

Advanced Energy Job Stimulus Program

A key component of Ohio's program to create new jobs and encourage economic development, the \$150 million Advanced Energy Job Stimulus Program is designed to support new technology projects on a fast track toward commercialization. As part of the \$1.57 billion job stimulus package signed into law by Governor Ted Strickland in June 2008, the goal of the program is to employ Ohio workers in the advanced energy jobs of the future. The \$150 million advanced energy funding (over three years) seeks to increase the development, production and use of advanced energy technologies in the state, and is divided into two parts:

- \$66 million for clean coal technology projects administered through OAQDA's Ohio Coal Development Office (OCDO) (reviewed by staff, outside reviewers and the Technical Advisory Committee and approved by OAQDA); and
- \$84 million for non-coal-related projects in three \$28 million annual appropriations administered by OAQDA (reviewed by staff and outside reviewers, the Development Finance Advisory Council, approved by OAQDA and brought before Controlling Board for final approval).



Technology Management, Inc.

Project Name:

**Technology Management/
Fuel Cell Systems**

Project Location:

Cleveland, Ohio (Cuyahoga County)/
Highland Heights, OH (Cuyahoga County)
and multiple demonstration locations TBD

Applicant Information:

Technology Management, Inc. (TMI), Ohio's oldest fuel cell company, has successfully demonstrated modular kilowatt class solid oxide fuel cell (SOFC) that generate clean electricity from ordinary fuels, including renewable biofuels.

TMI was formed solely for the commercialization of SOFC systems that can be operated and maintained by "Anyone, Anywhere, Anytime." The company's current goal is to field demonstrations in target markets to show end users that practical, affordable, fuel cell systems are nearing commercialization and generate market demand. High value features include: the systems flex-fuel capability and ease of maintenance by a local workforce without specialized tools, equipment, or training.

Project Description:

TMI's solid oxide fuel cell (SOFC) system has been in development since 1990 when the technology was acquired from BP. TMI is collaborating with Lockheed Martin and Stark State College of Technology to commercialize this disruptive technology project into military markets for replacement of kilowatt class diesel gensets. The higher fuel efficiencies of fuel cells – a third to a half – will save lives and hundreds of millions of dollars annually. TMI is the only publicly proven SOFC to operate on standard, untreated military JP-8.

The same kilowatt scale system, already engineered to have the size and manufacturing simplicity of a home appliance, will serve the base load of an average home, farm, or small businesses and provide 24/7 power, now only available from the grid. Under this program TMI and its partners will engineer and manufacture 10 demonstration units for siting in Ohio.

To introduce the public to the unique operating features of fuel cell systems, venues and collaborators will be carefully selected to both educate and build market demand for Ohio's fuel cell industry. Features will include converting commonly available fuels into electricity, 24/7 operation, and indoor siting where the clean exhaust produced by the TMI SOFCs, compared to normal combustion devices, contains no harmful substances such as carbon monoxide is available for co-generation. Other features will show configurations that use multiple 1kW system modules to produce continuous power and that require very little technical knowledge to install and operate.



TMI Testing and fabrication facility in Highland Heights, OH

Funding Request (adjusted): \$2,537,500

Approved Funding: \$2,537,500 loan over five years; \$2,537,500 of original principal balance to be forgiven if job commitment met three years from the closing of the loan

Total Projected Investment: \$5,737,500

Use of Stimulus Program Funds: Acquisition of fixed assets (machinery and equipment)

Jobs Created: 42 new full-time and part-time permanent jobs, 14 jobs retained

Type of Jobs Created: Installation and Fabrication Technicians Engineers, Senior Management

Qualifying Technology Categories: Energy Efficiency, Fuel Cells, Disruptive



1 kilowatt TMI solid oxide fuel cell running on soybean oil during a 30-day, on-farm demonstration in Wakeman, OH



1 kilowatt SOFC genset operating at Lockheed Martin, running on DoD standard JP-8 fuel



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