Northwest Power and Conservation Council

February 28 2008

MEMORANDUM

TO: Council Members

FROM: Terry Morlan

SUBJECT: Presentation on the Raft River Geothermal Project

The Council will receive a briefing on the Raft River geothermal project that has recently begun operation in Southern Idaho. The presentation will be made by Doug Glaspey of U.S. Geothermal.

Council familiarity with geothermal electricity generation will be helpful in developing the Sixth Power Plan. Geothermal is one of the more attractive renewable energy choices available for the plan. It provides a more consistent source of power than wind, in which most renewable development to date has been focused.

A summary of the Raft River geothermal project and its history is attached for your information.

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Raft River Project

Plant and Control Room

Updates

January 2008 - Construction is complete and the Unit One power plant is now in commercial operation selling power to Idaho Power under the current 10-MW PURPA contract.

November - The construction activities on Raft River Unit One power plant are nearly completed. During a testing phase the plant operated for 108 hours and was then shut down for evaluation. For more information please see the News Release date November 7, 2007.

JULY - The control room and control center has been erected and switchgear installed. Construction on the cooling tower is now 95% complete. Please check out the photo gallery for the latest pictures.

JUNE 2007 - Delivery and installation of power plant parts has begun; these parts include the demisters, transformers, conductors and turbines. Construction on the cooling tower has also began. Please check out the photo gallery for the latest pictures.

MARCH 2007 - Twin Falls Times-News news article and video about the Companies Raft River site can be found on their website. You can view the video and read the story by clicking here.

DECEMBER 2006 - With the completion of production well RRG-4 and injection well RRG-3; drilling operations have begun on a new injection well RRG-11.

DECEMBER 2006 - Raft River Rural Electric Coop has begun construction of the 3.2-mile power line that will transmit power output from phase one of the project to Idaho Power Company.

Raft River Project In-Depth

The Raft River geothermal project is located in southern Idaho, approximately 200 miles SE of Boise, at the site of a former U.S. Department of Energy geothermal installation. The Company currently owns and/or leases approximately 10.8 square miles of land with a proven geothermal reservoir which may be capable of producing up to 110 megawatts of power based on estimates from GeothermEx Inc.

U.S. Geothermal acquired the Raft River project in 2002 and the power plant construction began in June 2006. Commercial power generation was achieved on January 3, 2008. The power is being purchased by Idaho Power Company under the terms of a 10-megawatt Public Utility Regulatory Policies Act (PURPA) contract. Full energy prices are being paid under this agreement. U.S. Geothermal has reserved 36 megawatts of transmission on the 138kV transmission line that is located adjacent to the project which insures access to the western power markets .

The Raft River project is at the site of a former U.S. Department of Energy ("USDOE") geothermal demonstration project that operated from 1974 to 1982 where over $40 million dollars were invested in geothermal studies and production infrastructure. In a 1985 study undertaken on behalf of the Bonneville Power Administration, Raft River was rated first in the "Final High Temperature Ranking: Pacific Northwest" of geothermal sites in the four state Pacific Northwest region.

GeothermEx Inc., an independent, world leading geothermal consulting firm, has completed a technical review of the extensive data available on the Raft River geothermal site. They have estimated that the site has a 50% probability of a power production capacity of 15.6 megawatts per square mile.

History and Infrastructure

The first commercial size binary cycle geothermal power plant in the world, a 7 gross megawatts dual pressure system using isobutane as the binary fluid, was successfully constructed, and tested at this site in 1980-1982. Although the 7 megawatts demonstration plant only produced electricity for several months on a test basis, the technology has since advanced to become the leading, proven technology for producing electrical power from moderate temperature geothermal resources in the world. There are currently 12 operating binary cycle plants in the Western United States, which produce 184 megawatts of electrical power.

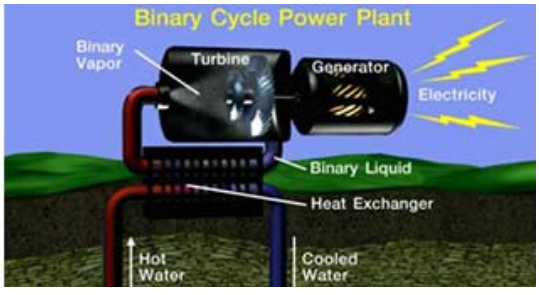
The site is attractive because of the proven 300 degree Fahrenheit hot water resource that has been developed and tested, and because of the significant infrastructure facilities that are currently in place.

Geoscientific data collected from the Raft River geothermal field provides abundant evidence that confirms the existence of a large, moderate temperature geothermal resource. Measured temperatures vary between 275°F to 300°F at depths between 4,500 to 6,000 feet. Fluids encountered in the wells drilled to date are clean and of low salinity with total dissolved solid contents between 1,200 to 6,800 parts per million. The fluids also have low non-condensable gas content.

Geothermal Energy and Power Generation

Geothermal systems in this moderate temperature range use a binary-cycle power plant for the production of electric power. In a binary plant, the hot geothermal water is passed through a heat exchanger, which in turn heats a binary liquid. The binary liquid, isopentane in the case of U.S. Geothermal's power plant, vaporizes at a lower temperature and higher pressure than water. In a closed loop cycle, the vapor produced from the binary liquid spins the turbine-generator unit, then it is condensed back to liquid before being reused in the heat exchanger. After a portion of the heat is used from the geothermal water, it exits the binary plant and is injected back into the reservoir.

Geothermal electric power plants typically have operating availabilities of 96% or higher and function as base load power generators, which is higher than hydro dams, coal and natural gas fired generators. They are modular, and can be installed incrementally on an as needed basis, which allows for the gradual expansion of a geothermal field as it is developed on a schedule of 18 months from notice-to proceed to start-up.



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