel cell and hydrogen vendors.
- A challenge to marketing of website will be developing a sustained and comprehensive media strategy that engages target audiences

Critical Assumption and Issues

Assumptions

- Cooperation of project partners and hydrogen/fuel cell vendors is critical and somewhat welcome
- Additional companies will consider hydrogen and fuel cell supply chain products as costs of hydrogen/fuel cell technologies will continue to decline
- This is right time – not too early to develop the sustainable database, and additional information can be added later

Issues

- Public awareness of hydrogen/fuel cell industry will be valuable

Proposed Future Work

Remainder for FY 2015

For Website Development

- Data Collection and Population
- Comprehensive List of Fuel Cell System Components
- Creation of the Opportunity Center
- Develop the Web Portal
- Develop the Database
- Develop Matchmaker Interface
- Site Maintenance

For FY 2016

- Develop the Matchmaker Interface
- Site Maintenance and Iteration
- Gap Analysis
- For Advertising and Marketing
  - Materials Development
  - Materials Dissemination
- Document, Report, and Share Project Information

Summary

Objective

Build and market a comprehensive hydrogen database for U.S. companies interested in alternative fuels.

Relevance

Reducing barriers to education on hydrogen as an industry and expand market opportunities for the fuel.

Approach

Develop a comprehensive list and database of fuel cell system components. Work with partners on the creation of the project. Develop marketing plan for the promotion of the website.

Accomplishments

Long-term server acquired, website name selected, initial database verified, website being developed.

Collaborations

JMU, Birch Studio, and BTI

How you can help

1. **Name?**
2. **What's a U.S. supplier?**
3. **U.S. developers or all developers (customers)?**
4. **How to find/reach potential suppliers?**
5. **How to increase supplier interest and participation?**
6. **How to increase developer interest and participation?**
7. **Advice on transition away from DOE participation?**
    1. What would you pay (if anything)?
    2. What content would you pay for?

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8. Identify/confirm priority categories/subcategories

Catalyst
Electrodes
Gas Diffusion Layers
Membrane Electrode Assemblies (MEA)
  Membranes
  Dispersions
  Gaskets
  Plates
  Component Accessories
	Compressor/Expander
	Hydrogen Pump/Ejector
	Thermal management
	Reactant Management
	Sensors
	Hydrogen Storage
	Vessel Manufacturing
	Vessel Liner
	Gauges
	High Pressure Plumbing
	Nozzles

Contact

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