THE FUEL CELL CORRIDOR™

Global Center of the Fuel Cell Industry

Integrated Regional Technical Exchange Centers

Department of Energy

Hydrogen & Fuel Cell Technical Advisory Committee

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OFCC

OHIO FUEL CELL COALITION

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Mission

The Ohio Fuel Cell Coalition is a united group of industry, academic, and government leaders working collectively to strengthen Ohio's fuel cell industry and to accelerate the transformation of industry to **global leadership in fuel cell technology and applications.**

Activities

- Networking and Collaboration
- Education
- Marketing and Communications
- Advocacy

Why Fuel Cells in Ohio

Ohio is competitively advantaged to participate in the fuel cell/hydrogen economy growth, and developing this industry is critical to Ohio interests:

- Builds on Ohio's manufacturing infrastructure and can help reverse the decline in manufacturing jobs
- Returns Ohio as the driver in a critical segment of industry, and acts as economic lever for additional technology development
- Creates high skill/high income jobs

Ohio's Accomplishments

- $300 Million in leverage
- National and Global recognition
- One of top 5 fuel cell states in US
- Research
- Supply chain leadership
- Educational initiatives

Ohio Fuel Cell Coalition
Integrated Regional Technical Exchange Centers

The project goal is to facilitate the development of a robust supply chain for fuel cell and hydrogen systems that will accelerate mass production, reduce cost and improve performance and durability of these systems. The project will accentuate the identification of critical opportunities in the hydrogen and fuel cell supply chain where the U.S. can achieve or maintain a competitive advantage.

Objectives

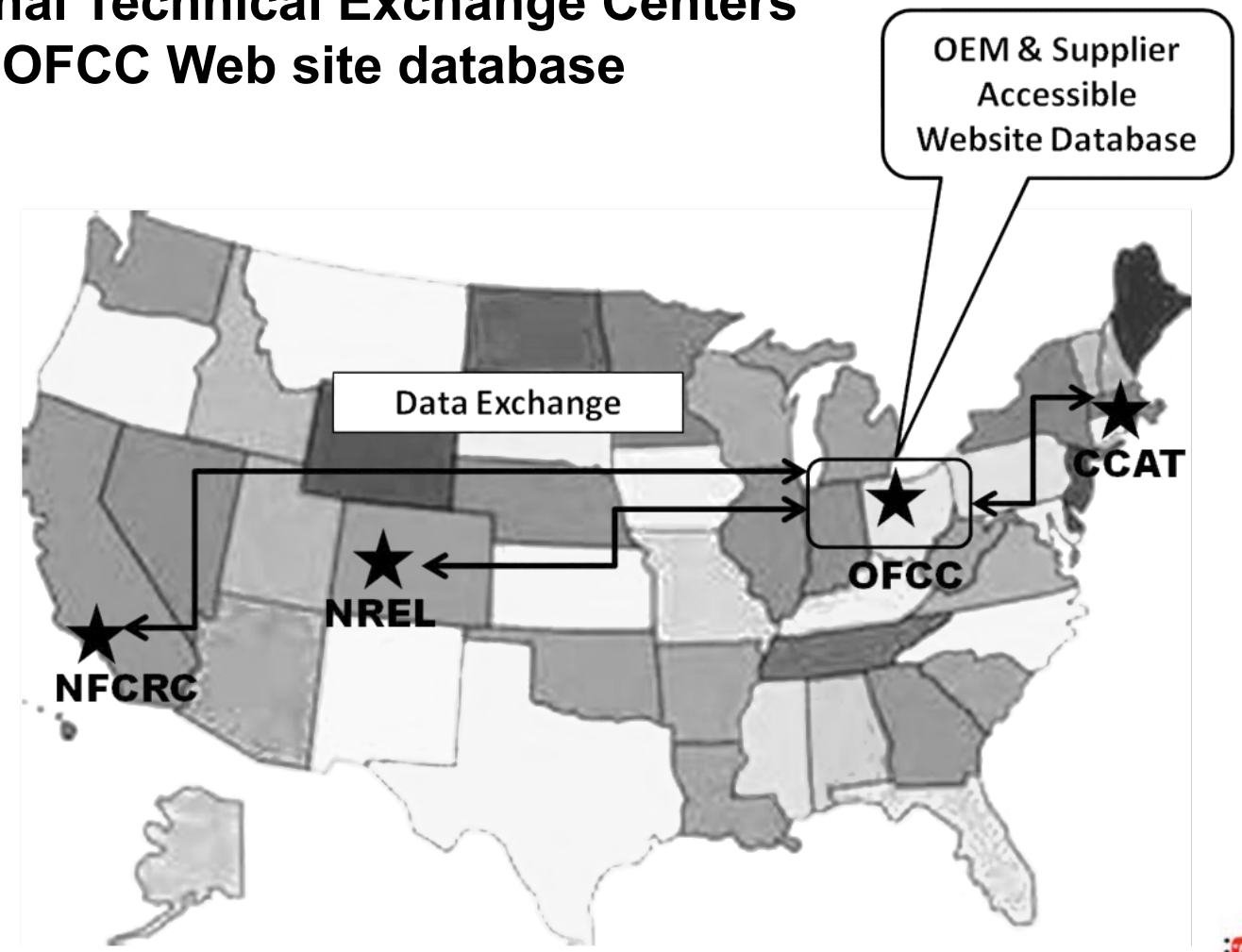
Objective 1. Establish four regional Technical Exchange Centers to increase communication between OEMs and hydrogen and fuel cell component and subsystem suppliers.

