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ENERGY PARTNERSHIPS FOR A STRONG ECONOMY: LEE HOT SPRINGS

KEY WORDS

new geothermal power, greenhouse gas emissions

PROJECT BACKGROUND AND STATUS

Energy efficiency and renewable energy projects entered into by both the public and private sectors are the cornerstone of the U.S. Department of Energy's (DOE) Energy Partnerships for a Strong Economy. The purpose of the various Energy Partnerships programs is to strengthen the economy and reduce greenhouse gas emissions. In support of this objective, DOE, in collaboration with the geothermal industry and electric utilities, developed an initiative for furthering the commercialization of geothermal power. A primary strategy of the initiative is the acceleration of geothermal development through cost-shared projects.

In 1995 DOE solicited applications from industry for cost-shared collaborative efforts to support the development of new geothermal power generation. The applications were to result in the sale in the United States of new electrical power generated from geothermal power by the end of 1997. The application received from Earth Power Resources in response to this solicitation was selected, and a cooperative agreement awarded to develop new geothermal power from the Lee Hot Springs resource in Nevada.

The Lee Hot Springs project will result in the production of 1 to 5 MW_e (net) of new power generated from a previously undeveloped geothermal resource. Earth Power is scheduled to begin the production of this new power by the end of 1997.

Note: This project was terminated on March 1, 1997, by the mutual consent of the Department of Energy and Earth Power Resources.

PROJECT OBJECTIVES

The objectives of this Energy Partnership initiative are to promote the commercialization of geothermal energy for the production of electrical power, and to reduce the emission of greenhouse gases in the United States.

Technical Objectives

- Installation of a plant that initiates the commercial power production from a new geothermal resource, accelerating the development of the resource.
- Retrofit of existing plants or new plants on existing resources to incorporate innovative improvements in power plant technology that increases the power generation from existing resources.
- New electrical power from geothermal energy will be sold in the United States by the end of 1997.

Expected Outcomes

- A new geothermal resource at Lee Hot Springs will be developed. This resource will initially produce 1 to 5 MW_e of new power, with the potential for growth to 20 MW_e.
- For each 1 MW_e of new power generated at Lee Hot Springs, ~4,780 metric tonne of carbon dioxide emissions will be avoided annually.
- The production of at least 1 MW_e of new power from Lee Hot Springs will begin by December 1997.

APPROACH

Led by DOE, a collaboration of the geothermal industry, investor-owned and municipal utilities, and the federal government has developed a geothermal power initiative to accelerate the development of geothermal energy and to reduce greenhouse gas emissions. The key elements of the initiative are The Geyser's geothermal field pipeline project, new geothermal capacity, and education and outreach.

Applications for collaborative efforts were solicited from industry for the development of new geothermal power. These applications were to be for the development of a new geothermal resource, or the use of innovative technologies that would increase the production of power from existing resources. The DOE cost-shared contribution is limited to the purchase of power plant equipment, power plant construction costs, and the tie-in to an existing electrical distribution system. The funds are not used for feasibility studies, environmental and compliance activities, or resource development. In order to ensure that the selected project would begin the commercial production and sale of electrical power by the end of 1997, it was required that all applicants have, or have pending a power sales agreement. Criteria were developed for ranking and evaluating the applications received.

DOE monitors the progress of the selected applicant, Earth Power Resources, to assure that the project meets the stated objectives of the geothermal power initiative.

FUTURE PLANS

Earth Power is scheduled to complete the development of a minimum of 1 MW_e of new power generation capacity at Lee Hot Springs by the end of 1997. Additional power purchase agreements are being pursued. As these new sales contracts are secured, Earth Power will expand the development of the Lee Hot Springs resource up to a projected total of 20 MW_e of new power.