

FMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**

**RECIPIENT:**Eaton Corporation**STATE:** NC

PROJECT TITLE : Integrated 10kV SiC VSD and High-Speed MW Motor for Gas Compression Systems

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001208	DE-EE0007253	GFO-0007253-001	GO7253

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Eaton Corporation to develop and test an integrated variable speed drive (VSD) and motor for gas compression systems.

Activities associated with the proposed project would include design, development, fabrication and testing of 10kV Silicon Carbide (SiC) Metal Oxide Semiconductor Field Effect Transistor (MOSFET) dies; design, development, assembly and testing of 10kV SiC MOSFET modules; design, development, assembly and testing of a high-speed, medium-voltage motor; and design, development, fabrication and testing of strained annealed materials to be used in inductors. Prerequisite software programming and system simulation would be completed by PWP Lab Sistemas Electronicos in Brazil. Design, development, fabrication, and testing activities would be completed at the following pre-existing lab and industrial testing facilities: Eaton Corporation in Menomonee Falls, WI; Carnegie Mellon University campus in Pittsburgh, PA; Carnegie Mellon University campus in Moffett Field, CA; Calnetix Technologies in Cerritos, CA; Eaton Corporation in Arden, NC; Cree in both Fayetteville, AR and Research Triangle Park, NC; and North Carolina State University campus in Raleigh, NC. All research and development activities would take place in existing facilities designed for this type of research; therefore, no modifications, new permits, additional licenses and/or authorizations would be necessary.

The proposed project would involve the use and handling of a small amount of hazardous materials, including metals, magnets, bonding resins and catalyzers, and cooling liquids. Power Testing would include medium-voltage power. All hazardous materials would be managed in accordance with federal, state, and local environmental regulations and health and safety policies and procedures would be followed including employee training, proper personal protective equipment, engineering controls, monitoring, and assessments. The proposed project would have the potential to generate small amounts of non-hazardous waste in the form of cardboard, metals, inductors, MOSFET modules, PCB, cabling, non-recyclable packing materials, cable insulation, and plastics. Waste would be recycled when possible with all remaining non-recyclable waste being disposed of through standard municipal waste streams. Low-concentration wastewaters would be shipped offsite and emissions would be controlled with a wet scrubber for acid gas with a 99% rate of efficiency. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Based on review of the project information and the above analysis, DOE has determined the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this project is consistent with actions outlined in DOE categorical exclusion A9 "Information gathering, analysis, and dissemination" and B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and is therefore categorically excluded from further NEPA review. Additionally, any current or future proposed activities at PWP Lab Sistemas Electronicos in Brazil are exempt from further review under Executive Order 12114 "Environmental Effects Abroad of Major Federal Actions", per Section 5.1.1 (Actions not having a significant effect on the environment outside the US) of the DOE EO 12114 Implementing Guidelines.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Advanced Manufacturing Offices

This NEPA determination does not require a tailored NEPA provision.

Review completed by Rebecca McCord, 03/16/2016

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

NEPA Compliance Officer

Date: _____

3/16/2016

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: _____

Field Office Manager

Date: _____