

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Florida State University**STATE:** FL

PROJECT TITLE: Unified Universal Control and Coordination of Inverter-Based Resources, AI Forecasting, and Demonstration for PV+Battery Hybrid Plants

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002243	DE-EE0009340	GFO-0009340-001	GO9340

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 federal funding to Florida State University to research, design, develop, and test a control and coordination algorithm and controller board for photovoltaic and battery hybrid power plants. The project would be completed over three Budget Periods (BPs) with a Go/No-Go Decision Point between each BP.

The recipient would develop a Unified Universal Control and Coordination (UUC) of Inverter-Based Resources (IBR) for hybrid plants (co-located PV and battery within the plant) to enhance grid service and provide flexibility and stability over wide ranges of grid operations, including the ability to switch between a connection with the electrical grid to a self-contained system. The design of the UUC would include the development of both software and electronic controls.

An algorithm would be developed for PV forecasting and energy management using artificial intelligence. The UUC would include the ability to regulate frequency and voltage and to execute a black start strategy (i.e. a strategy for restoring an electric power station to operation without relying on the external electric power transmission network). The control integration and plant modeling would initially be done at NREL on an at-scale platform, then demonstrated on a City of Tallahassee testbed.

Proposed project activities would include data analysis, computer modeling, algorithm development, preliminary engineering/design, lab research, and fabrication of electronic controls. Florida State University would oversee the project. Subrecipients would be City of Tallahassee Utility, Northeastern University, Siemens Corporation, and National Renewable Energy Laboratory (NREL). Florida State would design, develop, fabricate, and test the controller for the photovoltaic plus battery hybrid power plant. The City of Tallahassee Utility would assist with data acquisition. Northeastern University would perform data analysis, design, development, and implementation of the controller for the energy management system. Siemens Corporation would implement the controller for the hybrid power plant. NREL would field test the controller for the PV plus battery hybrid plant. All activities would occur at

dedicated lab facilities. No modifications or additional permits would be required in order to conduct any of the work activities.

Any risks associated with project activities would be mitigated through adherence to established health and safety policies and procedures. Protocols would include employee training, the use of personal protective equipment, monitoring, engineering controls, and internal assessments. All waste products would be disposed of by licensed waste management service providers. Florida State University and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

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.

Review completed by Shaina Aguilar on 2/25/21.

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: 3/3/2021

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: _____