

FINDING OF NO SIGNIFICANT IMPACT**DEPARTMENT OF ENERGY LOAN GUARANTEE FOR
NEVADA GEOTHERMAL POWER'S
BLUE MOUNTAIN GEOTHERMAL DEVELOPMENT PROJECT
IN HUMBOLDT AND PERSHING COUNTIES, NEVADA**

AGENCY: U.S. Department of Energy, Loan Guarantee Program Office

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) is adopting an environmental assessment (EA) completed by the U.S. Department of the Interior's Bureau of Land Management (BLM) in December 2007 that analyzed the potential environmental impacts associated with the construction and startup of Nevada Geothermal Power, Inc.'s (NGP's) Blue Mountain Geothermal Development Project located in Humboldt and Pershing Counties, Nevada. DOE, through its Loan Guarantee Program Office (LGPO), proposes to provide a Federal loan guarantee pursuant to Title XVII of the Energy Policy Act of 2005 to NGP to support the construction and startup of the proposed project. The purpose of DOE's proposed action is to expedite the deployment of a new energy technology into commercial use in the U.S. and to reduce emissions of greenhouse gases and other air pollutants.

The Blue Mountain Geothermal Development project is a conventional geothermal binary power plant. The project's configuration consists of three integrated two-level 16.5 Megawatt (MW) (nameplate rated) energy converter units, each incorporating one 21.25 MW (nameplate rated) double-ended shaft generator driven by two direct coupled special organic fluid turbines, and a cooling system consisting of cooling towers, cooling pumps and all other related systems, totaling 49.5 MW (gross) output. The 49.5 MW (gross) drops to approximately 40 MW (net) when accounting for the energy required to power the binary plant and the production and injection pumps. The high efficiency equipment is meant to provide greater flexibility in the event of lower than expected geothermal temperatures. Geothermal fluids will be re-injected to maintain reservoir pressure and to dispose of effluent.

The project operations area is located in Humboldt County, 20 miles west of Winnemucca, Nevada at the western base of Blue Mountain in the southwest portion of Desert Valley. The electrical transmission line associated with the project extends nine miles into Pershing County, Nevada. The project includes approximately 20 miles of linear right-of-way (ROW), approximately 35 acres of disturbance on BLM land, and approximately 36 acres of disturbance on private land, for a well field and production fluid gathering pipeline system consisting of: up to 9 production wells; 7 injection wells; 3 to 15 temporary water wells used during the drilling phase; up to 4 permanent water wells for the production phase; a 49.5 MW geothermal power plant (on private land); an electrical switching station; and an electrical transmission line of approximately 20 miles. The geothermal power plant, electrical transmission line, electrical

switching station, 1 temporary water well for use during the drilling phase, 3 permanent water wells for production use, 5 geothermal fluid production wells, 5 geothermal fluid injection wells and piping to the production and injection wells have been completed. Drilling of the 6th and 7th geothermal fluid production wells and installation of associated piping and control systems has not been completed. The project area is located in the northern basin and range province in an area of regional high heat flow within the Blue Mountain Geothermal Field. The well field and power plant are located within federal geothermal unit NVN-082457X on four private leases and one federal geothermal lease (NVN-058196).

Because the project was to be developed on BLM lands, BLM completed an EA for the project in December 2007. BLM issued a Finding of No Significant Impact (FONSI) and Decision Record (DR) that allowed NGP to proceed with geothermal development operations more fully described in BLM's EA and FONSI.

All discussion and analysis related to the potential impacts of construction and operation of the proposed NGP facility are contained in the BLM's Final EA (DOE/EA-1746), which is adopted here by reference. BLM examined potential impacts on the following resources and found none to be significant: floodplains; wetlands; water resources and water quality; threatened or endangered species and critical habitats; prime or unique farmlands; geology and soils; visual, recreational, and aesthetic resources; property of historic, archaeological, or architectural significance; Native American concerns; environmental justice; public health and safety; air quality; waste management; transportation; socioeconomic conditions; and noise. BLM did not include analysis of the potential impacts on global climate change or impacts due to intentional destructive acts; therefore DOE is including that analysis in this FONSI.

Global Climate Change

Affected Environment and Environmental Effects

While the scientific understanding of climate change continues to evolve, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report stated that warming of Earth's climate is unequivocal, and that warming is very likely attributable to increases in atmospheric greenhouse gases (GHGs) caused by human activities (anthropogenic)¹. The Fourth Assessment Report indicates that changes in many physical and biological systems, such as increases in global temperatures, more frequent heat waves, rising sea levels, coastal flooding, loss of wildlife habitat, spread of infectious disease, and other potential environmental impacts are linked to changes in the climate system, and that some changes could be irreversible. GHGs, which include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), are chemical compounds in the Earth's atmosphere that trap heat. Of these gases, CO₂ is recognized by the IPCC as the primary GHG affecting climate change. Present atmospheric concentrations of CO₂ are believed to be higher than at any time in at least the last 650,000 years, primarily as a result of combustion of fossil fuels. It is also very likely that observed increases in CH₄ are partially due to fossil fuel use, according to the IPCC Report.

