PMC-EF2a
(2.04.02)

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

RECIPIENT: Oregon Department of Energy **STATE:** OR

PROJECT TITLE : Deployment of Innovative Energy Efficiency and Renewable Energy - Buildings (Geothermal - PSU)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000052		GFO-09-159-0003	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:

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.

Rational for determination:

The State of Oregon will provide $1,000,000 in Recovery Act funds to Portland State University to install an open-loop geothermal system that will provide heating and cooling for several buildings on campus. The geothermal wells will be drilled in the vicinity of Science Building 2, located at 1719 SW 10th Avenue, Portland, OR.

The PSU main campus is a multi-building campus located in downtown Portland, Oregon. The buildings are clustered together and capable of being served by several shared utility plants. The project is part of a larger effort to consolidate existing building utilities into the shared utility system.

This ground source heat pump project plans to use an open-loop system in conjunction with large campus chillers to provide heating and cooling. Three wells are proposed, two supply and one re-injection. The supply wells will pull water from the Troutdale and Columbia River aquifers. The reinjection well will return the water to basalt aquifer. The wells will be drilled in sidewalks adjacent to Science Building 2 (SB2).
- Supply Well #6, which will be 8" in diameter, 250 feet deep, and located just south of SB2.
- Supply Well #7, which will be 6" in diameter, 250 feet deep, and located just west of SB2.
- Reinjection Well, which will be 6" in diameter, 650 feet deep, and located just south of SB2.

SB2 is a 215,850sqft facility consisting of class rooms, laboratories, and utilities plant. The two supply wells will pump ground-source water into a 20,000 settling/holding tank. The water will then be pumped through a heat exchanger to provide thermal resources before being discharged back into the aquifer. The other side of the heat exchanger will be connected to approximately 1200-1400 tons of heat pump chillers used for heating and cooling.

The university has five (5) existing geothermal-supplied water-right wells servicing the campus:
Permit G-11831: 1329 gallons/minute
Permit G-3965: 359 gallons/minute
Permit G-15531: 1001 gallons/minute
Permit G-2061: 301 gallons/minute
Permit G-2205: 386 gallons/minute

Current operations use 3376 gallons/minute of the 4212 gallons/minute that PSU's permits allow. At present PSU has 836 gallons/minute available for use. As the proposed project will require 800 gallons/minute, the university is within the existing limits of its water use permits.

The university submitted an application to the Oregon Water Resource Department to restructure the existing water permits in support of the proposed project. The application was approved on March 16, 2010 and an Underground

Injection Control number that authorized the new wells was issued on May 10, 2010 under UIC #14117-1. The university is also required to obtain a Low Temperature Geothermal Injection Well Approval permit.

The two supply wells will draw water from the Troutdale and Columbia River aquifers. The quantity of water to be drawn from the aquifers is within the water-use permit limits of the university. The usage is not expected to disrupt service to the Portland area; Portland has city water. Although water drawn from the aquifers will be returned to a different aquifer, the water will be returned unaltered other than via a temperature gradient. The temperature of the return water must meet the requirements stated in the Low Temperature Geothermal Injection Well permit. The returned water is not expected to affect the basalt of the aquifer.

The project will not occur along or have impact on local wetlands, flood plains, or coastal zones. OR law requires the drilling to be performed by a licensed contractor. OR law also requires the contractor to have an approved Erosion Control Plan and Water Management Plan.

In view of information provided by the State and applicant, DOE has determined that the work outlined is consistent with activities identified in Categorical Exclusion B5.1.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Insert the following language in the award:

You are required to:
provide the DOE project officer with a copy of all water use, drilling, and reinjection permits associated with the project.

Note to Specialist :

According to the project officer, funding for this project is $1,000,000. Absent a significant change in the scope of this effort, a change in funding will not affect my determination.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 8/3/10

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager