

PMC-EF2a

(3/04/02)

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



RECIPIENT: Arizona State University

STATE: AZ

**PROJECT  
TITLE :**

In-situ X-ray Nanocharacterization of Defect Kinetics in Chalcogenide Solar Cell

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000654	DE-EE0005948	GFO-0005948-001	

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.

**Rational for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Arizona State University (ASU) to conduct research and development activities that advance solar photovoltaic (PV) technology. DOE funding would be used to develop an X-ray in-situ microscopy capability at the Advanced Photon Source (APS) laboratory and apply performance-governing defect kinetics in chalcogenide solar cell materials to it. Funding would also be used to develop defect-tolerant device processing conditions, capable of supporting high efficiency solar cells at low cost.

Research and development work would be completed at two ASU locations, ASU Tempe and Solar Power Laboratories at Macro Technologies Works at ASU Research Park, and at APS at Argonne National Laboratory.

Work completed at the ASU campus would occur at 525 South Forest Avenue #150, Tempe, Arizona 85281 and 7700 South River Parkway, Tempe, Arizona 85284. ASU has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management and waste disposal. The University complies with standard safety procedures and all processes and procedures are monitored by the ASU Environmental Health and Safety Department (EHS). The University has all applicable permits in place to conduct research on campus. All handling and disposal of gases, chemicals and liquid effluents would be executed by EHS personnel who comply with appropriate regulations of OSHA.

All other work associated with the proposed project would be conducted APS at Argonne National Laboratory, located at 9700 South Cass Ave. Argonne, Illinois 60439. All work completed at DOE National Laboratories, in this case APS, is subject to NEPA review by the appropriate DOE site office.

Based on review of the project information and the above analysis, DOE has determined the research 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 final NEPA determination for this award

Insert the following language in the award:


If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

Kelly Daigle 12/4/2012

DOE Share: \$854,999  
Total Project Cost: \$854,999

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

NEPA Compliance Officer Signature:   
NEPA Compliance Officer

Date: 12/4/2012

**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: \_\_\_\_\_