

PMC-ND

(1.08.09.13)

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



**RECIPIENT:** Tennessee Department of Environment and Conservation - Office of Energy Programs

**STATE:** TN

**PROJECT TITLE:** Highly Efficient Gas Absorption Technology for Energy Reductions (HEATER)

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002324	DE-EE0009463	GFO-0009463-001	GO9463

**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.

**B1.31 Installation or relocation of machinery and equipment** Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to the Tennessee Department of Environment and Conservation – Office of Energy Programs (TDEC-OEP) to design, fabricate, and test a prototype Gas Absorption Heat Pump (GAHP) unit. The GAHP unit would be designed to reduce energy consumption, operating costs, and emissions, as compared to traditional water heating technologies. The prototype would be field tested at two building locations in Tennessee. The project would be completed over three Budget Periods (BPs). This NEPA Determination is applicable to all three BPs.

Proposed project activities would include conceptual design work, prototype fabrication, installation of prototype equipment for field testing, remote monitoring of system temperatures and energy consumption, and stakeholder engagement/training workshops.

TDEC-OEP would coordinate all project work and perform administrative tasks at its office facility in Nashville, TN. Prototype GAHP unit fabrication would be performed by project partner Stone Mountain Technologies, Inc. (SMTI) at its manufacturing facility in Johnson City, TN. Two prototype GAHP units would be fabricated. Once fabricated, the prototype GAHP units would be installed at two separate site locations: one a suitable building at a university campus and the other a state park office location. Currently, East Tennessee State University (ETSU) is considered the most likely candidate for the university campus installation. An office location at a TN state park office has not yet been selected. Buildings to be used for field testing would be selected during BP1, after the project has commenced. Buildings selected for testing would not be listed or eligible for listing in the National Register of Historic Places

At each location, a GAHP unit, measuring approximately 3 ft x 3 ft x 3ft, would be installed on a concrete pad outside of the building. The GAHP unit would be integrated into existing water heating equipment. Minor indoor mechanical

and piping modifications, including pipefitting and electrical wiring would be required for installation. Installation work would be performed by a qualified third-party HVAC service provider. No ground disturbance or changes to the use, mission, or operation of existing facilities would be required. No additional permits or authorizations would be required. Once installed, ongoing remote monitoring of system temperatures and energy consumption would be conducted.

Project work would involve the use and handling of powered equipment and industrial chemicals. All such handling would be performed in controlled laboratory/manufacturing facilities. In order to mitigate potential risks, TDEC-OEP and its project partners would adhere to established institutional health and safety policies and procedures. All waste materials generated by the project would be disposed of by a qualified waste management company. TDEC-OEP and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

[Building Technologies Office](#)

[This NEPA determination does not require a tailored NEPA provision.](#)

[Review completed by Jonathan Hartman on 04/14/2020](#)

## 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: 4/14/2021

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