

PMC-ND

(1.08.09.13)

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



RECIPIENT: FuelCell Energy, Inc.

STATE: CT

PROJECT TITLE: Solid Oxide Electrolysis System Demonstration

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001817	DE-EE0009290	GFO-0009290-001	G09290

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 federal funding to FuelCell Energy, Inc. (FCE) to complete design, specification, engineering, procurement, manufacturing, quality assurance, testing, and demonstration of a modular, scalable 250 kW high temperature water splitting hydrogen generating system based on Solid Oxide Electrolysis Cell (SOEC) technology. Engineering design of the 250kW system would occur at FCE facilities in Danbury, CT. Concurrent with the design work, SOEC stacks would be manufactured at Versa Power Systems (VPS), a wholly-owned subsidiary of FCE located in Calgary, AB Canada. After design and construction, the 250kW system would be commissioned and factory tested at FCE facilities in Danbury, CT followed by shipment to Idaho National Laboratory (INL), Idaho Falls, ID for further testing.

Project activities would occur in existing facilities and laboratories designed for the type of work planned. Work occurring at FCE and VPS would not require modifications to facilities, new permits, additional licenses and/or authorizations. Factory testing of the system would take place on an existing test pad at FCE. Installation of the system at INL for testing would require modifications for the development of water treatment and steam generation, electric power and controls interfaces, handling (purification and pressurization) of product hydrogen and oxygen-enriched air as well as basic mechanical layout at the Energy Systems Laboratory. 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.

The project would involve handling various hazardous materials such as certain ceramic powders, metal oxides, metals, and industrial solvents and binders. All chemical handling would occur in-lab with dedicated proper hazardous material handling and disposal practices, so the project activities that involve these materials would pose no risk to the public. All facilities are in compliance with U.S./Canadian, state/province, and local laws for environmental, health and safety (EH&S) regulations related to the handling, storage, and disposal of hazardous materials and wastes. The project would also involve commissioning and factory testing of the 250 kW Solid Oxide Electrolysis system to produce oxygen (O₂) and hydrogen (H₂) gases and enriched O₂ air exhaust, which both represent fire risks. The project also would utilize high power and voltage as well as high temperatures. Established facility EH&S policies and procedures would be followed including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments. Fire risk mitigation would be accomplished through engineering controls and awareness training. FCE has building and equipment specific monitoring of atmospheric levels of flammables in place including fail-safe shut off of potentially hazardous processes. Produced H₂ gas would be oxidized into water in a

controlled manner prior to venting, and enriched O2 would be cooled, and safely vented separately. At INL, produced hydrogen would be vented after dilution to below the flammability threshold. Similarly, produced O2 would be diluted with air prior to venting.

DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

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.

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.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 Electronically Signed By: Casey Strickland
NEPA Compliance Officer

Date: 5/20/2021

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: