

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Plug Power, Inc**STATE:** NY

**PROJECT TITLE:** Integrated Membrane Anode Assembly & Scale-up

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002229	DE-EE0009236	GFO-0009236-001	

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Plug Power, Inc to design, develop, and fabricate Polymer Electrolyte Membrane (PEM)-based electrolyzer stack cell components. The project would develop a single-piece Integrated Membrane Anode Assembly (IMAA), a single-piece anode-support-structure (SPASS) coated with catalysts and ionomers on one side, to be used in place of the two separate components that make up a PEM-based electrolyzer stack: the membrane-electrode-assembly (MEA) and the anode-support-structure. The project would be completed over three Budget Periods (BPs) with a Go/No-Go Decision Point between each BP.

Proposed project activities would include computer modeling and design, development, and fabrication of IMAA components. Once developed, the IMAA and components would be tested for performance and durability and scaled up. The platform electrolyzer stack prototype would be assembled utilizing the select IMAA materials. The ability to reduce production time of the electrolyzer stack(s) would be assessed. Feasibility studies would identify technical, operational, and cost requirements to manufacture the IMAA.

Plug Power, Inc would oversee the project. Colorado School of Mines, University of Tennessee Space Institute, Oak Ridge National Laboratory (ORNL), and National Renewable Energy Laboratory (NREL) would be subrecipients.

All laboratory work would be performed at existing, purpose-built facilities. Plug Power would design, manufacture, and test electrolyzer stack components at their research and development facilities and manufacturing plants in Newton and Concord, Massachusetts and Rochester, NY. Colorado School of Mines and ORNL would perform characterization studies. University of Tennessee would develop the membrane and coating. NREL would run membrane and catalyst development. There would be no physical modifications or changes in operation to existing facilities. Additional permits would not be required for this project.

Project activities would involve the use and handling of chemicals, including flammable hydrogen, and electrical hazards. Any risks associated with the handling of these materials would be mitigated through adherence to established health and safety policies and procedures. Protocols would include dedicated hydrogen safety systems, a hydrogen safety plan, use of personal protective equipment, monitoring, oversight, and engineering controls. All waste products would be disposed of by licensed waste management service providers. Plug Power Inc. and its project partners would observe all applicable environmental, health, and safety laws and regulations.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Hydrogen and Fuel Cell Technologies Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Shaina Aguilar on 11/23/2020.

## FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

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

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



Casey Strickland

NEPA Compliance Officer

Date: 11/23/2020

## FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required  
 Field Office Manager review required

## BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

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