

PMC-EF2a

(20402)

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



RECIPIENT: University of Delaware

STATE: DE

**PROJECT TITLE :** Reduced Cu(InGa)Se<sub>2</sub> thickness in solar cells using a superstrate configuration

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000492	DE-EE0005317	GFO-0005317-001	0

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:

- B3.6** Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).
- A9** Information gathering (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.

**Rational for determination:**

DOE is proposing to provide federal funding to the University of Delaware (UD) to perform laboratory research to develop technology, which reduces the cost of manufacturing thin film CU(InGa)Se<sub>2</sub> solar cells by reducing the thickness of the Cu(InGa)Se<sub>2</sub> absorber layer and implementing a superstrate cell configuration. DOE funds would be used to purchase and install laboratory equipment necessary to perform this scope of work.

Laboratory work would be conducted at UD. The prototype would be tested at the University of Florida (UF). Both facilities have completed an R&D questionnaire addressing the protocols in place regarding laboratory safety, risk management, chemical handling and waste disposal.

UD laboratory work would be conducted at the Institute of Energy Conversion (IEC) at the Newark campus (451 Wyoming Road, Newark, Delaware 19716). University safety and environmental protocols are monitored through periodic inspections by the UD's Department of Environmental Health and Safety (EHS). Personnel using x-ray generating equipment are screened quarterly for exposure through testing of x-ray sensitive badges that must be worn at all times when operating equipment. IEC is operating under a State of Delaware Health and Social Services, Division of Public Health for use of the x-ray generating equipment (x-ray diffractometers).

The prototype would be tested at UF's Chemical Engineering Department and the Microfabritech Center (2800 SW Archer Road, Gainesville, Florida 32608). The EHS office on the UF campus provides comprehensive safety protocols. EHS conducts annual laboratory safety inspections and evaluations in both facilities. Film badges are required for personnel who use x-ray. UF operates under an FDEP/EPA permit for waste management and meets all requirements of state and federal regulations for a hazardous waste program. Toxic waste is accumulated in appropriately small, separated containers on site. UF hazardous waste teams transport it to a general accumulation facility for collection by a permitted hazardous waste disposal company.

Based on this information, DOE had determined the work outlined is consistent with activities identified in categorical exclusion A9 (information gathering) and B3.6 (indoor bench-scale research and conventional laboratory operations).

**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 :

Cristina Tyler 10.27.2011

DOE Funding: \$1,167,147  
Cost Share: \$291,860  
Total Project Cost: \$1,459,007

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

NEPA Compliance Officer Signature:  Date: 11/1/2011  
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: \_\_\_\_\_ Date: \_\_\_\_\_  
Field Office Manager