Board Decision
Monroe Hydro Project

May 23, 2012

Summary

Authorize up to $450,000 to offset the above-market cost of a hydroelectric facility located on the Monroe drop structure at Mile 37 of the North Unit Irrigation District (NUID) main canal near Madras, Oregon. The project will be owned and operated by Monroe Hydro, LLC.

Energy Trust Goals

- The Monroe Hydro project supports Goal 2 of the 2010-2014 Strategic Plan: to accelerate the rate at which renewable energy resources are acquired, helping to achieve Oregon's 2025 goal of meeting at least eight percent of retail electrical load from small scale renewable energy projects.
- This project supports the Strategic Plan's anticipated activity of encouraging innovative technologies and the Other Renewables program goal of developing hydroelectric facilities located outside federal and state protected areas.
- The project increases the capacity in the Other Renewables program hydropower portfolio. Currently, Energy Trust has 5.9MW of hydropower projects in operation and an additional 4.3MW under construction.

Background

- Board approval is required for unconventional hydropower or wind projects involving incentives of more than $125,000.
- Natel Energy, Inc. is a new hydro equipment manufacturer that has developed technology to efficiently capture the energy available at ultra-low-head hydro sites that are not well served by conventional turbines. Natel won a grant from the US Department of Energy's Advanced Water Power Program to assist in demonstrating this new technology.
- This technology is of strategic interest to Energy Trust because there are many low-head irrigation sites that cannot be cost-effectively developed with conventional turbines. If this technology is successful it could open up many Oregon sites for development.
- This project would utilize Natel's SLH-100 turbine and would be Natel's second turbine installed on an irrigation canal. Their first unit, a 10kW machine, was installed in Buckeye, Arizona in 2010. For a variety of reasons, some beyond Natel's control, the performance of that machine has not yet met expectations. We address the performance risk related to this new technology in the way we propose to deliver the incentive.
- This project would be owned by Monroe Hydro LLC, a special purpose entity owned by Natel. NUID has the option to become a joint owner or to buy-out Natel. The project does not have a BETC.

Technical Analysis

- The proposed facility would:
  - use 12' of head available at the site;
  - utilize about 266 cubic feet per second of water flow during the irrigation season, April through October annually;
  - install a new facility at the Monroe drop structure at mile 37 of the NUID canal, generating approximately 250kW;
  - generate about 822MWh annually; and
  - be a Qualifying Facility, selling to PacifiCorp under standard rates and terms.

Financial Analysis

- Energy Trust determines project incentives based on a project's above-market cost, i.e., the difference between the cost to produce the power from the project over its life and the market value of the equivalent grid power at standard rates. Above-market costs are calculated as a net present value, which is the sum of the discounted value of the installation costs and the annual operating expenses of the project over its lifetime.

Revenues	Power Sales	$518,869
	Section 1603 Grant	$231,568
	US DOE Grant	$345,618
	NPV Total Revenue	$1,096,055
Costs	Capitalized Cost	$1,117,510
	Operations Expenses	$84,819
	Maintenance Expenses	$78,180
	Other Expenses	$82,310
	Taxes	$34,914
	NPV Total Project Cost	$1,397,733
Above Market Cost (Total Revenue - Total Project Cost)		($301,678)
	Tax Benefits	$23,971
	Net Above Market Costs	($277,707)
	Above Market Cost After Tax Adjustment	($450,502)

- The "tax adjustment" that increases above-market cost from $277,707 net to $450,502 reflects the taxability of Energy Trust's incentive.

- Staff and an independent contractor reviewed the project design and costs and found them to be reasonable.
- The project's above-market cost on a net-present-value basis is $450,502.
- To address the production risks inherent in the new technology, staff proposes to make quarterly payments based on actual production at a rate of 25 cents per kWh, up to a maximum of $450,000. The project would have up to six years for the payments to be made. If the project performs as expected, the payments would be completed in three years with a net present value of $362,840, which represents 81% of the above market cost.
- At a total payment of $450,000, the project's energy would cost Energy Trust $4.79 million per average megawatt (aMW). This is higher than we have paid for other irrigation hydro projects, and is slightly higher than the upper end of the stated goals in the 2012 Other Renewables budget of up to $4.62 million/aMW, which did not consider new technologies
- Energy Trust would receive 15,000 Renewable Energy Certificates (REC) produced by the project during the 20-year term of the Power Purchase Agreement, or 91% of the expected REC generation.
- Staff notes that any contract with Monroe Hydro, LLC will include milestones to ensure the project remains on schedule while allowing Energy Trust to withdraw funding if the project is unable to move forward. In addition to the pay for performance provisions, the contract will have the standard provisions for future payback if the project performs below reasonable expectations after the incentive pay-out period,
- Funds for the project are within the 2012 Other Renewables program budget.

Recommendation

Approve $450,000 in funding for the Monroe Hydro project, by adopting resolution #632, below, authorizing the executive director to sign contracts consistent with the resolution.

RESOLUTION 632

APPROVING FUNDS FOR THE MONROE HYDRO GENERATION PROJECT

WHEREAS:

1. **Monroe Hydro, LLC proposes to develop a hydropower facility with a generation capacity of approximately 250 kilowatts, expected to generate 822MWh annually.**
2. **The project will demonstrate new ultra-low-head hydropower technology that is of strategic interest to Energy Trust because there are many low-head irrigation sites that cannot be cost-effectively developed with conventional turbines.**
3. **Staff and an independent contractor reviewed the project design and costs and found them to be reasonable.**
4. **The net-present value of the project's above-market costs is $450,502 over 20 years.**
5. **Staff proposes a $450,000 incentive, to be paid quarterly following the commencement of commercial operation at a rate of 25 cents per kilowatt hour based on actual production with a NPV of $362,840, representing 81% of the above-market costs.**
6. **Energy Trust will receive 15,000 Renewable Energy Certificates or 91% of the expected output.**
7. **At the proposed payment, the project's energy would cost Energy Trust about $4.79 million per average megawatt (aMW), reflecting that this project will demonstrate new technology of strategic interest.**

It is therefore RESOLVED, that the board of directors of Energy Trust of Oregon, Inc. authorizes:

1. **Payment of up to $450,000 to be paid to Monroe Hydro, LLC to offset the above-market costs of the hydroelectric plant;**
2. **The incentive to be paid quarterly at a rate of 25 cents per kilowatt-hour based on actual production;**
3. **Energy Trust to take ownership of 15,000 Renewable Energy Certificates produced by the project;**
4. **The executive director to enter into a contract(s) consistent with this resolution.**

Moved by: Seconded by:

Vote: In favor: Abstained:

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