¹ Intergovernmental Panel on Climate Change, Fourth Assessment Report, Climate Change 2007: Synthesis Report, Summary for Policy Makers, released in Valencia, Spain, November 17, 2007.

The energy produced by the combined cycle steam/binary plant would be free of both GHG emissions and other non-condensable air pollutants. However, some of the binary fluid would be released to the atmosphere from rotating seals and flanges and from the process to purge air leaking into the binary turbine condenser. These binary working fluid emissions are regulated and monitored under a Class II (non-major) permit issued by the Nevada Department of Environmental Protection, Bureau of Air Pollution Control, which NGP has received.

The release of anthropogenic greenhouse gases and their potential contribution to global warming are inherently cumulative phenomena. Greenhouse gas emissions from the proposed action (e.g., emissions related to construction and transportation) would be relatively small compared to the 8,026 million tons of CO₂-equivalent greenhouse gases emitted in the U.S. in 2007², and the 54 billion tons of CO₂-equivalent anthropogenic greenhouse gases emitted globally in 2004. However, emissions from the proposed action in combination with past and future emissions from all other sources would contribute incrementally to the climate change impacts described above. At present DOE is not aware of a methodology that would allow estimation of the specific impacts this increment of climate change would produce in the vicinity of the facility or elsewhere.

However, the project would generate electrical power from a source of energy representing an alternative to carbon-emitting fossil fuels (geothermal power). Accordingly, the project would produce a given amount of energy with fewer GHG emissions than a fossil fuel-burning power plant. Although the project would contribute incrementally to cumulative increases in greenhouse gases and related climate change when combined with other projects globally, GHG emissions from the proposed action would be minimal increases in CO₂ resulting from construction and transportation, and would not be significant.

Consideration of Intentional Destructive Acts

Affected Environment and Environmental Effects

Geothermal generation projects can be the subject of intentional destructive acts ranging from random vandalism and theft to sabotage and acts of terrorism intended to disable the facility. Acts of vandalism and theft are far more likely to occur than sabotage or terrorism. Theft usually involves equipment at substations and switchyards that contain salvageable metal when metal prices are high. Vandalism usually occurs in remote areas and is more likely to involve spontaneous acts such as shooting at equipment.

The risk of damage to the proposed project from intentional destructive acts would be considered very low, in line with or less than the risk to similar generation facilities in the U.S. Theft or opportunistic vandalism is more likely than sabotage or terrorist acts. The results of any such acts could be expensive to repair, but no substantial impacts to continued electrical service would be anticipated. No significant environmental impacts would be expected from physical damage to the proposed project or from loss of power delivery.

Public Involvement in the EA Process

² Energy Information Administration, Report No. DOE/EIA-0573 (2007).

BLM mailed out an "Interested Public" letter on November 3, 2006, announcing the project and seeking public comment through January 5, 2007. A public scoping meeting was held on November 29, 2006, at BLM's local office. The scope of the BLM EA was based on specific issues and concerns identified by BLM, other Federal agencies, state agencies, local agencies, and members of the public. BLM notified the State of Nevada of the availability of the Draft EA for comment on November 16, 2007. BLM also published public notices of the Draft EA's availability for comment on November 20, 2007, prior to finalizing the EA and signing the BLM FONSI and DR on December 18, 2007. BLM notified the State of Nevada and the interested public of the availability of the Final EA, FONSI, and DR on December 21, 2007.

DETERMINATION: On the basis of the Final EA and the additional analysis in this FONSI, DOE has determined that providing a Federal loan guarantee to Nevada Geothermal Power, Inc. for construction and startup of the Blue Mountain Geothermal Development Project located in Humboldt and Pershing Counties, Nevada, will not have a significant impact on the human environment. The preparation of an environmental impact statement is therefore not required, and DOE is issuing this FONSI.

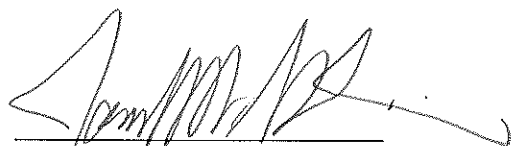
Copies of the Final EA are available at the DOE Loan Guarantee Program Office website at <http://www.lgprogram.energy.gov/NEPA-1.html> or from

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Additional information on the DOE NEPA process is available from

Office of NEPA Policy and Compliance
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