

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), Inc**STATE:** CA

PROJECT TITLE: Adaptive Protection and Validated Models to Enable Deployment of High Penetrations of Solar PV (PV-MOD)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002064	DE-EE0009019	GFO-0009019-001	GO9019

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 funding to Electric Power Research Institute (EPRI) to develop solar photovoltaic (PV) facilities models (i.e. algorithms) for incorporation into commercial software tools. These models would enable utilities to plan, operate, and protect transmission and distribution systems when integrating behind-the-meter solar PV systems and distributed energy resources (DER) into their energy platforms. EPRI would also demonstrate applications for the PV models, including automated assessment and adaptive distribution protection schemes. Protection schemes would then be tested at field locations with high solar PV penetration and/or microgrids.

The project would be completed over three Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP. The first two BPs would consist primarily of algorithm development with some in-lab hardware testing. Proposed activities would include stakeholder engagement, data collection (e.g. grid data provided by utility partners), inverter characterization/laboratory testing of inverters (1 to 100 kW), utility-scale inverter characterization (>100 kW), algorithm/model development, and adaptive protection system design/validation. Model validation would continue into BP3.

All research and development activities would be coordinated by EPRI and performed at existing, purpose-built laboratory facilities. EPRI would perform computer modeling and data analysis, as well as project management activities at its facilities in Palo Alto, CA, Knoxville, TN and Dublin, Ireland. Laboratory testing would also be performed at the facility in Knoxville, TN. Additional computer modeling and data analysis would be performed by Seattle Impact (Seattle, WA) and the U.S. Army Corps of Engineers ('USACE' – Champaign, IL). Computer programming/modelling would be performed by Oak Ridge National Research Laboratory ('ORNL' – Knoxville, TN) and Power and Energy, Analysis, Consulting and Education ('PEACE' – Flower Mound, TX). Field data for model validation would be provided by First Solar (Tempe, AZ). Utility scale inverter testing would be performed at the National Renewable Energy Laboratory ('NREL' – Golden, CO).

In BP3, field demonstrations of adaptive protection schemes would also be performed at three separate site locations: 1) an office building owned/operated by PPL Electric Utilities Corporation and located in Allentown, PA; 2) distributed secondary underground networks and isolated/spot networks within the Consolidated Edison Company of New York's service territory in New York City and Westchester County, NY; and 3) a 5 MW solar PV/3 MW energy storage microgrid currently under construction at the Fort Hunter Liggett Army Base in Fort Hunter Liggett, CA. At all three sites, EPRI would work closely with each respective entity when carrying out testing. The testing itself would consist of real-time application of adaptive protection controls. Algorithms developed during BP1/BP2 would be tested for their ability to respond to varying system configurations and operating conditions. Recloser switches may be installed on existing electric poles at PPL. No other hardware would be installed for field testing.

No construction of new facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities would be required for any of the above activities.

Field testing would involve relay equipment running high voltages. All testing sites are closed access facilities that regularly perform testing similar in nature to that included in the scope of this project. Testing would be performed in accordance with the established corporate health and safety policies/procedures at each test site. Protocols would include employee training, the use of personal protective equipment, engineering controls, the use of operational signage for hazard awareness, tagging, monitoring, and internal assessments. Required permits for testing at the Fort Hunter Liggett microgrid would be obtained prior to commencing testing. Any other applicable permits or authorizations would be obtained by EPRI prior to initiating testing activities. EPRI and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations when performing project activities.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

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, 02/21/2020

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.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further

review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

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: 2/24/2020

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: _____