

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**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-EE-0008156                        | GFO-0008156-001            |                   |

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 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.

This project would involve background research, outreach, engineering design, computer modeling, and laboratory testing. The laboratory work would involve physically creating and testing arc-flashes at the Sandia National Laboratory (SNL) Lightning Simulator. Research at EPRI (Charlotte, NC and Ballston Spa, NY) would involve developing a detailed physics-based model to confirm underlying methodology and key input variables, and documenting and disseminating results through guidelines submitted to code bodies, journal and conference publications, and an easy-to-use incident energy calculator.

The majority of infrastructure, test equipment, and monitoring instrumentation already exists at the SNL Lightning Simulator. The testing would involve the destruction of the test articles. The laboratory portion of arc-flash testing would require the use of high-voltages and current. Standard operating procedures that govern the SNL Lightning Simulator (e.g., test procedures, personal protective equipment, and trained lab technicians) would be followed to ensure personnel safety. Custom blast shields may be built (depending on size and geometry of the electrical equipment procured) to avoid flying debris. Tens of electrical enclosures and/or inverters (each a few cubic feet in volume) are anticipated to be procured and destructively tested. After the testing, the equipment would either be stored at SNL or recycled to the greatest extent possible. No physical construction, modification, ground disturbance, or change in the use, mission, or operation of existing facilities are anticipated as a result of activities associated with the proposed project.

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 Chris Rowe on 8/10/2017

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: \_\_\_\_\_



NEPA Compliance Officer

Date: 8/10/2017

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