

PMC-ND  
(1.08.09.13)

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



**RECIPIENT:** Air-Conditioning, Heating, and Refrigeration Technology Institute

**STATE:** VA

**PROJECT TITLE:** Implementing Low Global Warming Potential (GWP) and Energy Efficient Refrigerant Technologies : Part II Heat Transfer and Compatibility Studies

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001632	DE-EE0008406	GFO-0008406-001	

**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 the Air-Conditioning, Heating, and Refrigeration Technology Institute (AHRTI) to advance low global warming potential (GWP) technologies and compile a refrigerant database to provide U.S. manufacturers with relevant info to more easily utilize low GWP refrigerants in their products. The project would characterize low GWP refrigerants' heat transfer performance, refrigerant properties, and compatibility with lubricants and materials inside Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) systems. The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP.

Proposed project activities would consist of material characterization and testing, data collection/analysis, and computer modeling. Refrigerants would be selected for testing in consultation with industry partners based on industry interest. Material characterization and testing would consist of testing to measure heat transfer performance, pressure drops, material compatibility testing (e.g. testing compatibility of refrigerants and materials commonly used in HVACR systems), and lubricants research.

AHRTI would serve as the project lead and coordinate all project activities. Project management activities would be performed at its office facilities in Arlington, VA. Heat transfer and pressure drop testing would be performed at Oak Ridge National Laboratory (ORNL) in Oak Ridge, TN. Refrigerant characterization and modeling would be performed at the National Institute of Standards and Technology's (NIST) laboratory facilities in Boulder, CO. Additional thermal/chemical stability testing and compatibility testing would be performed at the laboratory facilities of a qualified third-party vendor to be selected at a later date. All project activities would be performed at existing, purpose-built facilities. The proposed project would not result in any physical modifications to existing facilities, ground disturbing activities, outdoor installations/deployments, or changes to the use, mission, or operation of existing facilities. No additional permits or authorizations would be required to complete project activities.

Project activities would involve the use and handling of various flammable materials, including refrigerants and

lubricants. All such handling would occur in controlled laboratory settings. Established health and safety policies and procedures would be adhered to. Protocols would include employee training, the use of personal protective equipment, and proper handling of flammable substances (e.g. keeping potential ignition sources away from test areas). AHRTI and its project partners would observe all applicable health, safety, and environmental regulations.

## NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

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.

Notes:

Building Technologies Office

This NEPA determination does not require a tailored NEPA provision. Please include the standard DOE laboratory language in the award.

Review completed by Jonathan Hartman on 7/15/2019

## 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: \_\_\_\_\_



Casey Strickland

NEPA Compliance Officer

Date: 7/15/2019

## 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: \_\_\_\_\_