

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



RECIPIENT: Northwestern Michigan College

STATE: MI

PROJECT TITLE: Northwestern Michigan College Campus Geothermal Project

Funding Opportunity Announcement Number CDS	Procurement Instrument Number DE-EE0010795	NEPA Control Number GFO-0010795-001	CID Number
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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.)

B5.19 Ground source heat pumps

The installation, modification, operation, and removal of commercially available smallscale ground source heat pumps to support operations in single facilities (such as a school or community center) or contiguous facilities (such as an office complex) (1) only where (a) major associated activities (such as drilling and discharge) are regulated, and (b) appropriate leakage and contaminant control measures would be in place (including for cross-contamination between aquifers); (2) that would not have the potential to cause significant changes in subsurface temperature; and (3) would be located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to administer Congressionally Directed Spending to Northwestern Michigan College (NMC; Traverse City, MI) in support of a project to replace an aging and inefficient steam boiler system with a sustainable ground-source geothermal exchange system.

The scope of work to be funded under this CDS award would include final design and engineering as well as the installation of a geothermal borefield and vault. Proposed activities are part of a larger project to install a distributed geothermal heating and cooling system supporting six buildings on the main campus. Project plans are based on a third-party energy study recommending this particular system and necessary infrastructure replacements. DOE has reviewed project documents and determined that externally funded activities are connected actions to the administration of CDS to NMC; therefore, this NEPA determination reviews the full scope of work associated with this project.

The geothermal exchange system would utilize a central campus vertical closed loop ground source heat exchanger and include the following components:

- Geothermal borefield and site restoration.
- Geothermal pumps, piping, and underground valve vault.
- Condensing boilers and/or water-to-water heat pumps.
- Hot water pumps (used in conjunction with the condensing boilers/water-to-water heat pumps for supplemental heat).
- Building Air Handling Unit (AHU) upgrades. Full replacement of the AHUs would be required at the buildings, including new heat pumps in each unit to provide heating and cooling from the geothermal water piped directly to the units. Installed equipment would include refrigerant, compressors, and a reversing valve to create a self-contained refrigeration cycle that can be reversed depending on heating and cooling demand.
- Control system upgrades as required to control new equipment and heating/cooling systems.
- Replacement of piping within NMC's existing tunnel system to distribute the geothermal water to each building. Existing hot water piping distribution within each building is not intended to be replaced and is assumed to be in sufficient condition for reuse.

Upgrades and replacements to accommodate the heat pump system would not involve ground disturbing activities or physical modifications to the buildings served by the geothermal system. The new boilers, pumps, and any auxiliary equipment would be located where the current heating system is centralized within one of the buildings. No change in the use, mission or operation of existing facilities would arise out of this effort.

Ground disturbing activities associated with the project would occur entirely on previously developed land. The proposed geothermal borefield location is beneath the NMC's Cedar Lot, central to the buildings it would serve. Although the exact configuration of the borefield is subject to further design and testing, the project is anticipated to install approximately 300 boreholes, 300-500 feet deep, in a vertical closed loop system. Upon completion of the borefield and underground valve vault, the affected surface area would be restored and returned to its original use. The only permanent aboveground site alteration is expected to be a basic structure to house piping, manifolds, and water exchanges equipment for the borefield.

The proposed project involves a proven type of geothermal energy system utilizing commercially available equipment. No special hazards are associated with project materials or activities; general construction site safety policies and procedures would be followed. The specific permitting and approval requirements to carry out the proposed project are not fully known at this time, but UMC would be properly guided by their licensed third-party engineer and construction manager.

There are no properties listed in the National Register of Historic Places or Michigan Historic Markers within the NMC campus or surrounding area. If the recipient or other project participants encounter cultural or archaeological artifacts during the course of ground disturbing activities, all activities must immediately cease in the vicinity of the discovery. The recipient must notify the DOE Project Officer and the Michigan State Historic Preservation Office of the discovery within forty-eight hours of the discovery. Project activities in the vicinity of the discovery must cease until an evaluation of the discovery is completed by the appropriate officials and the DOE Contracting Officer provides written authorization to resume the activities.

DOE has considered the scale, duration, and nature of the proposed activities to determine potential impacts on other resources, including those of a biological, ecological, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

If the recipient or other project participants encounter cultural or archaeological artifacts during the course of ground disturbing activities, all activities must immediately cease in the vicinity of the discovery. The recipient must notify the DOE Project Officer and the Michigan State Historic Preservation Office of the discovery within forty-eight hours of the discovery. Project activities in the vicinity of the discovery must cease until an evaluation of the discovery is completed by the appropriate officials and the DOE Contracting Officer provides written authorization to resume the activities.

Notes:

Geothermal Technologies Office (GTO)
Review completed by Whitney Donoghue on 5/8/2024.

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:  Electronically Signed By: Andrew Montano Date: 5/9/2024
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