

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



**RECIPIENT:** Clean Energy Economy for the Region

**STATE:** CO

**PROJECT TITLE :** Carbondale Community Geothermal Coalition – Replicable Models for Decarbonizing Mixed-Use Rural Communities

|  |                                      |                            |                   |
|--|--------------------------------------|----------------------------|-------------------|
| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
| DE-FOA-0002632                                 | DE-EE0010663                         | GFO-0010663-001            |                   |

**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.)

**B3.1 Site characterization and environmental monitoring**

Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Clean Energy Economy for the Region (CLEER) to design a fifth-generation geothermal district heating and cooling (GDHC) system that can support a net-zero energy district serving a library, affordable housing units, townhomes, a center for nonprofits, a high school, and school district offices in Carbondale, CO.

The proposed project was selected under the first phase of DOE's Community Geothermal Heating and Cooling Design and Deployment Funding Opportunity Announcement (DE-FOA-0002632), during which awardees are to design their systems, finalize project sites and use, assess the geothermal resource, analyze environmental and permitting needs, conduct feasibility analysis and local engagement, and identify workforce and training needs. DOE intends to conduct a competitive down-selection process upon the completion of an initial 12-month Budget Period (BP1). If the proposed project is selected to advance to the second phase, additional NEPA review will be required.

BP1 activities would include the modeling and design of an ambient temperature geothermal loop, the modeling and design of a retrofit system for providing space heating and cooling for buildings, and the drilling of one or two geothermal test bores. The National Renewable Energy Laboratory (Golden, CO) would conduct computer modeling and design tasks. GreyEdge Group, LLC (South Jordan, UT) would be the lead contractor for the geothermal site assessment and design of the geothermal loop and building systems. Drilling activities would occur within a one-block

region on land owned by the Town of Carbondale adjacent to municipal buildings of interest located at the Third Street Center.

The test bores would be drilled to approximately 400 to 600 feet (ft.) depth. A closed loop of polyethylene pipe would be installed, and the borehole sealed with bentonite grout. Test flows of water through the loop would then be conducted to determine the thermal conductivity, diffusivity, and deep earth temperature. Drilling and testing activities would occur on previously disturbed dirt/gravel or grassy surfaces. Existing roads would be used to access the site of the test wells. Some shallow excavation, up to eight ft. deep, may be performed to determine excavation costs for lateral piping. The estimated area to be affected is under 1 acre and all soils would be stored on site using standard construction techniques to minimize potential for runoff. Upon completion of the proposed investigations, the sites would be restored to their prior site.

The proposed geothermal field testing would require approximately 900-1,300 feet of HDPE piping and 500-1,500 gallons of water. At the conclusion of BP1 activities, the HDPE pipe may be left in place for potential future use, or else removed offsite. The water in the piping would be disposed of in the municipal sewer system as it would not be exposed to any hazardous materials during the testing process.

In the State of Colorado, the type of exploratory well being proposed is managed by the Division of Water Resources. The recipient would adhere to all permit requirements set forth by the state in addition to local ordinance, including ambient noise restrictions. Diesel equipment would be operated within permitted thresholds and hours as set by the Town. The contracted driller would be licensed and insured and follow all applicable health and safety regulations.

BP1 activities of the proposed project would not involve any modifications to existing facilities or the construction of new facilities/GDHC systems. The project area does not contain or abut historic districts or properties listed in the National Register of Historic Places. DOE also conducted a review of potential issues related to other resources of concern and found no effects that would be expected to result from the proposed project activities.

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.

## NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

### Budget Period 1

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

### Budget Period 2

Notes:

Geothermal Technologies Office (GTO)  
Review completed by Whitney Donoghue on 06/22/2023.

## 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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

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

NEPA Compliance Officer Signature:  **Electronically Signed By: Casey Strickland** \_\_\_\_\_ Date: 6/22/2023  
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