PMC-ND
(1.08.09.13)

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

RECIPIENT: University of Connecticut **STATE:** CT

PROJECT TITLE: Catalyst layer design, manufacturing and In-line Quality Control

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001874	DE-EE0008427	GFO-0008427-001	GO8427

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 funding to University of Connecticut (UConn) to fabricate a membrane electrode assembly (MEA) using the Reactive Spraying Deposition Technology (RSDT) method, which would allow for direct deposition of anode/cathode materials. The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point between each BP.

Proposed activities for BP1 would include data analysis, development/optimization of the RSDT process, fabrication and evaluation of catalyst coated membranes (CCM), characterization of catalyst materials, optimization of CCM, and quality control of fabrication. BP2 activities would include characterization of nanoparticle crystallinity and the anode synthesis process, and scale-up of the CCM manufacturing process.

UConn (Storrs, CT) and its project partners, Proton OnSite (Wallingford, CT) and Mainstream Engineering (Rockledge, FL), would perform all project activities at existing, purpose built facilities owned and/or operated by each entity. All laboratory, research and testing facilities are equipped to complete the proposed research and processing activities. No change in the use, mission or operation of existing facilities would be required. Likewise, no new permits, licenses, or authorizations would be required to perform project activities.

The proposed project would involve the use and handling of industrial solvents, metal organic compounds, and

flammable gases. Electron microscopes would also be used for analysis at UConn. Risks associated with handling these items would be mitigated through adherence to established health and safety policies and procedures. Specific protocols would include the use of personal protective equipment, personnel training, including training in x-ray hazards associated with electronic microscopes, site monitoring and control, and observation of proper materials handling, ventilation, and disposal norms. Platinum and iridium nanoparticles would be used as catalyst materials during testing. Fume hoods would be used when handling nanoparticles in order to mitigate inhalation risks. These materials would be disposed of in designated containers, following environmental protocols established by UConn's Department of Environmental Health and Safety. All work activities would comply with relevant Federal, state, and local health, safety and environmental regulations.

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.

Note to Specialist :

Fuel Cell Technologies Office
This NEPA determination does not require a tailored NEPA Provision.
NEPA review completed by Jonathan Hartman, 10/30/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Casey Strickland Date: 10/30/2018

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