

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** The University of South Florida**STATE:** FL**PROJECT****TITLE:**

Modeling and Control of Solar PVs for Large Grid Disturbances and Weak Grids

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-00001987	DE-EE0008771	GFO-0008771-001	GO8771

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 University of South Florida (USF) to model the grid interaction between utility-scale solar photovoltaic (PV) power plants and distributed energy resources (e.g. solar-plus-storage systems). The models would be used to develop a coordination strategy and a stability enhancement module for PV inverters. The project would be completed over three Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP.

Proposed project activities for BP1 would include electromagnetic transient (EMT) modeling of PV systems, development of analytical models of PV systems, completion of dynamic analysis using EMT testbeds (i.e. simulated testbeds), and completion of power hardware-in-the-loop characterization of a utility-scale 1MW inverter (e.g. simulated large grid disturbances). BP2 activities would include continued development of analytical models of PV systems and development of a coordination strategy for PV and DER interactions to mitigate against over-voltage or oscillations. BP3 activities would include development of design control strategies to enhance PV stability when grid strength is reduced, module design, module integration into laboratory testbeds, and computer simulation testing.

USF would perform analytical activities and controller hardware prototyping at its Smart Grid Power Systems (SPS) laboratory facility in Tampa, FL. Physical hardware-in-the-loop experiments would be performed by the National Renewable Energy Laboratory (NREL) at the National Wind Technology Center (NWTC). All hardware testing at the SPS Laboratory would be performed on testbeds within the laboratory facility. The stability enhancement module would be developed using over-the-shelf hardware. No fabrication of hardware components would take place at either USF's SPS facility or NREL. No changes in the use, mission, or operation of existing facilities would be required. Likewise, no additional authorizations or permits would be needed in order to perform project work.

All laboratory experiments would be performed in controlled, laboratory settings. Testing would be performed using low voltage levels. Both USF and NREL would adhere to each institution's established health and safety policies and procedures. USF and NREL would observe all relevant health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

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.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision. Include the standard DOE laboratory language in the award.

NEPA review completed by Jonathan Hartman, 05/14/2019

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: 5/17/2019

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: _____