

PMC-ND

(1.08.09.13)

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



**RECIPIENT:**AZ Board of Regents on behalf of Arizona State University

**STATE:** AZ

**PROJECT TITLE** : Sound Assisted Low Temperature Spalling: Upscaling and Throughput

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001654	DE-EE0008170	GFO-0008170-001	

**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 Arizona State University (ASU) to design and develop a novel kerfless method (Sound Assisted Low Temperature spalling: SALT) to section silicon wafers for solar photovoltaic panels.

The proposed project involves laboratory scale research and development to demonstrate the scalability of the SALT technology. Associated activities would include: data analysis; modeling; and the design and fabrication of 4" and 6" silicon wafers in quantities to support in-lab testing. Project activities would occur in the dedicated Bertoni research laboratory at ASU in Tempe, AZ. The facility was designed for this type of research; therefore, no physical modification or new permits, additional licenses and/or authorizations would be necessary. No change in the use, mission or operation of existing facilities would arise out of this effort.

The proposed project would involve the use and handling of various hazardous chemicals used to clean and etch silicon, including hydrofluoric, nitric, hydrochloric, and acetic acids. All such handling would occur in-lab following established university health and safety protocols. The laboratory has specialized fume hoods as well as sealed carboys already in place for the proper management of these chemicals.

Proposed laboratory activities would generate small quantities of hazardous and non-hazardous waste. All hazardous spent chemicals would be disposed of as directed by the Environmental Health and Safety office at ASU in accordance with federal, state, and local regulations. Standard non-hazardous laboratory waste such as gloves, wipes, glass, aluminum foil and glue would be processed by ASU facilities via routine pick-up. The small quantities of silicon material generated would also be disposed as non-hazardous waste. Equipment used for the proposed project would remain in the laboratory for future use. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

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, 07/31/2017

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

NEPA Compliance Officer Signature:  Electronically Signed By: Kristin Kerwin  Date: 7/31/2017  
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