

PMC-EF2a

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



(20402)

RECIPIENT: GreenFire Energy

STATE: AZ

PROJECT TITLE : Single-Well Low Temperature CO₂-Based Engineered Geothermal System

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000318	DE-EE0004432	GFO-0004432-001	4432

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:

GreenFire Energy (GE) would use U.S. Department of Energy (DOE) grant funds to identify and characterize the key uncertainties in the modeling and design of CO₂-based Enhanced Geothermal Systems (EGS), then install a simplified prototype system to obtain the field data necessary for realistic cost and performance estimation of commercial scale CO₂-EGS systems. Field portions of the project would occur on Arizona State Lands at the St. Johns Dome formation near Springerville, Arizona.

The project is divided into three phases with multiple tasks. This NEPA determination is specific to Phase I activities. As part of the requirements of the Funding Opportunity Announcement that this project was selected under (DE-FOA-0000318), a down select process will determine which projects will move forward to Phase II. If this award is selected to move forward, more specific project data would be submitted for Phase II/Phase III activities and another NEPA determination would be needed at that time.

Phase I – Feasibility Study

- 1.0 Identify and assemble relevant data
- 2.0 Develop preliminary engineering design and cost estimates
- 3.0 Perform sensitivity testing – assessment of the areas of greatest financial and technological impact
- 4.0 Design and install a seismic monitoring system at site – seismic monitoring would be installed at surface locations or downhole in existing wells
- 5.0 Investigate and choose a suitable Metal Organic Heat Carrier (MOHC) – used to increase transformational efficiency of low temperature geothermal.
- 6.0 Obtain permits for demonstration unit operation

Phase II – Demonstrations

Phase III – Operations and Maintenance

Condition of Approval: Allowable – Phase I (all tasks); Prohibited – Phase II (all tasks) and Phase III (all tasks).

Based upon the information provided, Phase I (all tasks) is categorically excluded under CX A9 "Information gathering/data analysis/document preparation/dissemination", and CX B3.1 "Site characterization/environmental monitoring."

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 II (all tasks)

Phase III (all tasks)

This restriction does not preclude you from:

Phase I (all tasks)

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 :

This project involves tasks which are unallowable prior to further environmental analysis of Phase II (all tasks) and Phase III (all tasks). NEPA requests that this project be placed on ASAP Approval.

EF2a prepared by Casey Strickland

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date:

11/16/10

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 :

Field Office Manager's Signature:

Field Office Manager

Date:
