

PMC-ND  
(1.08.09.13)

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



RECIPIENT: The Regents of the University of California

STATE: CA

PROJECT TITLE : Super Metallated Frameworks as Hydrogen Storage

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001647	DE-EE0008094	GFO-0008094-001	

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:

<b>A9 Information gathering, analysis, and dissemination</b>	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.)
<b>B3.6 Small-scale research and development, laboratory operations, and pilot projects</b>	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 The Regents of the University of California (UC Berkley) to carry out organic synthesis of metal organic framework building blocks, hydrothermal synthesis of metal organic frameworks, and solid state reactions on metal organic frameworks. All project work would occur within dedicated laboratory space on the UC Berkeley campus in Berkeley, California.

Metal Organic Framework (MOF) structures have large surface area and well-defined pores ideal for gas storage applications so this project would attempt to increase hydrogen storage in on board hydrogen fuel cells for light-duty-vehicles by improving MOF structures. Activities at UC Berkeley would include synthesizing several different MOFs to achieve the high metal loading needed to increase hydrogen storage and then studying these modified MOFs for characteristics such as pore size, volume, and hydrogen storage capacities to work toward developing MOFs for hydrogen storage that would achieve the DOE's targets by optimization of the MOF synthesis and processing.

No modifications to the existing labs, buildings or sites is necessary for this project and no new permits, additional licenses and/or authorizations would be necessary to complete project work. The project would involve the use and handling of various hazardous materials, including metals and industrial solvents. All such handling would occur in-lab. UC Berkley has proper hazardous material handling and disposal practices in place, so the project activities that involve these materials would pose no risk to the public. All hazardous materials would be managed and disposed of in accordance with federal, state, and local environmental regulations.

Based on the review of the proposal, DOE has determined the tasks within BP1 of the proposal 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 and subtasks within BP1 of the proposal 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:

Budget Periods 2 and 3

This restriction does not preclude you from:

All tasks and subtasks associated with Budget Period 1

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 :

Fuel Cell Technologies Office

This NEPA determination requires a tailored NEPA provision.

Review completed by Chris Rowe on 7/10/2017

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

NEPA Compliance Officer Signature: \_\_\_\_\_



Casey Strickland

*Casey Strickland*

Date: 7/11/2017

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: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_