

PMC-EF2a

(2.04.02)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: NC State University

STATE: NC

**PROJECT TITLE :** Development of a cost effective, residential Plug and Play PV System

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000653	DE-EE0006036	GFO-0006036-001	GO6036

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.)

**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.

## Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to North Carolina State University (NCSU) to research, develop and design ways to reduce the installed cost of residential solar photovoltaic (PV) systems by developing "Plug and Play" solar PV systems. The proposed "Plug and Play" systems would set up quickly and connect to the power grid easily, while still meeting building and electrical codes, thus reducing installation time and costs. Funding would be used to research and develop a "Plug and Play" PV system with simpler roof attachment methods and materials than currently used, research and develop options for a simplified inspection and permitting process and research and develop a process to automate the grid interconnection and potentially provide additional functionality to utilities.

This award would transpire over five Budget Periods. This NEPA determination applies to tasks in Budget Period 1 which include activities such as information gathering, analysis, computer modeling, materials testing, preliminary prototype solar PV system design, and prototype solar PV system fabrication and testing. This NEPA determination does not apply to any tasks in Budget Periods 2-5 as they are not defined to the extent DOE can make a NEPA Determination.

In Budget Period 1; research, development and testing activities would occur at two NCSU on campus facilities. Activities would include material and electrical component tests, PV panel and inverter tests and outdoor testing of the prototype "Plug and Play" 2.4 kW solar PV systems. The North Carolina Solar Center is a resource center for sustainable energy programs and is located on campus at 1101 Gorman Street, Raleigh, North Carolina. This center has multiple solar (PV) testing and demonstration facilities in place, including an outdoor solar PV test site with training roofs for solar PV system testing. The FREEDM Systems Center, a National Science Foundation Engineering Research Center, is located on campus at 1791 Varsity Drive, Raleigh, North Carolina. This facility has various laboratories and test facilities focused on renewable energy technologies. In Budget Period 1, NCSU would partner with the University of Toledo to accomplish the proposed activities.

Research, development and testing activities at the University of Toledo would occur at the Clean and Alternative Energy Incubator facility located on their campus at 2801 W. Bancroft, Toledo, Ohio. Activities would include fabrication and testing of the prototype "Plug and Play" 2.4 kW solar PV systems.

NCSU and the University of Toledo have completed an R&D questionnaire addressing the protocols for laboratory,

facility and site safety, risk management and waste disposal. The laboratories/facilities comply with standard safety procedures and all processes and procedures are monitored by the Environmental Health and Safety staff. The laboratories/facilities have all applicable permits in place, and would not need additional permits for the proposed activities. All handling and disposal of gases, chemicals, wastes and liquid effluents comply with appropriate regulations. The laboratories and facilities at both campuses are research, testing and demonstration facilities focusing on renewable energy technologies and are currently used for activities similar to the proposed activities.

Based on review of the project information and the above analysis, DOE has determined the research, development and testing activities associated with development of a reduced installation cost "Plug and Play" solar PV system would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and dissemination" and B3.6 "small-scale research and development, laboratory operations and pilot projects" and is categorically excluded from further NEPA review.

#### NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Tasks and activities in Budget Periods 2-5

This restriction does not preclude you from:

Tasks and activities in Budget Period 1

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Obadiah Broughton 1/24/2013

#### SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: \_\_\_\_\_

NEPA Compliance Officer

Date: \_\_\_\_\_

1/24/2013

#### 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: \_\_\_\_\_