

U.S. DEPARTMENT OF ENERGY - NETL

CATEGORICAL EXCLUSION (CX) DESIGNATION FORM

Project No.: DE-FE0032075 Recipient Name: Purdue University Project Location: West Lafayette, IN

Sub-recipient(s) and Locations:

Argonne National Laboratory: Lemont, IL

NETL Sponsoring Org.: FE/TDC/ACCM/IES Team NETL Contact: Andrew O'Connell

Brief Title of Proposed Action: Physics-Based Integration of H2-Air Rotating Detonation into GT Power Plant

Brief Description of Activities:

Computational and experimental work to develop the instruments, knowledge, and design to build an ultra-efficient rotating detonation combustor (RDC) - turbine demonstrator.

THE PROPOSED ACTION FALLS WITHIN THE FOLLOWING CATEGORICAL EXCLUSION(S) FROM APPENDICES A AND B TO SUBPART D OF DOE NEPA IMPLEMENTING PROCEDURES (10 CFR 1021):

General Administration/Management

- ☐ A1 - Routine business actions
☒ A9 - Info gathering, analysis, documentation, dissemination, and training
☐ A11 - Technical advice and planning assistance

Facility Operations

- ☐ B1.3 - Routine maintenance and custodial services
☐ B1.7 - Communication system and data processing equipment acquisition, installation, operation, removal
☐ B1.15 - Support building or structure, non-waste storage, construction/operation

Safety and Health

- ☐ B2.1 - Modifications to enhance workplace habitability
☐ B2.2 - Installation/improvement of building/equipment instrumentation
☐ B2.3 - Installation of equipment for personnel safety and health

General Research

- ☐ B3.1 - Site characterization/environmental monitoring
☒ B3.6 - R&D or pilot facility construction/operation/decommissioning
☐ B3.7 - New infill exploratory, experimental oil/gas/geothermal well construction and/or operation
☐ B3.9 - Certain CCT demonstration activities, emissions unchanged
☐ B3.11 - Outdoor tests, experiments on materials and equipment components

Electrical Power and Transmission

- ☐ B4.4 - Power management activities (storage, load shaping, and balancing)
☐ B4.6 - Transmission support addition/modifications at developed facility site
☐ B4.11 - Construction of power substations and interconnection facilities
☐ B4.13 - Upgrading and rebuilding existing power lines (< 20 miles)

Conservation, Fossil, and Renewable Energy Activities

- ☐ B5.1 - Actions to conserve energy, no indoor air quality degradation
☐ B5.3 - Modification/abandonment of wells
☐ B5.5 - Short crude oil/gas/steam/geothermal/carbon dioxide pipeline const/oper within an existing right-of-way (< 20 miles) between existing facilities
☐ B5.13 - Experimental wells for injection of small quantities of carbon dioxide (< 500,000 tons)
☐ B5.15 - Small scale renewable energy research/development/pilot projects
☐ B5.22 - Alternative fuel vehicle fueling stations
☐ B5.23 - Electric vehicle charging stations

Other

☐ Specify category:

☐ Specify category:

☐ Specify category:

This action (1) would not present any extraordinary circumstances such that the action might have a significant impact upon the human environment; (2) is not connected to other actions with potentially significant impacts; (3) is not related to other actions with cumulatively significant impacts; and (4) is not inconsistent with 10 CFR 1021.211 - Interim Actions or 40 CFR 1506.1 - Limitations during the NEPA process.

SELECT ONE OF THE FOLLOWING:

- ☒ This Categorical Exclusion includes all tasks and phases in the Statement of Work or Statement of Project Objectives for this project.
☐ This Categorical Exclusion is only valid for the following tasks/phases The DOE initiator acknowledges the responsibility to obtain a NEPA determination prior to initiating any activities outside the scope of this Categorical Exclusion.

SELECT ONE OF THE FOLLOWING:

- ☒ This Categorical Exclusion includes all locations and activities for this project.
☐ Additional sites, sub-recipients, or activities cannot be identified at this time. The DOE initiator acknowledges the responsibility to obtain a NEPA determination prior to initiating any activities outside the scope of this Categorical Exclusion.

NOTE: ANY CHANGE(S) TO THE PROJECT SCOPE OR LOCATIONS MAY REQUIRE A NEW NEPA DETERMINATION.

DOE Initiator Signature: Andrew O'Connell

Digitally signed by Andrew O'Connell
Date: 2021.05.28 17:12:40 -0400

Date: 05 / 28 / 2021

month day year

NEPA Compliance Officer: PIERINA FAYISH

Digitally signed by PIERINA FAYISH
Date: 2021.06.02 12:08:18 -0400

Date: 06 / 02 / 2021

month day year

The following special condition is provided for the consideration of the Contracting Officer: