

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** 3M Company**STATE:** MN

PROJECT TITLE: Advanced Manufacturing Processes for Gigawatt-Scale Proton Exchange Membrane Water Electrolyzer Oxygen Evolution Reaction Catalysts and Electrodes

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002229	DE-EE0009237	GFO-0009237-001	G09237

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 3M Company to develop novel manufacturing processes for the production of proton exchange membrane (PEM) components. 3M Company would produce and test catalysts and electrodes with the processes developed. 3M Company would then validate the components by integrating them into electrolyzer stacks. The project would be completed over three Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP.

Proposed project activities would include process development (e.g. material deposition, powder synthesis, electrode coating), material synthesis (e.g. thin film synthesis), material characterization, component fabrication, electrolyzer stack integration, and component performance testing. All synthesis/fabrication would occur at laboratory scale (e.g. approximately 11 gal of coating solvents, 100 oz of catalysts, and 50 kg of raw materials for component fabrication). 3M Company would oversee and coordinate all project activities. Research, testing and material development would be performed by 3M Company and its project partners Giner, Inc., Plug Power, Oak Ridge National Laboratory (ORNL), and the National Renewable Energy Laboratory (NREL). Most component fabrication would be performed by 3M Company, with some minor fabrication/assembly occurring at NREL. All project work would be performed at existing, purpose-built laboratory and/or manufacturing facilities. No ground breaking activities, facility modifications, or changes to the use, mission, or operation of existing facilities would be required.

Project work would involve the use and handling of engineered catalytic nanoparticles, flammable solvents, and reactive gases. All such handling would occur in controlled laboratory environments that regularly perform work similar in nature to that included in the scope of the project. 3M Company and its project partners would adhere to established corporate health and safety policies and procedures. Regular hazard reviews would be conducted throughout the life of the project. Hazardous materials would be stored, transported, and disposed of in accordance with established waste management policies. Nanoparticles would be handled in dry powder form utilizing appropriate safety precautions to mitigate the risk of inhalation, including ventilated laboratory hoods and respirators. 3M Company and its project partners would observe applicable Federal, state, and local health, safety, and environmental regulations. 3M Company and its project partners would obtain any and all required permits/authorizations prior to performing project activities.

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:

[Fuel Cell Technologies Office](#)

[This NEPA Determination does not require a tailored NEPA Provision.](#)

[NEPA review completed by Jonathan Hartman, 11/12/2020](#)

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: 11/16/2020

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: _____