

PMC-ND

(1.08.09.13)

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

**RECIPIENT:**Clemson University**STATE:** SC

PROJECT TITLE Fully Integrated High Speed Megawatt Class Motor and High Frequency Variable Speed Drive System

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001208	DE-EE0007254	GFO-0007254-001	GO7254

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 Clemson University to develop a fully integrated high speed megawatt class motor and high frequency variable speed drive system that would serve as a commercially viable and technically sound methodology for high speed industrial system applications.

The proposed project activities would include the design, development, construction and testing of a prototype, megawatt class, high speed motor and medium voltage, high frequency, motor drive system. Design and development activities would occur at four separate sites: Clemson University in Clemson, SC and North Charleston, SC, TECO Westinghouse Motor Company (TWMC) in Round Rock, TX and Rensselaer Polytechnic Institute in Troy, NY. Construction of the prototype system would be performed at TWMC in Round Rock, TX and the testing of the prototype system would be performed at Clemson University Energy Innovation Center in North Charleston, SC. A new dynamometer would be built and installed at the Energy Innovation Center in North Charleston to test the prototype system. Necessary electrical permits needed for the installation of the dynamometer would be obtained prior to beginning work on the proposed project. Roughly 20 MWh of energy would be consumed during the testing of the prototype system with an estimated release of carbon dioxide of 10 tons. Solvents would be used in the manufacturing process to clean and prepare surfaces and would be utilized within the EPA guidelines for such manufacturing processes. All work for the proposed project would be performed in attainment areas. The facilities above in which prototype construction and testing work would occur are purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project.

The Clemson University Energy Innovation Center location has an extensive EHS program that complies with federal, state and local regulations. The potential hazards at this location would include: electrical, stored energy, mechanical, high speed projectile and oil spills. All employees at this site are required to complete a 10-hour OSHA Occupational Safety and Health Training course in General Industry Safety and Health as well as other industrial safety training, including: fall prevention, electrical safety and arc flash, and spill prevention control and countermeasures. Non-hazardous wastes would be recycled or disposed of in accordance to federal, state and local regulations.

Based on review of the project information and the above analysis, DOE has determined that proposed activities

would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed activities are consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and dissemination," and B3.6 "small-scale research and development, laboratory operations and pilot projects" and are categorically excluded from further NEPA review.

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

This NEPA determination does not require a tailored NEPA provision.

Review completed by Logan Sholar on 2/11/2016

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Electronically Signed By: Kristin Kerwin

Date: 2/11/2016

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