

PMC-ND

(1.08.09.13)

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



RECIPIENT:Case Western Reserve

STATE: OH

PROJECT TITLE Interfacial Work Function Modifiers in PV: a potentially disruptive science for extreme lifetime
: performance

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001387	DE-EE0007360	GFO-0007360-001	

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Case Western Reserve University (CWRU) to develop the use of interfacial modifiers for the purpose of doubling the lifetime performance of photovoltaic (PV) energy materials.

The proposed project activities would include acquisition of PV module data, retrieval of PV modules, lab-scale accelerated aging of PV modules, and data analysis. Samples for testing would be provided by the National Renewable Energy Lab in Golden, CO, but no work would be completed there. Rather, CWRU would complete the acquisition of data, PV module retrieval and accelerated aging of the modules at their SDLE Research Center in Cleveland, OH. This facility is designed for this type of research; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary. There would be no ground disturbing activities and no equipment would be installed outdoors. There would be no change in the use, mission or operation of existing facilities.

This project would require the handling of PV modules while electrically energized. All such handling would occur in-lab with dedicated safety procedures vetted by environmental health and safety offices. Policies include employee training, engineering controls to ensure electrical touch-safe connections, tooling for electrical disconnects, and no disconnect under load contacts. Other hazards include fall hazards from workers at 6 feet above ground level, which would be mitigated by proper ladder training, and harnessing. All activities at existing facilities would be conducted in compliance with university, local, state, and federal safety and environmental regulations.

The project would generate waste streams that are related to the processing of silicon PV modules. Silicon solar cells and copper would be recycled. Solder and glass would be routed to appropriate waste streams for electronic waste and glass. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Based on review of the project information and the above analysis, DOE has determined the proposed project activities 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 exclusions A9 "information gathering, analysis and dissemination," 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 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.
Review completed by Rebecca McCord 03/29/2016.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Electronically Signed By: Kristin Kerwin

Date: 4/6/2016

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: