PMC-EF2a

(2.0602)

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

RECIPIENT: Universal Geo Power **STATE:** NM

PROJECT TITLE : Universal GeoPower LLC Recovery Act: Technical Demonstration and Economic Validation of Geothermally-Produced Electricity from Coproduced Water at Existing Oil/Gas Wells in Texas A.

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000109	DE-EE0002853	GFO-0002853-002	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.

B5.1 Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

B5.2 Modifications to oil, gas, and geothermal facility pump and piping configurations, manifolds, metering systems, and other instrumentation that would not change design process flow rates or affect permitted air emissions.

B5.12 Workover (operations to restore production, such as deepening, plugging back, pulling and resetting lines, and squeeze cementing) of an existing oil, gas, or geothermal well to restore production when workover operations will be restricted to the existing wellpad and not involve any new site preparation or earth work that would adversely affect adjacent habitat.

Rational for determination:

Universal GeoPower LLC (UGP) would demonstrate the technical feasibility and economic viability of geothermal electricity production from oil/gas (O/G) coproduced water using binary Organic Rankine Cycle (ORC) technology to utilize a small production O/G well that is considered unproductive due to the cost of separating and re-injecting the coproduced water associated with the hydrocarbon production and has therefore been "orphaned" awaiting well plugging and well site remediation. No laboratory work is needed for the project.

This project was previously approved by GFO-10-309 on May 25, 2010. Subsequent to that approval, the recipient changed the location of where project work would occur, therefore another NEPA review and determination was needed.

The project is divided into three phases with multiple tasks.
PHASE 1 – FEASIBILITY STUDY AND ENGINEERING DESIGN
1. Market Driven O/G Well Selection
2. Powerplant Design - Preliminary
3. Data Monitoring Plan
4. Site Plan
5. Phase 1 Go/No-Go Review

**Prior to this NEPA determination, DOE obligated DOE funds in the amount shown on Block 13 of the Assistance Agreement cover page to conduct the project authorized by this award. However, only $75,315 of DOE funds, along with any associated ratio of recipient cost share, if applicable, was authorized for expenditure by the Recipient. The following tasks have been covered in the blanket CX:
- o Task 1 – Market-Driven O/G Well Selection
- o Task 2 – Powerplant Design - Preliminary
- o Task 3 – Data Monitoring Plan
- o Task 4 – Site Plan

o Task 5 – Phase 1 Go/No-Go Review

PHASE 2 – PROCUREMENT, INSTALLATION, AND COMMISSIONING
6. Powerplant Design and Procurement – define all interfaces, refine powerplant design, and procure all powerplant components
7. Installation/Construction – prepare the existing site, including well re-work, according to the Site Plan and assemble/construct/install all powerplant components.
8. Startup/Commission – verify proper installation and validate the system, validate remote monitoring systems, and train local personnel.
9. Phase 2 Go/No-Go Review
PHASE 3 – OPERATION, MAINTENANCE, AND DATA
10. Operate Powerplant and Acquire/Analyze/Distribute Data
11. Commercialization Plan
12. Final Project Review
PROJECT MANAGEMENT AND REPORTING (SINGLE TASK FOR ALL PHASES)
13. Project Management, Reporting, and Technology Transfer – Reports and other deliverables would be provided in accordance with Federal Assistance Reporting Checklist, including the Final Report and Technology Transfer.

The site selected for this project is located at Latitude 28 46' 0" N, Longitude 97 37' 14" W in Goliad County, Texas. UGP has surface, subsurface, and geothermal rights to the site. The site contains existing wells for production and re-injection. The well that would be used for the re-injection of fluids is located 1250 feet from the production well and has an existing pipeline in place for the movement of fluid between the two wells. If the existing pipeline needs to be upgraded to a larger diameter pipeline, work would occur within existing disturbance. Powerplant components would be installed within the existing well site disturbance. There is an existing electrical distribution line located at the site that would be used for delivery to the grid of renewable energy produced. Well re-work (in Task 7) would consist of "re-completing" the well by perforating the casing at specified depths favorable to the production of coproduced fluids and imposing high pressure on the well to open up additional channels for fluid flow.

The deepest ground water aquifers in the vicinity of this project are at 1650 feet below the surface. This project would set casing to a depth of 3000 feet below the surface and would cement the casing in the well bore. This would put the casing shoe 1350 feet below the deepest ground water aquifer. The depth of the zones this project would use for injection is between 7500 & 8500 feet below the surface. There would be 5,850 feet of rock and cement between the base of the ground water aquifers and the top of the injection zone. The casing that would be put in the well bore to this deeper depth would also be cemented and the cement would be circulated to the casing shoe at 3000 feet. A cement bond log would be run to verify the presence of cement behind the casing all the way back up to the casing shoe.

All remaining tasks of this project (Tasks 6 through 13) are comprised of information gathering, data analysis, document preparation; actions to conserve energy through small-scale renewable energy research and development; modification to piping at an existing oil production facility; and workover of an existing oil well; therefore the DOE has categorized this proposal into Categorical Exclusions A9, B5.1, B5.2 and B5.12.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

EF2a prepared by Casey Strickland

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

NEPA Compliance Officer Signature: _____ Date: 11/19/10

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

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