Objective 2. Establish a readily web-accessible database containing inputs from suppliers and OEMs along with a supplier contact list.

Objective 3. Standardize component and subsystem component specifications.

Objective 4. Develop strategies for lowering cost, increasing performance, and improving durability of components and subsystem components.

4 Regional Technical Exchange Centers
OFCC Web site database



Collaborators

Collaborators	Relevance of Collaborators
Joel Reinbold, Connecticut Center for Advanced Technology (CCAT)	Establish and coordinate the East Coast Technical Exchange Center; assist with supply chain mapping and standardization.
Douglas Wheeler, DJW Technology (DJWT)	Establish and coordinate the West Coast Technical Exchange Center at NFCRC; set –up working group; consulting.
Scott Samuelsen, National Fuel Cell Research Center (NFCRC) at UC Irvine	Establish and coordinate the West Coast Technical Exchange Center.
Michael Ulsh, National Renewable Energy Lab (NREL)	Technical support and establish and coordinate Central Plain States Technical Exchange Center; establish working groups.

Relevance - Department of Energy Impact

- **National Technical Exchange Network for Supply Chain**
  - The project will develop a national technical exchange network that will increase the distribution of component specifications to suppliers and provide a database of suppliers capabilities that can accelerate mass production, reduce cost, and improve performance and durability of fuel cell systems.
  - National web-centered database of fuel cell component suppliers and subsystem component suppliers available to OEMs
- **Working Groups to Standardize Components**
  - Working groups created with hydrogen and fuel cell manufacturers (OEMs) and stack component manufacturers, and Balance-of-Plant (BOP) suppliers to establish a consensus on standard specifications for components with the objective of driving down component cost.
  - Working groups assist suppliers and OEMs in the application of Design for Manufacturing and Assembly (DFMA®) for the development of standardization.

Barriers and Issues

- Lack of standardization of components to lower cost of materials and components
- Formation of a robust supply chain serving OEMs in the hydrogen and fuel cell systems industry.
- Standardizing the parts and components with the establishment of multiple suppliers.
- Increasing the reliability of the materials and components for these systems.
- Lack of national accessible database
- Lack of communication nationally between OEMs and suppliers

Proposed Work

Task 1: Creation of Technical Exchange Centers (Month 1 – Month 12)

Task 2: Formation of Supplier Working Groups to Standardize Components (Month 3 – Month 12)

Task 3: Operation of Regional Technical Exchange Centers (Month 13 – Month 24)

Task 4: Supplier Working Group Standardization (Month 13 to Month 24)

Task 5: Completion of Operation of Technical Exchange Centers (Month 25 to Month 36)

Task 6: Completion of Working Group Standardization (Month 25 – Month 36)

Task 7: Management and Reporting (Month 1 to Month 36)

Approach

Milestones:

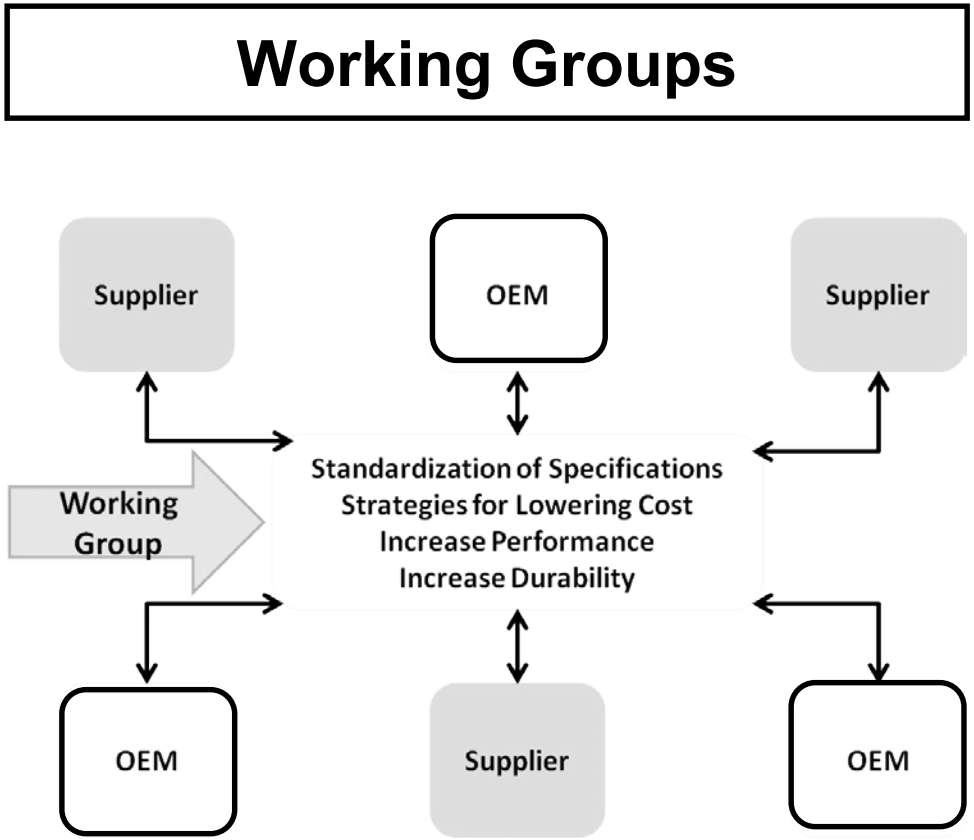
- **M1 – 1st qtr/Yr 1:** Start-up of Technical Exchange Centers
- **M2 – 2nd qtr/Yr 1:** OFCC produces brochure to attract new suppliers
- **M3 – 4th qtr/Yr 1:** Identify components and subsystems for standardization
- **M4 – 5-6th qtr/Yr 2:** Build databases and working relationships-BOP & OEMs
- **M5 – 8th qtr/Yr 2:** National supply chain exchange to build relationships
- **M6 – 8th qtr/Yr 2:** Implement working group strategy for standardization
- **M7 – 12th qtr/Yr 3:** Supply chain data collection
- **M8 – 12th qtr/Yr 3:** Specify production processes to standardized components

Approach

Deliverables:

- **D 1 (Task 1.2)**
  Complete OEM needs brochure – submit to DOE for review/acceptance
- **D 2 (Task 4.2)**
  A report will be issued identifying supply chain gaps and strategies to overcome these gaps through standardization – review w/DOE
- **D 3 (Task 6.1)**
  Report to DOE by working group, the specifications and production processes for standardized components
- **D 4 (Task 7.1)**
  Final report on the progress and development of the national supply chain and standardization of components

- National level membership
  - OEMs
  - Suppliers
- Analyze needs of OEMs
  - Multiple suppliers
  - Challenges for components and subsystems
    - Lowering cost
    - Increasing performance
    - Improving durability
- Standardization of component specifications
- Mitigate the gap
  - OEM needs and supplier components



Technology Transfer Activities

- Project focus is two way technology transfer between OEMs and Suppliers

Summary Slide

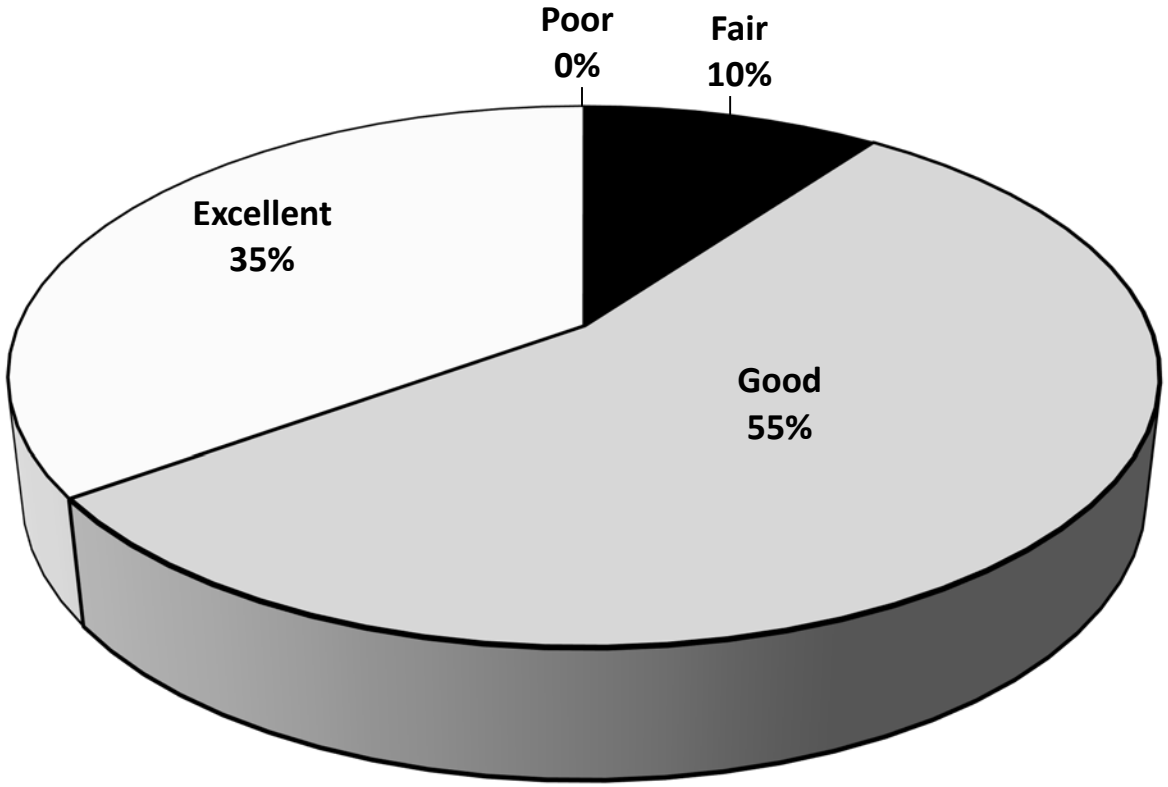
The Integrated Regional Technical Exchange Centers project is to facilitate the development of a robust supply chain for fuel cell and hydrogen systems that will accelerate mass production, reduce costs, and improve performance and durability of these systems by:

- Establishing regional Technical Exchange Centers to increase communications between OEMs and suppliers.
- Establish a web-accessible database, first regionally, then nationally, containing inputs from suppliers and OEMs with a supplier contact list.
- Standardize component and subsystem specifications.
- Develop strategies to lower cost, increase performance, and improve durability of components and subsystem components.

Results of Ohio

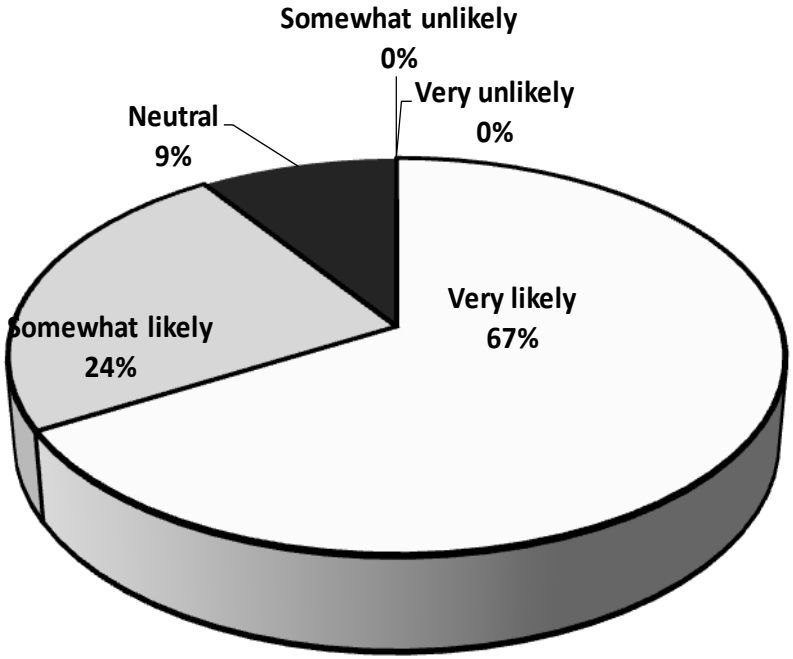
Supply Chain Exchange

Usefulness of the information presented at the October 2012 supply chain event:



Data collected from 21 forms

How likely are you to attend the supply chain event again?



Data collected from 21 forms

OFCC Contact Info

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