# Board Decision
# Revolution Energy Solutions Multi-Site Biogas Plant Project

November 9, 2011

## Summary

Authorize funding of up to $2 million paid over four years to offset the above-market cost of a 1.0 megawatt (MW) multi-site facility fueled by methane, constructed, owned and operated by RES Agriculture, LLC (RES) at two dairies.

## Energy Trust Goals

- The RES 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.
- This project supports the Biomass program goal of investing in third-party owned biogas plants in the agriculture sector.
- At 1.0 MW, the RES project would increase the Biomass program portfolio capacity by 15%. Currently, Energy Trust has 4.9 MW of Biomass projects in operation with 1.84 MW preparing for construction.

## Background

- RES has been operating its first biogas plant at Lochmead Dairy north of Junction City. The project has been commercially operational since the first of 2011. The power is being sold to Emerald PUD.
- The board previously authorized Energy Trust funds for RES to build, own, and operate biogas plants at four dairies in Oregon. The first of those sites will be commercially operational before the end of this year. All four sites will be operational by the third quarter of 2012.
- RES seeks Energy Trust funding for two additional sites, each with a capacity of 500 kW, for a total of 1.0 MW, generating 7,245 MWh annually.
- The additional sites mirror the previously-authorized sites. RES proposes to use the same process design (Bio Terre), the same development team and the same construction team.
- RES will also use the same third-party ownership business model. RES will own and operate the biogas plant, secure a long-term site lease and feedstock contract, and share a percentage of the energy sales and fiber produced with the dairy (the dairy uses the fiber as bedding; RES will sell any excess as compost).
- Each biogas facility will include an anaerobic digester, a methane storage facility, a generator that utilizes methane produced from anaerobic digestion of manure, and interconnection infrastructure to sell the electricity as a QF to PGE and Pacific Power.

- One of the two sites is located in Emerald PUD's service territory and will directly interconnect to a Pacific Power transmission line at an EPUD substation. In keeping with utility requests for advance notice of projects that wheel power, staff met with utility representatives before the RAC meeting to review the projects and their costs.
- The RAC has reviewed and supports this project.

## 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.
- 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.

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| **Revenues** | |
| Power Sales | $ 3,576,999 |
| Additional Revenue | $ 2,056,019 |
| State BETC Pass-through | $ - |
| ITC Grant | $ 2,099,664 |
| Total Revenue | $ 7,732,682 |
| **Costs** | |
| Capitalized Cost | $ 6,998,880 |
| Operations Expense | $ 428,714 |
| Maintenance Expense | $ 1,851,912 |
| Other Expense | $ 584,601 |
| Taxes | $ 447,089 |
| Total Project Cost | $ 10,311,196 |
| Gross Above Market Cost (Total Revenue - Total Project Cost) | $ (2,578,514) |
| Tax Benefits | $ 1,155,395 |
| Net Above Market Cost | $ (1,423,119) |
| **Above Market Cost After Tax Adjustment** | **$ (2,308,609)** |

- 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 $6,998,880. This project will not rely on any debt financing.
- The project's above-market, net-present value is $2,308,609 over 15 years, including installation and operating costs, and assuming the project qualifies for state and federal tax benefits (not including a BETC).

- Staff proposes to pay $2,000,000 to be disbursed over 4 years. The net-present value of this 4-year payment is $1,585,000, or 69% of above-market costs for the project.
- Disbursements would be in equal amounts: the first payment would be made on project commissioning; the next 3 are forecast to be paid annually based on project performance.
- At a total payment of $2,000,000, the project's energy would cost Energy Trust about $2.4 million per average megawatt (aMW). On a net present value basis, the cost to Energy Trust is $1.91 million/aMW.
- At $2.4 million/aMW, the incentive cost of this project proposal is lower than the initial RES project funding authorization. It is higher than other funded projects including Stahlbush Island Farms ($600,000/aMW), the City of Medford ($960,000/aMW) and less than the City of Pendleton ($2.6 million/aMW).
- Neither of the sites in this project received a Business Energy Tax Credit. The lack of BETC funding is partially offset by the Oregon Biomass Collector Producer Tax Credit, which provides a credit of $5 per green ton of manure utilized in the biogas plant to produce energy.
- The project will also benefit from other revenue streams associated with carbon offsets and the potential sale of biosolids remaining in the digester. These revenues were included in evaluating the above-market cost of the project.
- Energy Trust will receive 69% of the Renewable Energy Certificates (environmental attributes of renewable energy) produced annually by the project, which can be used to meet renewable portfolio standards of PGE and Pacific Power.
- Funds for the project are within the 2010 Biomass program budget.

## Recommendation

Approve up to $2,000,000 in funding for the Revolution Energy Solutions project, by adopting resolution #602, below.

**RESOLUTION 602**

**APPROVING FUNDS FOR THE RES AGRICULTURE, LLC GENERATION PROJECT**

**WHEREAS:**

1. **The board previously authorized funds for RES Agriculture, LLC (RES) to build, own, and operate biogas plants at four dairies in Oregon.**
2. **RES now seeks funding to develop one megawatt of generation capacity at two additional sites. The facilities would be fueled by methane from anaerobic digestion of manure.**
3. **For this project, RES proposes to use the same process design, development and construction teams, and business model.**
4. **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.**
5. **The project would seek QF treatment for sale of its energy to PGE and Pacific Power.**
6. **Staff proposes up to $2 million in incentives. At the proposed payment, the project's energy would cost Energy Trust about $2.4 million per average megawatt (aMW), compared to Stahlbush Island Farms ($600,000/aMW), the City of Medford ($960,000/aMW), and the City of Pendleton ($2.6 million/aMW).**
7. **Energy Trust would take at least 69% of the project's renewable energy certificates, which Pacific Power can use to meet its renewable energy portfolio requirements.**
8. **Energy Trust's Biomass Program portfolio is currently 4.9 MW, with 1.84 MW preparing for construction. At 1 MW, the RES 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 $2 million into escrow to be paid to RES over time to offset the above-market costs of the project;**
2. **Energy Trust will take ownership of at least 69% of the Renewable Energy Certificates 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]