

II.J.1 Developing Improved Materials to Support the Hydrogen Economy*

Michael Martin
Edison Materials Technology Center (EMTEC)
3155 Research Blvd.
Dayton, OH 45420
Phone: (937) 259-1365
E-mail: hydrogen@emtec.org

DOE Technology Development Manager:
Rick Farmer
Phone: (202) 586-1623
E-mail: Richard.Farmer@ee.doe.gov

DOE Project Officer: Reg Tyler
Phone: (303) 275-4929
E-mail: Reginald.Tyler@go.doe.gov

Contract Number: DE-FC36-04GO14215

Start Date: March 1, 2004
End Date: December 31, 2010

*Congressionally directed project

hydrogen economy goals as outlined in the multi-year plan titled, "Fuel Cell Technologies Program Multi-Year Research, Development and Demonstration Plan." Preference was given to cross cutting materials development projects that lead to the establishment of manufacturing capability and job creation.



Approach

The EMTEC has used the U.S. Department of Energy hydrogen economy goals as outlined in the multi-year plan titled, "Fuel Cell Technologies Program Multi-Year Research, Development and Demonstration Plan" to find and fund projects with near-term commercialization potential. Our request for proposal approach specifies proposals/projects for hydrogen production, hydrogen storage or hydrogen infrastructure processing which may include sensor, separator, compression, maintenance, or delivery technologies. EMTEC is especially alert for projects in the appropriate subject area that have cross cutting materials technology with near-term manufacturing opportunities. To date, EMTEC has selected projects through our request for proposal process which develops novel technologies preparatory to commercialization. EMTEC's overriding objective is technology commercialization.

Accomplishments

- From project start, EMTEC has funded and provided oversight to over 30 projects in various phases of development.
- EMTEC hosted and attended individual project reviews for the active projects and final site visits for the projects completed throughout the year. All capstone projects are now complete.
- EMTEC attended and presented a poster at the DOE Hydrogen Program Merit Review, June 7-11, 2010, which featured the most promising technologies.

Conclusions and Future Directions

EMTEC has leveraged DOE initiative funded on a 1 to 1 match basis on this highly successful project, resulting in strong technology advancement as well as job creation and economic development:

Individual Projects: (all complete - see previous reports)

Objectives

- Foster the investigation and advancement of cross-cutting, breakthrough materials technologies to yield an award-winning project with active DOE Hydrogen Office participation (technology commercialization).
- Manage ongoing hydrogen infrastructure projects; collect and review monthly project reports for go/no-go results (near term commercialization of technologies, products and processes in support of the hydrogen economy).
- Prepare quarterly project reports from individual project reports; negotiate statements of work for selected projects.

Technical Barriers

The projects under this award addressed a wide range of barriers from the Fuel Cell Technologies Program Multi-Year Research, Development and Demonstration Plan.

Technical Targets

The EMTEC solicited and funded hydrogen infrastructure related projects that have a near-term potential for commercialization. The subject technology must be related to the U.S. Department of Energy

Future Directions

- Technical governance with projects and technology outcomes.
- Seek new opportunities to continue technology development and commercialization activities as appropriate for the most promising technologies.

Conclusions

EMTEC continues to energetically pursue the near-term commercialization of the hydrogen infrastructure technologies that in many cases has been developed with previous DOE support. The EMTEC programmatic collaborative approach is well suited to accelerate technology to market. EMTEC selected

high quality projects in appropriate subject areas that have cross cutting materials technology with near-term manufacturing opportunities.

EMTEC has leveraged DOE initiative and funds on a 1 to 1 match basis on this highly successful project, resulting in strong technology advancement as well as job creation and economic development.

2010 Publications/Presentations

1. EMTEC made a presentation at the 2010 Ohio Fuel Cell Coalition annual Symposium, giving a historical perspective of fuel cell involvement with some of the developmental programs and projects throughout many years.