

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



RECIPIENT: Proton OnSite

STATE: CT

PROJECT TITLE: High Efficiency PEM Water Electrolysis Enabled by Advanced Catalysts, Membrane and Processes

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001647	DE-EE0008081	GFO-0008081-002	GO8081

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 (Proton) for the development of an advanced proton exchange membrane electrode assembly (MEA) for water electrolysis capable of meeting DOE cost and efficiency targets. Budget Period 1 (BP1) was reviewed by GFO-0008081-001 (CXs A9, B3.6, B3.15; 06/26/17). This NEPA determination is for BP2 and BP3 activities.

Development activities involve fabrication of electrodes and electrochemical testing at Proton's facility in Connecticut, characterization of water transport and distribution by Tufts University (Tufts) in Massachusetts and later at University of California, Irvine (UC Irvine) in California, and characterization of electrode structure via high resolution transmission electron microscopy (TEM) at Oak Ridge National Laboratory in Tennessee. Theory and modeling would occur on-site at the Sustainable Electrochemical Energy (See) Laboratory at Tufts and the National Fuel Cell Research Center at UC Irvine. This project would be linked to the HydroGEN Energy Materials Network and could involve activities at other DOE laboratory sites which would be funded separately from this project and are not yet defined. 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.

All project work would occur in existing facilities/laboratories designed for this type of work that would utilize

standard laboratory equipment; therefore no modifications, new permits, additional licenses and/or authorizations would be necessary. No ground disturbing activities, no changes in operation of existing facilities, and no installation of equipment outdoors would occur at any of the facilities involved in the project. Each facility would adhere to their existing health and safety policies and procedures regarding personnel safety and the handling, storage, and disposal of gases and chemicals. Various hazardous materials, such as hydrogen gas, would be handled as part of this project. Each of the facilities utilizing hazardous materials would follow the procedures for the handling and disposal of those materials in accordance with each facility's existing environmental health and safety plans and procedures as well as all federal, state, and local environmental regulations. Other non-hazardous wastes would be disposed of in accordance with established guidelines at each facility. Nanoengineered alloy catalyst layers would require the use of nanoscale materials. Employees would be trained in the safe use and handling of these materials including the use of proper personal protective equipment and disposal. All nanoscale materials used during the project would be collected in segregated drums for recycling once they have served their useful purpose. DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

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.

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

NEPA Compliance Officer Signature:  Casey Strickland  
NEPA Compliance Officer

Date: 8/8/2018

#### 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: \_\_\_\_\_