

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Northeast Energy Efficiency Partnerships, Inc.**STATE:** MA

**PROJECT TITLE:** Field Validation of VRF System Performance in Cold-Climates

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002099	DE-EE0009075	GFO-0009075-001	

**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.)

**B5.1 Actions to conserve energy or water** (a) Actions to conserve energy or water, demonstrate potential energy or water conservation, and promote energy efficiency that would not have the potential to cause significant changes in the indoor or outdoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, manufacturers, and designers), organizations (such as utilities), and governments (such as state, local, and tribal). Covered actions include, but are not limited to weatherization (such as insulation and replacing windows and doors); programmed lowering of thermostat settings; placement of timers on hot water heaters; installation or replacement of energy efficient lighting, low-flow plumbing fixtures (such as faucets, toilets, and showerheads), heating, ventilation, and air conditioning systems, and appliances; installation of drip-irrigation systems; improvements in generator efficiency and appliance efficiency ratings; efficiency improvements for vehicles and transportation (such as fleet changeout); power storage (such as flywheels and batteries, generally less than 10 megawatt equivalent); transportation management systems (such as traffic signal control systems, car navigation, speed cameras, and automatic plate number recognition); development of energy-efficient manufacturing, industrial, or building practices; and small-scale energy efficiency and conservation research and development and small-scale pilot projects. Covered actions include building renovations or new structures, provided that they occur in a previously disturbed or developed area. Covered actions could involve commercial, residential, agricultural, academic, institutional, or industrial sectors. Covered actions do not include rulemakings, standard-settings, or proposed DOE legislation, except for those actions listed in B5.1(b) of this appendix. (b) Covered actions include rulemakings that establish energy conservation standards for consumer products and industrial equipment, provided that the actions would not: (1) have the potential to cause a significant change in manufacturing infrastructure (such as construction of new manufacturing plants with considerable associated ground disturbance); (2) involve significant unresolved conflicts concerning alternative uses of available resources (such as rare or limited raw materials); (3) have the potential to result in a significant increase in the disposal of materials posing significant risks to human health and the environment (such as RCRA hazardous wastes); or (4) have the potential to cause a significant increase in energy consumption in a state or region.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Northeast Energy Efficiency Partnerships, Inc. (NEEP) to generate and assess in-field data on variable refrigerant flow (VRF) performance and refrigerant leakage which would then be communicated to key audiences. Project work would be completed over three Budget Periods (BPs) with Go/No-Go decision points between each BP.

Initially, NEEP would convene and engage a team of stakeholders to act as an advisory committee. The project would develop standardized in-field measurement protocols for VRF systems through stakeholder engagement and

an assessment of the existing body of VRF knowledge. Sites where VRF monitoring would occur would be selected and confirmed. Modeling and collection of in-field data would take place within BP2. In BP3, recommendations based on an analysis of the collected data would be developed and disseminated to key influencers and audiences (e.g., energy efficiency program administrators, commercial/municipal/multifamily building developers and managers, architects/building engineers, and building energy modelers).

NEEP and the team would select an engineering firm early in the project to lead direct measurement of VRF in-field performance. This firm would assist in determining the exact measurement and verification (M&V) protocols for measuring performance. The actual number of sites and locations have not yet been determined but is expected to be 5 – 10 locations. NEEP would lead the project team to leverage their various stakeholder networks to identify potential sites (multifamily, office, schools/universities, retail, etc.) in the Northeast and Northwest U.S. that have operating VRF systems that were previously retrofitted or were installed during the original building construction. The team would formalize agreements with at least 5 sites to host in-field measurement for 12 months to include both a complete heating season and cooling season. Field data collection is expected to include indoor measurements of zone temperature, relative humidity, energy of the indoor unit, airside measurements (i.e. fan speed and cubic feet per minute), as well as supply and return air temperatures. Outdoor measurements would likely include weather station monitoring and power monitors on the outdoor unit compressors, defrost, pan heaters, fans, and refrigeration side sensors. Refrigerant leakage measurement could include pre/post or ongoing detection. Monitoring would include regular checks to ensure that the data is being appropriately gathered and is useful.

VRF systems utilize refrigerants that are hazardous if released. The recipient would ensure compliance with all federal, state, and local requirements associated with working in close proximity to the VRF systems and would take all necessary precautions not to disrupt refrigeration lines when applying and removing monitoring equipment. The project does not include activities related to the storage, transport, or disposal of refrigerants. All monitoring equipment would be removed after data collection.

While exact locations and M&V protocols have yet to be determined, the types of activities and equipment that would be used and installed for monitoring would not require modifications to the facilities, new permits, additional licenses and/or authorizations, ground disturbing activities, or changes in the operation of existing facilities. Based on the types of activities proposed, DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

[Building Technologies Office](#)

[This NEPA determination does not require 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.

The proposed action is categorically excluded from further NEPA review.

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

NEPA Compliance Officer Signature: \_\_\_\_\_



Signed By: [Casey Strickland](#)

NEPA Compliance Officer

Date: 5/21/2020

**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: \_\_\_\_\_