

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



RECIPIENT: The Regents of the University of California, San Diego

STATE: CA

PROJECT TITLE: Non-contact thermophysical characterization of solids and fluids for concentrating solar power

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001697	DE-EE0008379	GFO-0008379-001	

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 Department of Energy is proposing to provide federal funding to the University of California, San Diego to complete a research and development project with the goal of developing a thermophysical characterization tool to characterize high-temperature thermophysical properties of heat transfer fluids and the solids in components and sub-systems used in Concentrated Solar Power (CSP) plants. Project activities would include theoretical modeling, instrumental design and hardware development, and measurements of thermophysical properties (thermal conductivity and specific heat) of various fluids and solids to be used in Generation 3 (Gen-3) CSP technologies.

The project would be completed over four (4) Budget Periods (BP). BP1 would focus on identifying control samples and preliminary tool development. BP2 would focus on testing the tool on cylindrical tubes. BP3 would focus on refining high temperature operation of the tool. And, BP4 would focus on transitioning the tool to other operators and facilities. Work during all budget periods would take place at the University of California, San Diego and the University of Arizona.

The project would involve the use and handling of various hazardous materials, including metal, industrial solvents, high temperature molten salts, micro particles and nanoparticles. The project would also involve the use and handling of lasers. All such handling would occur indoors, in existing, purpose-built laboratory facilities. No change in the use, mission, or operation of existing facilities would result from any of the proposed project activities. Both the University of California, San Diego and the University of Arizona have corporate health and safety policies and procedures (including training, proposer protective equipment, engineering controls, etc.) that would be followed (and developed, as necessary). All hazardous materials and laser usage would be managed in accordance with Federal, state, and local environmental regulations. Nanoparticles would only be used at University of California, San Diego where there is existing approved protocol for handling and disposal.

In Budget Period 4, Task 5: Transition tool to other facilities, the recipient would transfer the tool to at least two Gen-3 CSP facilities for demonstration purposes. The recipient has not identified Gen-3 facilities where the demonstration

would be completed. As such, DOE cannot complete a meaningful NEPA review of Task 5 at this time. DOE will complete additional NEPA review for Task 5 when the recipient has identified potential Gen-3 CSP facilities.

Based on the review of the proposal, DOE has determined that Tasks 1-4 and 6 fit 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. Tasks 1-4 and 6 are 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/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Task 5: Transition tool to other operators / facilities

This restriction does not preclude you from:

Task 1: Measure control samples using standard techniques

Task 2: Design MPR tool around room temperature

Task 3: Develop MPR for measurements of materials in cylindrical tube geometry

Task 4: Develop MPR for measurements of materials at high temperature

Task 6: Dissemination and T2M

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 :

Solar Energy Technology Program
This NEPA determination requires a tailored NEPA provision.
Completed by K Kerwin on 8/9/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  Kristin Kerwin Date: 8/9/2018
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