

PMC-ND  
(1.08.09.13)

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



**RECIPIENT:** Proton OnSite

**STATE:** CT

**PROJECT TITLE :** Benchmarking Advanced Water Splitting Technologies: Best Practices in Materials Characterization

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001647	DE-EE0008092	GFO-0008092-001	GO8092

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 Proton OnSite to create a comprehensive best practices benchmarking framework at the materials, component, device and systems levels for water-splitting technologies.

The proposed project activities would include laboratory testing of various water-splitting technologies for the purpose of developing benchmarking tools and standards. Development activities would involve fabrication of electrodes and electrochemical testing at Proton OnSite in Wallingford, CT. Activities at the Pacific Northwest National Laboratory (PNNL) would include conducting industry surveys, development of standardized test procedures, fuel cell performance characterization, and off-site facilitating. High-temperature electrolysis and photoelectrochemical water splitting would occur at California Institute of Technology (Caltech) in Pasadena, CA. Coordination among researchers on standards and benchmarking with the core teams would occur at Arizona State University (ASU) in Tempe, AZ. Collaboration is proposed to occur with the HydroGEN Energy Materials Network (EMN) National Laboratory consortium. Work at the EMN National Laboratory consortium is consistent with efforts carried out by Proton OnSite and its sub-recipients.

At Proton OnSite the project effort would involve laboratory and manufacturing process and procedures in facilities that are specifically designed for these activities. Existing risks associated with routine lab and manufacturing activity would be properly managed through Hazard Communication, Hazard Analysis, Emergency Response Plans, and Hazardous Waste Operation Procedures. To mitigate associated risks the handling, storage, and disposal of chemicals would be carried out in accordance with appropriate chemical hygiene plans and local, state, and federal regulatory requirements. The project would involve the use and handling of various hazardous materials. All such handling will occur in-lab, in the well ventilated space and would pose no risk to the public. At Caltech and PNNL the project hazards would involve the use and handling of various hazardous materials including acids, industrial solvents,

chemicals, etc. All such handling would occur in-lab. Caltech and PNNL follows appropriate hazardous material handling and disposal practices. All hazardous materials would be managed in accordance with federal, state, and local environmental regulations. No laboratory work would occur at ASU.

The catalysts proposed for use are nanoscale particles. These materials can present respiratory hazards, flammability hazards, and toxicity hazards and would be managed through application of appropriate procedures and use of appropriate protective equipment. Waste nanoparticle materials would be collected in segregated drums or recycling to reclaim the platinum group metals.

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.

Insert the following language in the award:

You are required to:

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Fuel Cell Technologies Office  
This NEPA determination requires a tailored NEPA provision.  
Review completed by Chris Rowe on 7/11/2017

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

NEPA Compliance Officer Signature:



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: