Board Decision
Klamath Falls OIT Geothermal Project

April 1, 2009

Summary

Approve up to $487,000 for a geothermal electric project at the Oregon Institute of Technology's (OIT) Klamath Falls campus.

Background

- OIT has three geothermal wells that provide heat for the entire Klamath Falls campus. Generally only one is needed, the second is added on very cold days, and the third serves as a back-up.

- OIT proposes to use a UTC PureCycle geothermal electric module at one of the wells to generate electricity. The unit has a maximum capacity of 280 kilowatts.

- The UTC units generate electricity from geothermal resources with lower temperatures, and are smaller and modular. With this type of technology, geothermal resources that were previously thought to be too small or not hot enough to generate electricity can now get a second look.

- The system also requires a cooling tower to discharge heat. The project also has a parasitic load for pumps and fans. The plant is expected to operate day and night with minor interruptions for service, maintenance and occasional cold weather events. With these factors taken into account, the project is expected to produce an average of 669 megawatt hours per year, to be sold to Pacific Power.

- Total project costs are $1,372,000, with above-market costs of $682,000. We based our analysis on a system life of 20 years and assumed the project will qualify as a commercial project eligible for a BETC pass-through.

- Staff proposes an Energy Trust incentive of up to $487,000, or 71% of the above-market costs. OIT has received a $100,000 Blue Sky grant from Pacific Power to offset some of the upfront cost.

- The incentive would be paid at the time the project is commissioned. The project is expected to be completed this summer. If the project as completed has less generation capacity, we would reduce the incentive *pro rata*. OIT would be required to repay the incentive if the project fails to deliver the expected generation.

- Energy Trust proposes to take claim up to 71% of the tags from the expected generation.

- Funds for the project are available in the board approved budget for the Open Solicitation Program. The proposed incentive translates to a cost of $6.38 million

per average megawatt. This is within the range forecast for this Program for 2009.

- Under the procedures for the Open Solicitation Program projects with proposed incentives of $125,000 or greater must be approved by the board.

Analysis

- This is Energy Trust's first geothermal electric project, and it continues an ongoing collaboration between Energy Trust and OIT.
- The Renewable Advisory Council endorsed the project at its March 11 meeting.
- Over the first 20 years of the project, the project will help avoid over 13,935 tons of CO_2 emissions, the equivalent of planting 46 acres of trees.
- The project will provide OIT students with an opportunity to study geothermal operations, maintenance and technology in general, and the UTC unit in particular.
- It provides experience with a technology that can utilize geothermal resources at lower temperature and lower volume than has been common.

Recommendation

Staff recommends that the board approve up to $487,000 for the project.

RESOLUTION 509
APPROVING AN INCENTIVE FOR THE OIT GEOTHERMAL PROJECT

WHEREAS:

1. **Oregon Institute of Technology (OIT) proposes to use hot water from an existing well on its Klamath Falls campus to generate an estimated 669 megawatt hours of electricity per year.**
2. **The project will use an innovative technology that is capable of operating at lower temperatures using a smaller, modular unit.**
3. **Total project costs are projected to be $1,372,000. Staff estimates the above-market costs at $682,000.**
4. **The project would be Energy Trust's first geothermal project.**

BE IT RESOLVED: That Energy Trust of Oregon, Inc., Board of Directors

1. **Approves an incentive of up to $487,000 for a geothermal electric generation project at the OIT Klamath Falls campus, expected to generate 669 MWh per year; if the completed project has less generation capacity, the incentive shall be reduced *pro rata*.**
2. **Energy Trust will take or claim for the benefit of ratepayers 71% of the green tags from the expected generation.**
3. **The incentive will be paid on commissioning, and OIT must agree to repay the incentive on a pro rata basis if the expected generation is not produced.**
4. **The executive director is authorized to negotiate and sign a contract with OIT consistent with the terms of this resolution.**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed: [list name(s) and, if requested, reason for "no" vote]