

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Electric Power Research Institute (EPRI)**STATE:** NC

**PROJECT TITLE:** DC Arc-Flash Safety for 1,500VDC: Methodology, Verification, and Codifying

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001654	DE-EE0008156	GFO-0008156-002	GO8156

**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.)

**B3.11 Outdoor tests and experiments on materials and equipment components** Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Electric Power Research Institute (EPRI) to increase understanding of arc-flash hazards and codify the results in an Institute of Electrical and Electronics Engineers (IEEE) code.

A NEPA Determination was previously completed for this award on August 10, 2017. At the time of that initial review, project work included research, outreach, engineering design, computer modeling, and laboratory testing. Laboratory testing consisted of physically creating and testing arc-flashes at the Sandia National Laboratory (SNL) Lightning Simulator. Since then, EPRI has modified its Scope of Project Objectives (SOPO) to include field-testing of arc-flash hazards at utility-scale solar photovoltaic (PV) plants. This NEPA Determination will review field-testing activities associated with the project.

Testing would consist of generating controlled, high energy arc-flashes in electrical equipment. Arc-flashes would be generated by diverting power from the inverter segment of the PV plant into the equipment selected for testing. PV components that typically pose the greatest safety risk to field technicians would be used for testing; namely combiner boxes and inverters. Shell mock-ups and actual commercial equipment would be procured for testing. Arc-flashes would then be generated within the electrical innards of the equipment and analyzed. The arc-flashes would destroy the component parts being tested.

Field testing would be performed at 1500Vdc plants of 1 MW or greater. Testing would be performed at multiple sites within the contiguous United States. Specific sites have not yet been selected. EPRI is currently in discussions with various sites that could potentially host the testing and it is thought that this would most likely be performed in the Carolinas or in the Southwestern region of the United States.

All field-testing activities would be performed in controlled settings. Arc-flashes would be generated in equipment

installed in the confined region within the switchyard to equipment pads at the selected PV plants. EPRI and its project partners would adhere to all applicable Federal, state, and local health, safety, and environmental regulations when completing project activities.

**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, 08/20/2019

**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: \_\_\_\_\_

 **Kristin Kerwin**  
NEPA Compliance Officer

Date: 8/22/2019

**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: \_\_\_\_\_