

PMC-ND
(1.08.09.13)

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



RECIPIENT: Georgia Institute of Technology

STATE: GA

PROJECT TITLE: autonomous, adaptive and Secure Distribution Protection (a2SDP)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002064	DE-EE0009020	GFO-0009020-001	GO9020

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.

B5.15 Small-scale renewable energy research and development and pilot projects Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the Georgia Institute of Technology (GA Tech) to design, develop, and validate setting-less relaying algorithms to provide reliable protection and control in a cyber-secure manner for distribution systems with high penetration of solar photovoltaic (PV) and other distributed energy resources (DERs). The proposed project aims to result in the development of an autonomous, adaptive and Secure Distribution Protection (a2SDP) system to meet various protection challenges created by extra high penetration of these resources.

Activities associated with the proposed project would include data analysis, computer modeling, software development, laboratory research (consisting of hardware-in-loop simulations), and field demonstration of the proposed technology. Code development, verification, and hardware-in-loop (HIL) testing would occur on-campus at GA Tech (Atlanta, GA). Fault locating software would be co-developed with Washington State University (WSU; Pullman, WA), which would also be the location of one of the three proposed field demonstrations. The developed software would be installed in a computer owned by partner utility (AVISTA) at an on-campus, operational PV farm with one energized distribution line. The two other field demonstration sites have yet to be identified; however, the following information has been provided regarding criteria for site selection.

Each site would be comprised of at least two feeders with substantial (more than 50%) PV penetration. The sites would contain an energized distribution line and an operational, utility size PV farm. One site would be located in or near the city of Atlanta, GA, and owned by partner utility the Southern Company. The other site would be located near the city of Richmond, VA or a location near the VA/NC border, and owned by partner utility Dominion Power. Work at these sites would involve the same tasks as described for the WSU location. In order to deploy and test the a2SDP software in the field, project activities at these sites may also include the installation of small pieces of commercially-available hardware as needed (e.g. additional sensors, merging units, communications, and/or control devices). Such devices, along with the installed software, would remain in place at the conclusion of the proposed project.

There are no known hazards associated with the proposed work, which would not generate meaningful quantities of waste or emissions. All project activities would occur at dedicated research and development (R&D) facilities or established, fully-permitted industrial sites that are purpose-built for the type of activities being proposed. No change in the use, mission, or operation of existing facilities would arise out of this effort. Therefore, based on the aforementioned site selection criteria and limited scope of field work, no adverse impacts to sensitive resources are expected as a result of the proposed activities at any project location.

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 Whitney Doss Donoghue, 3/12/2020

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.

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: 3/12/2020

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: _____