PMC-ND
(1.08.09.13)

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

RECIPIENT: The University of Texas at Austin **STATE:** TX

PROJECT TITLE: M4 Inverter: Modular, Multifunction, Multiport and Medium Voltage Utility Scale SiC PV Inverter

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001740	DE-EE0008348	GFO-0008348-001	GO8348

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 funding to University of Texas at Austin (UT Austin) to design, develop, and demonstrate a novel inverter that would include integrated storage capabilities into the system design. A single, 1 MVA/4160V inverter system, including an inverter controller and battery storage system, would be fabricated and tested as part of this project.

The proposed project would encompass data analysis, computer modeling, preliminary engineering and design, and laboratory-scale research and development. Proposed project activities would include the design and development of inverter system components (e.g. modular silicon carbide (SiC) converter, inverter system controller, and battery energy storage system), computer modeling and simulations, software development, system integration, system operation optimization, testing and validation, and completion of a Levelized Cost of Energy study.

All work activities would be carried out in existing, purpose-built facilities operated by UT Austin or its project partners. UT Austin would oversee the project and would fabricate and test the system's converter at the Center for Electromechanics at its main campus (Austin, TX). Argonne National Laboratory (Lemont, IL) would be responsible for computer simulations and cost analysis. OPAL-RT Corporation (Wheat Ridge, CO and Brighton, MI) would be tasked with software development for power electronics modeling and simulation. Cree, Inc. (Fayetteville, AR) would manage the fabrication and testing of SiC power modules. Toshiba International Corporation (Houston, TX) would design and manufacture a 1000V battery storage system, as well as oversee system integration of the inverter. The Electric Reliability Council of Texas would provide guidance and support on the development of a system benefit study. No change in the use, mission, or operation of existing facilities would result from any of the proposed project activities. Neither UT Austin nor any of its project partners would need to obtain any additional permits in order to realize the work activities proposed as part of this award.

The proposed work activities would include high voltage testing at UT Austin and Cree. Both entities have established health and safety protocols in place to mitigate any risks associated with this work. These include electrical safety training for personnel, the use of personal protective equipment (e.g. safety goggles, gloves, and gowns), and institutionalized health and safety oversight. All project activities, including component procurement and testing would also adhere to all relevant local, State and Federal health, safety, and environmental regulations.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant

DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal is 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.

Insert the following language in the award:

You are required to:
Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Solar Energy Technologies Office
This NEPA determination requires a tailored NEPA provision.
Review completed by Jonathan Hartman on 6/29/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 7/2/2018

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