

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



RECIPIENT: Purdue University

STATE: IN

PROJECT TITLE: Commercial Cold Climate Rooftop Heat Pump Using CO2/Propane Cascaded with a Centrifugal System

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002788	DE-EE0010925	GFO-0010925-001	GO10925

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 Purdue University to design, develop, model, fabricate and test a novel rooftop heat pump for cold climates.

Design work, modeling, surveying, analysis, and lab testing would occur within pre-existing, purpose-built research and development facilities at Purdue University (West Lafayette, IN), Oak Ridge National Laboratory (Oak Ridge, TN), Copeland Corporation (Sidney, OH), and Trane Technologies (La Crosse, WI). Field testing would occur at a select industrial facility, replacing the existing rooftop air conditioning system with the prototype heat pump. The prototype would be connected to the existing duct work. No physical modifications to existing facilities, change to facility mission, or ground disturbance would be required.

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.

Minimal air emissions may occur as a result of laboratory work and testing. However, all emissions are anticipated to be negligible and would be within the limits of existing air permits at each facility. Award activities would involve handling of hazardous materials, such as refrigerants and solvents. Handling, storage, and disposal of hazardous materials would occur within controlled settings and would follow existing policies and procedures. Existing university, governmental, and corporate 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. Project activities would occur entirely at existing, purpose-built facilities; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed activities.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

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:  _____ Date: 11/8/2023
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