

PMC-ND

(1.08.09.13)

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



RECIPIENT: Saint-Gobain Ceramics & Plastics, Inc.

STATE: MA

PROJECT TITLE: Development of Durable Materials for Cost Effective Advanced Water Splitting Utilizing All Ceramic Solid Oxide Electrolyzer Stack Technology

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001647	DE-EE0008377	GFO-0008377-002	G08377

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 Saint-Gobain Ceramics & Plastics (Saint-Gobain) to develop a high temperature electrolysis technology which would combine a nickelate-based anode material with an all ceramic stack design. The project would seek to reduce material degradation in solid oxide electrolysis cells (SOECs) through the development of novel nickelate-based compositions, which would be integrated into specially designed SOEC stacks.

A NEPA Determination was previously made for all Budget Period 1 (BP1) activities (GFO-0008377-001; CXs A9, B3.6). At that time, task work for BP2 and BP3 was restricted, as these tasks would only be structured after completion of BP1 and upon receiving approval from DOE to move into the subsequent BPs. Since that time, Saint Gobain has received approval to move into BP2/BP3 and has structured the activities to be performed. This information has been submitted for NEPA review. As a result, this NEPA Determination will be applicable to all BP2 and BP3 activities.

Project work would focus on testing the material stoichiometries down-selected during BP1. BP2 would center on the identification of composite materials with the desired traits (e.g. degradation resistance) through button cell testing. During BP3, SOEC stacks would then be produced and characterized. Specific activities to be performed during these two BPs would include computer modeling, data analysis, material synthesis (e.g. ceramic materials), ceramic coating, electrolyzer cells/short stack fabrication, material characterization, performance testing (e.g. durability testing), and techno-economic analysis.

Saint Gobain would lead and coordinate all project activities. Saint Gobain would also perform powder synthesis, film synthesis, electrolyzer fabrication, and material testing at its research facility in Northborough, MA. Boston University would perform powder synthesis, characterization, and material testing at its research laboratory in Boston, MA. Pacific Northwest National Laboratory (PNNL) would perform material testing at its laboratory facilities in Richland, WA, respectively. All project activities would be performed at existing purpose-built facilities. Minor modifications would be made to existing equipment at Saint Gobain's facility in order to accommodate testing requirements (e.g. adjustments to test stand). However, no physical modifications to existing facilities, construction of new facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities would be required for any of the above activities. No additional permits, licenses, or authorizations would be required.

Project work would involve the use and handling of industrial chemicals and laboratory equipment. All work would be performed in controlled, laboratory spaces. In order to mitigate potential hazards associated with the performance of project activities, established health and safety policies and procedures would be adhered to. Protocols would include adherence to established change processes, the regular performance of risk assessments, adherence to established engineering and administrative controls, and the use of personal protective equipment. Saint Gobain and its project partners would observe all applicable Federal, state, and local health, safety, and environmental 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:

Fuel Cell Technologies Office
This NEPA Determination does not require a tailored NEPA Provision.
NEPA review completed by Jonathan Hartman, 08/06/2020

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: _____


NEPA Compliance Officer

Date: 8/6/2020

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: _____