PMC-ND
(1.08.09.13)

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

RECIPIENT: Curators of the University of Missouri on Behalf of the University of Missouri-St. Louis **STATE:** MO

PROJECT TITLE : Fundamental Studies of Surface-Functionalized Mesoporous Carbons for Thermodynamic Stabilizationand Reversibility of Metal Hydrides

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001412	DE-EE0007656	GFO-0007656-001	GO7656

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.
B3.15 Small-scale indoor research and development projects using nanoscale materials	Siting, construction, modification, operation, and decommissioning of facilities for indoor small-scale research and development projects and small-scale pilot projects using nanoscale materials in accordance with applicable requirements (such as engineering, worker safety, procedural, and administrative regulations) necessary to ensure the containment of any hazardous materials. Construction and modification activities would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible).

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the University of Missouri – St. Louis (UMSL) to experimentally investigate the chemical interactions that allow for hydrogen storage in surface functionalized nanoporous carbons, in order to design and optimize new materials for fuel cell applications.

The proposed project involves lab-scale chemical engineering and materials science. This NEPA review only applies to activities associated with Budget Period 1 of the proposal, which is the only budget period being negotiated at this time. Additional NEPA review will be required if the project continues into subsequent budget periods.

Proposed activities would include preparation of small batches of nitrogen-doped nanoporous carbons, infiltration of the carbon surfaces with complex metal hydrides, characterization of the synthesized materials using various analytical techniques to measure chemical and physical properties, and computational methods to understand experimental results. All proposed work would occur inside dedicated academic research facilities that are well-equipped to perform the chemical synthesis and experimental measurement of new materials. Sample preparation and characterization using nitrogen adsorption instruments would be undertaken in laboratory space at UMSL. Infiltration of hydrides into carbon materials would take place in a chemistry laboratory at St. Louis University (SLU) in St. Louis, MO. Additional characterization work would be completed in a magnetic resonance facility at Washington University (WU) in St. Louis, MO.

All facilities in which small- and bench-scale lab work would occur are purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project. No change in the use, mission or operation of existing facilities would arise out of this effort. The facilities have all applicable permits in place, and would not need additional permits for the proposed activities.

The proposed activities at UMSL and SLU involve the use and handling of various hazardous materials including chemicals and solvents. Existing safety protocols and standard operation procedures of each institution would be followed with oversight by on-campus Environmental Safety and Health (ES&H) departments. Small quantities of hazardous waste, including gram-sized quantities of nanoporous carbons prepared by trained personnel, would be disposed of in accordance with ES&H practices that comply with government standards.

Based on the review of the proposal, DOE has determined the tasks within Budget Period 1 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 Budget Period 1 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:
All tasks and subtasks associated with Budget Period 2 and Budget Period 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.
NEPA review completed by Whitney Doss, 08/15/2016

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 8/15/2016
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