

PMC-ND
(1.08.09.13)

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



RECIPIENT: Carnegie Mellon University

STATE: PA

PROJECT TITLE : ABC4PV, referencing Agent Based Coordination for PhotoVoltaics.

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001108	DE-EE0007165	GFO-0007165-003	GO7165

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.)

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 Carnegie Mellon University to develop the technology and operating framework to deploy integrated solar photovoltaics (PV), storage, and load control in an integrated way that realizes greater value than either the individual components deployed on their own or single integrated combinations operating independently of other such deployments.

The project is divided into six tasks to be completed over three budget periods:

Task 1: Design and Development of Distributed Resource Coordination and Control Methodology

Task 2: Software Implementation of Algorithms

Task 3: Cybersecurity Assurance

Task 4: Installation of Physical Components and Test-bed Setup

Task 5: Performance Testing in Test-bed

Task 6: Energy Storage Sub-System and Full System Assessment and Control Optimization

The original NEPA Determination for this award (GFO-0007165-001; CX A9, A11; 11/18/15) reviewed Tasks 1-3 and Subtasks 4.1-4.2, but restricted Subtasks 4.3-4.4 and Tasks 5-6. A subsequent NEPA Determination (GFO-0007165-002; CX A9, B5.15; 02/06/17) reviewed Subtask 4.3, but restricted Subtask 4.4 ("Full Deployment and Validation") and Tasks 5-6 pending the identification of deployment sites. A location has since been defined, and the project has been downscoped to exclude pilot-scale deployment at the operational distribution feeder of an electric cooperative. Therefore this NEPA Determination is to review all remaining project activities, which would occur entirely on the CMU campus in Pittsburgh, PA.

The remainder of the project would validate the performance of ABC4PV software on programmable PV systems for a duration of one calendar year. Subtask 4.4 and Tasks 5-6 activities would involve the deployment and testing of seven hardware units proposed to be installed on the flat roofs of existing CMU buildings: Wean Hall, Doherty Hall, School of Drama, and Tepper School. None of these properties are listed in the National Register of Historic Places or within listed historic districts. Each unit would consist of a commercially available PV array, energy storage device, multimode inverter, system controller, and communications interface. Together, the fully integrated units would function as a small-scale prototype testbed occupying a total of 3000 square feet of rooftop space (including spacing among photovoltaic modules to avoid shading).

The recipient has conducted comprehensive design studies to determine the appropriate sizing, securing, and positioning for the proposed deployment in accordance with CMU Building Facilities as well as CMU Health and Safety services. Proper conduit would be run on and through the roofs to secure wiring. Triangular brackets made of aluminum and secured on the roofs with properly sized pavement blocks would be used to mount the PV modules. All inverter, charger and battery components would be installed indoors within designated equipment areas adjacent to the roofs. No physical modifications would be required beyond the minor and impermanent adjustments to electrical infrastructure. The facilities at which deployment would occur have been used previously to accommodate chillers, chimneys, meteorological stations, and various other equipment; no change in the use, mission, or operation of CMU buildings would arise out of project-related efforts. CMU has all applicable permits in place, and would not require any new permits, licenses, or authorizations to perform the proposed activities.

At the conclusion of the project, no disposition of equipment or materials would be required. It is anticipated that installed units would remain in place for future use, and the recipient has already obtained the necessary permission from CMU facilities management to maintain PV equipment. The proposed project would not use or produce any materials requiring special handling or disposal. Minimal quantities of non-hazardous waste generated at the time of hardware installation would be collected by established campus services.

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.

Note to Specialist :

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Whitney Doss, 6/7/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 Electronically
Signed By: Kristin Kerwin

Date: 6/8/2018

NEPA Compliance Officer

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: