

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** University of Maryland, College Park**STATE:** MD

PROJECT TITLE: Integrated Approach to Ancillary PV Component Reliability Assessment

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002243	DE-EE0009349	GFO-0009349-001	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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 University of Maryland, College Park (UMD) to develop a novel approach for solar photovoltaic (PV) inverter reliability prediction. UMD would utilize inverter field data, computer-based simulations, and inverter component testing to develop the approach. A low (scaled) power PV inverter would be assembled and used as a test bed. The project would be completed over two Budget Periods (BPs), with a Go/No-Go decision point in between each BP.

Proposed project activities would consist of data collection and analysis, computer modeling, algorithm development, conceptual design work, inverter assembly, performance testing, and stakeholder engagement. Operational data would be collected from existing solar PV assemblies operated by UIC's project partner, Florida International University (FIU), and from laboratory-based inverter testing. Laboratory-based testing would be performed utilizing test inverters assembled from commercial-off-the-shelf components. Multiple iterations of the device would be produced. The inverter assemblies would have a lower voltage than most commercial string inverters, which would be suitable for laboratory-based operation. Each device would have approximate dimensions of 18" length x 15- 18" wide x 8-10" height.

UMD would coordinate all project activities between project partners. UMD would perform algorithm development, accelerated environmental exposure testing, and component failure analysis at laboratory facilities at its campus in College Park, MD. University of Illinois Chicago (UIC) would perform computer modeling and assemble PV inverters for testing. Testing would be performed at both the facilities of UMD in College Park, MD, and those of UIC at its campus in Chicago, IL. Florida International University (FIU) would perform data analysis and computer modeling. Yaskawa Solectria Solar (Lawrence, MA) would assist with conceptual design work and analysis.

Project work would involve the use and handling of potentially hazardous chemicals, x-ray generating equipment, and powered machinery. All such handling would occur in controlled laboratory environments that perform research involving these activities as part of their routine course of business. In order to mitigate potential risks, UMD and its

project partners would adhere to established institutional health and safety policies and procedures. Protocols would include personnel training, the use of personal protective equipment, engineering controls, monitoring, and internal assessments. All equipment to be used would be properly calibrated and certified for safety. X-ray generating equipment would be utilized with proper shielding. Chemicals would be stored in approved chemical cabinets and disposed of according to established institutional waste management procedures. UMD and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Jonathan Hartman, 03/10/2021

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically Signed By: Kristin Kerwin

NEPA Compliance Officer

Date: 3/11/2021

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
 Field Office Manager review required

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

Field Office Manager's Signature: _____

Field Office Manager

Date: _____