

PMC-EF2a

(20402)

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**

**RECIPIENT:**The Curators of the University of Missouri**STATE:** MO

PROJECT TITLE : Large Scale GSHP as Alternative Energy for American Farmers: Technical Demonstration & Business Approach

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000116	DE-EE0002824	GFO-10-307	0

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

- A9** Information gathering (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.
- B3.1** Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) 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. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

Rational for determination:

DOE and recipient cost share funds will be used by the Curators of the University of Missouri to increase the deployment of ground source heat pumps (GSHP) through a new commercial-scale technology demonstration. Specifically, we propose to retrofit two poultry farms with solar assisted GSHP. This large scale technology demonstration project incorporates innovative business and financing strategies and technical approaches to overcome commercialization barriers that exist for GHPs. Information gathered from Phase 1 will be used to review the environmental impact of Phase 2 – Installation and Commissioning of Equipment, and Phase 3; therefore this determination will only apply to Phase 1.

PHASE 1: FEASIBILITY STUDY AND ENGINEERING DESIGN

Task 1.0: Feasibility Study

- Subtask 1.1 Feasibility study of the demonstration project
- Subtask 1.2 Post-project feasibility study
- Subtask 1.3 Analysis tool development

Task 2.0 Design the Approach for Installation

- Subtask 2.1 Thermal property test: Thermal property test for vertical bore holes and soil thermal properties for horizontal loops will be conducted.
- Subtask 2.2 Engineering design

Task 3.0 Implement Innovative Business and Financial Strategies: Micro Green Utility (MGU) business model has been developed and practiced in Asia by the PI in partnership with an international investment company. The subtasks related to the business model include:

- Subtask 3.1 MGU model development
- Subtask 3.2 Partnership on MGU business

Task 4.0 Implement Innovative Technical Strategies

- Subtask 4.1 Solar assisted GSHP:
- Subtask 4.2 Solar collector improvement
- Subtask 4.3 Solar system configuration
- Subtask 4.4 Configuration of mechanical room and delivery method
- Subtask 4.5 Optimal operation strategy development

Task 5.0 Obtain Necessary Regulatory and Environmental Permits: The recipient will obtain all necessary regulatory and environmental permits before the construction period. A third party energy auditing company will be invited to audit the operation and performance.

The recipient states that a thermal property test for vertical bore holes and soil thermal properties for horizontal loops will be conducted. This kind of test typically entails drilling one or more test boreholes. This activity will take place on

large poultry farms where all the land has been previously disturbed from initial construction of the operations. All waste produced from the well drilling is required to be collected and disposed of in accordance with the state regulations for drilling spoils disposal.

Phase 1 of the project involves information gathering, document preparation and system design only, and does not present any significant impact to human health and/or environment; therefore it can be categorically excluded under CX A9 "information gathering" from further NEPA review. Drilling of test boreholes is determined to have no significant impact to human health and/or the environment, therefore it can be categorically excluded under CX B3.1 "Environmental Monitoring and Site Characterization" from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Phase 2 "Installation and Commissioning of Equipment"

Any Demolition, Construction, and/or Installation related to the proposed project.

Each test borehole will be contiguous to the school and will be on previously disturbed land this test borehole cannot be drilled on or directly surrounding any Wetland, Floodplain, and/or Coastal area.

This restriction does not preclude you from:

Phase 1 "Feasibility Study and Conceptual Engineering Design"

All other actions which involve information gathering (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs).

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

NEPA Compliance Officer

Date: _____

3/23/10

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :