PMC-EF2a
(2.06.02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: Eaton Corporation **STATE:** WI

PROJECT TITLE : Roots Air Management System with Integrated Expander

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0005665	GFO-0005665-001	EE5665

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:
Description:

A9 Information gathering, analysis, and dissemination	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
B3.6 Small-scale research and development, laboratory operations, and pilot projects	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide $2,101,630 in federal funding to Eaton Corporation to perform laboratory research and development activities on the development and validation testing of an optimized roots air management system with integrated motor.

Eaton would design and develop a prototype optimized compressor and expander for a Proton Exchange Membrane (PEM) fuel cell. Kettering University staff would conduct computer simulations of the developed fuel cell system. Ballard would perform laboratory testing of the entire system composed of the compressor, expander and integrated motor in a hydrogen testing lab. Eaton would also be responsible for monitoring and reporting of the performance testing.

Work would be performed at the follow locations:

Eaton
26201 Northwestern Highway, Southfield, Michigan 48076. The facility was constructed in 1960 and occupies ~14.3 acres with two buildings: 169,185 sq. ft. and 37,940 sq. ft. The building is zoned for research & development and has engine dynamometers, material, fuel testing, and noise and vibration laboratories.
Eaton completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. Eaton complies with standard laboratory safety procedures. Labs are inspected by safety personnel. Eaton has all applicable permits in place to conduct research on site. No additional permits are needed for project activities. The laboratory general safety procedures would be followed.

Ballard Power Systems, Inc.
9000 Glenlyon Parkway, Burnaby, British Columbia, Canada, V5J 5J8. The facility is 116,000 sq. ft. with ~60,000 sq. ft. of hydrogen-rated test lab space. All tasks will be conducted within this space.
Ballard completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. Ballard complies with standard hydrogen laboratory safety procedures. Labs are inspected by safety personnel. Ballard has all applicable permits in place to conduct research on site. No additional permits are needed for project activities. The laboratory general safety procedures would be followed.

Kettering University, located at 1700 University Ave, Flint, Michigan 48504, would conduct simulations in computer laboratories located on campus. Safety inspections of the facilities are conducted periodically by internal safety and an

external company to ensure compliance with OSHA and the building has a fire suppression system. No chemicals, gases or heavy agents will be used on site.

Based on review of project information and the above analysis, DOE has determined the research would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with the actions contained in DOE categorical exclusion A9 "Information gathering, analysis, and dissemination," and B3.6 "small-scale research and development," and is categorically excluded from further NEPA review under CX B3.6.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

Diana Scott 6.28.2012

DOE Funds: $2,101,630
Cost Share: $525,411
Total Project Cost: $2,627,041

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 6/29/2012

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____

Field Office Manager