

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Caterpillar Inc.**STATE:** IL

**PROJECT TITLE:** Flexible Natural Gas/Hydrogen CHP System

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002252	DE-EE0009422	GFO-0009422-001	GO9422

**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 is proposing to provide funding to Caterpillar, Inc. (Caterpillar) to develop and demonstrate a 2.0 MW (electric) flexible natural gas/hydrogen combined heat and power (CHP) system.

This project would be completed over 3 Budget Periods (BPs). BP 1 would include system research and development. BP 2 would include system design and testing. BP 3 would include system installation and demonstration. This NEPA determination is applicable to BP 1 and BP 2. BP 3 is subject to additional NEPA review when sufficient information is available to complete a meaningful analysis of system installation and demonstration and complete any additional required reviews under '10 CFR 1022 – Compliance with Floodplain and Wetland Environmental Review Requirements'.

Design, simulation, assembly and testing of engine and engine-generator system and controls, and containerized CHP system and controls would be completed by Caterpillar at their Technical Center in Mossville, IL. Modeling, analysis, and safety assessment activities would be completed by the National Renewable Energy Laboratory at their South Table Mountain Campus in Golden, CO.

The project would involve the use and handling of various hazardous materials, including engine-related fuels and lubricants. All such handling would occur in-lab and observing proper hazardous material handling and disposal practices. All hazardous materials would be managed in accordance with Federal, state, and local environmental regulations. Existing corporate health and safety policies and procedures would be followed, including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments.

Single-cylinder engine testing and multi-cylinder engine and genset testing and development activities, as well as integrated CHP system related activities would occur indoors at Caterpillar's Technical Center. No ground disturbing activities would be required. Engine fabrication and testing are a regular part of Caterpillar operations and, therefore, would not create a change in the use, mission, or operation of existing facilities. New or modified permits are not

anticipated.

DOE does not anticipate adverse impacts to any resources of concern as a result of Budget Period 1 and 2 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.

All activities in Budget Period 3 and any proposed ground disturbance/site preparation related to the system installation and demonstration are subject to additional NEPA review.

## NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

[Budget Period 1 - All tasks and subtasks](#)

[Budget Period 2 - All tasks and subtasks](#)

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

[Budget Period 3 - All tasks and subtasks](#)

Include the following condition in the financial assistance agreement:

All activities in Budget Period 3 "System Installation and Demonstration" and any proposed ground disturbance/site preparation related to Budget Period 3 are conditioned on additional NEPA review. DOE will complete further NEPA review and comply with any additional requirements per 10 CFR 1022 – Compliance with Floodplain and Wetland Environmental Review Requirements when sufficient information is available to conduct a meaningful analysis of impacts.

Notes:

[Advanced Manufacturing Office](#)

This NEPA determination requires 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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

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

NEPA Compliance Officer Signature:  \_\_\_\_\_ Date: 6/4/2021  
NEPA Compliance Officer

**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: \_\_\_\_\_ Date: \_\_\_\_\_  
Field Office Manager