Board Decision
Douglas County Landfill Gas-to-Electricity Project

May 6, 2009

Summary

Authorize funding of up to $1,235,255 paid over four years to offset the above-market cost of a 1.06 megawatt (MW) cogeneration facility fueled by methane, located at the Douglas County Landfill, owned and operated by Ameresco, Inc.

Energy Trust Goals

- The Douglas County Landfill gas-to-electricity project supports Goals 2 and 5 the 2007-2012 Strategic Plan: to provide 10% of Oregon's electric energy from renewables by 2012, and to encourage and support Oregonians to integrate renewable resources into their daily lives.
- This project supports the Biopower program goal of using methane at smaller Oregon landfills that are economically challenging to develop.
- At 1.06 MW, the Douglas County project would be a significant increase in the Biopower program portfolio. Currently, Energy Trust has 5.2 MW of biomass in operation. The Stahlbush project, 1.6 MW, is due on line later this year.
- The project also supports Oregon's goal to have community energy projects (defined as less than or equal to 20MW) help meet a portion of the state's renewable portfolio standard.

Background

- Douglas County owns and operates the landfill in Roseburg Oregon. The site has accepted waste as a conventional landfill since the 1960s and is divided into the Main Fill, which is currently inactive and a Lateral Expansion, which opened in 1999.
- The Main Fill is unlined and the Lateral Expansion is lined. The Lateral Expansion presently receives 100,000 tons of waste per year and is expected to operate for the next 20 years.
- The landfill has an active gas collection system on both the Main and Lateral Fill. The methane is presently captured and flared.
- In 2007, Douglas County solicited proposals and Ameresco, Inc. was selected to develop, own and operate a gas-to-energy facility at the site. Ameresco is an energy services company with worldwide experience in waste-to-energy projects. They have developed 15 landfill gas-to-energy projects with eight more underdevelopment.
- In July, 2008, Ameresco applied for an Energy Trust incentive.

Technical Analysis

- The proposed facility would:
    - install a new generation facility, including a containerized engine, blower/skid system, and a system to clean the gas;

- use a generator rated at 1060 kilowatts at full load, expected to generate 0.97 average megawatts (aMW) operating at an annual capacity factor of 92%;
- expand the gas collection system to increase collection by 170%;
- be a Qualifying Facility, with output sold to PacifiCorp under standard rates and terms; and
- pay a royalty to Douglas County based on volume of gas delivered to the generation facility.

Financial Analysis

- Energy Trust determines project incentives based on a project's above market cost, i.e., the difference between the market value of the cost to produce the power from the project over its life and equivalent grid power at standard rates. The analysis Includes tax credits and other benefits available to the project. 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.
- A project financial summary is displayed below:

Project Financial Summary - NPV Basis

Size (MW)	1.06
Annual Output (mwh)	8519
Evaluated Resource Life (years)	20
Revenues	
Power Sales	$ 4,795,957
State BETC Pass-through	$ 1,160,737
Total Revenue	$ 5,956,694
Costs	
Capitalized Cost	$ 3,274,484
Operations Expense	$ 2,511,373
Maintenance Expense	$ 794,380
Other Expense	$ 873,821
Taxes	$ 309,686
Total Project Cost	$ 7,763,744
Gross Above Market Cost (Total Revenue - Total Project Cost)	$ (1,807,050)
Tax Benefits	$ 785,867
Net Above Market Cost	$ (1,021,183)
Equivalent Value Paid Over Four Years	**$ 1,277,500**

- Staff and an independent contractor reviewed the project design and costs and found them to be standard and reasonable for projects of similar size, type and design.
- The total capital cost of project is $3,464,888. The capitalized cost shown in the table above reflects the net present value of the equity and debt costs. (The lower, Capitalized Cost value is used to establish the Above Market Cost).

- The project's above-market, net-present value is $1,021,184 over 20 years, including installation and operating costs, and assuming the project qualifies for state and federal tax benefits.
- Staff proposes to pay $1,235,255 into an escrow account to be disbursed over four years. The net present value of this four-year payment is $970,961.
- Disbursements from escrow would be in equal amounts, based on project performance: the first payment would be made on project commissioning; the next four would be paid annually.
- At a total payment of $1,235,255, the project's energy would cost Energy Trust about $1.27 million per average megawatt (aMW). On a net present value basis the cost to Energy Trust is $1,000,991/aMW.
- This cost is in the range of what we are doing for other biomass projects. The Rough & Ready biomass project cost $1.48 million/aMW; the Columbia Boulevard biogas project cost $241,000/aMW; and the Stahlbush bio-digester is expected to cost $636,154/aMW.
- Energy Trust will receive 85% of the green tags (environmental attributes of renewable energy that can be used to meet renewable portfolio standards and/or sold apart from the underlying energy) produced annually by the project.
- The green tag allocation would be based on board policy, which requires Energy Trust either to take ownership of green tags in proportion to its contribution to above-market costs (95% in this case), or match the green tag market price if it is projected to be higher.
    - At the proposed incentive, the levelized cost of a green tag is $9.79. Our market forecast shows green tags at $11.25, levelized.
    - Reducing our share of tags to 85% would meet the future market value of the tags. The table below summarizes the calculation

Incentive (NPV)	Share	Levelized Value ($/MWh)
$970,961	95%	$9.79
$970,961	85%	$11.25

- Funds for the project are within the 2009 Biopower program budget.

Recommendation

Approve $1,235,255 in funding for the Douglas County landfill gas generation project, by adopting resolution #515, below.

RESOLUTION 515

APPROVING FUNDS FOR THE DOUGLAS COUNTY LANDFILL GAS-TO-ELECTRIC GENERATION PROJECT

WHEREAS:

1. **Douglas County has selected Ameresco, Inc. to develop a 1.06 megawatt cogeneration facility (expected to generate 0.97 average megawatts) fueled by methane at the Douglas County Landfill.**
2. **Staff and an independent contractor reviewed the project design and costs and found them to be standard and reasonable for projects of similar type and design.**
3. **Staff proposes an incentive payment for above-market costs to Ameresco of $1,235,255 paid over four years, which has a net present value to the project of $970,961 over a 20-year operating lifetime).**
4. **At the proposed payment, the project's energy would cost Energy Trust about $1.27 million per average megawatt (aMW), which is in the range of other Energy Trust biomass projects.**
5. **Energy Trust's biomass generation portfolio is currently 5.2 MW. At 1.06 MW, the Douglas County project would be a significant increase.**

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

1. **Payment of up to $1,235,255 into escrow to be paid to Ameresco over time to offset the above-market costs of the Douglas County Landfill gas-to-electric generating project;**
2. **Energy Trust will take ownership of at least 85% of the green tags produced annually; and**
3. **The executive director to enter into contracts consistent with this resolution.**

Moved by: Seconded by:

Vote: In favor: Abstained:

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