

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



RECIPIENT: Caterpillar Inc

STATE: IL

PROJECT TITLE : 1.5 MW PEMFC for Data Center Power: Development and Demonstration

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA0002229	DE-EE0009252	GFO-0009252-002	GO9252

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 Caterpillar, Inc. for the design, development, fabrication, and field testing of a 1.5 MW hydrogen fuel cell power system for a data center application. Design and subcomponent testing would occur at Caterpillar's Technical Center in Mossville, IL and Ballard Fuel Cell Systems Inc. in Bend, OR. The assembled full system would be tested at Microsoft's data center development facility in Cheyenne, WY. Throughout the program, modeling, analysis, and safety plan development would occur at the National Renewable Energy Laboratory in Golden, CO.

This project would be completed over three Budget Periods (BPs). DOE previously completed one ND for this specific award. The ND for BP1 (GFO-0009252-001: CX A9, issued 11/30/2020) focused on the design, engineering, simulations, and stakeholder engagement. This ND focuses on BP2 and BP3.

Budget period 2 activities include modeling, assembly, and testing of battery systems, electronics and control systems at Caterpillar's laboratory. Fuel cell system assembly and modeling would occur at Ballard Fuel Cell Systems' facility. Both of these facilities are purpose-built and would not require modifications. Activities at the Microsoft data center development facility include installing mechanical and electrical connections to the facility, preparation of an existing concrete pad (100' x 200'), installation of a single 18,000-gallon liquid hydrogen fuel tank, and testing of the newly installed system. No ground disturbing activities would occur. Budget period 3 includes integration and demonstration activities, data collection, reporting, and decommission.

Air emissions would be compliant with existing facility permits. Award activities would involve the handling and use of hazardous materials such as lithium-ion batteries, solvents, coolant (ethylene glycol), nanoscale catalyst, and liquid and gaseous hydrogen. Hazardous materials would be handled, stored, and disposed of according to existing policies and procedures. All nanoscale materials would be handled using proper engineering controls until adhered to surface materials or dissolved in solvents. Safety hazards would include working with construction and crane lifts, pressurized gases, and electrical equipment. The liquid hydrogen tank would be installed with a 75-foot setback from the facility and supporting infrastructure, and 40-foot setback from the fuel cell container. Existing corporate and governmental health, safety, and environmental policies and procedures would be followed at all facilities, including personnel training, proper personal protective equipment (PPE), engineering controls, monitoring, and internal assessments.

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 (HFTO)
NEPA review completed by Amy Lukens, 8/4/2022

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: _____

 Electronically Signed By: **Casey Strickland**
NEPA Compliance Officer

Date: 8/5/2022

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: _____