Board Decision
Authorizing Funds for the ODOT Solar Highway PV Project

September 1, 2010

Summary

Authorize funding of up to $1,914,500 toward the above-market cost of a 1.715-1.915 megawatt (MW) ground-mounted solar photovoltaic facility operated by Portland General Electric (PGE) and installed on Oregon Department of Transportation (ODOT) property.

Background

- In 2009, Energy Trust provided a standard solar electric incentive for the first ODOT solar highway project, a 100 kilowatt (kW) installation at the intersection of I-5 and I-205.
- ODOT now proposes to expand the first solar highway installation by up to 165 kW and to install a new facility of up to 1.75 MW at the Baldock rest area on I-5.
- Energy Trust's standard solar electric incentive program does not support projects this large, so we have calculated a custom incentive based on above market cost.
- There is sufficient PGE funding in the 2010 solar program budget to fund this project.
- The Renewable Advisory Council supports the use of available 2010 PGE funds for one or more large-scale solar projects such as this.

Discussion

- ODOT's solar highway initiative is intended to use highway rights-of-way to increase the visibility of solar and encourage its adoption in Oregon.
- The proposed installation will include fixed-tilt, ground-mounted solar panels, visible to the public. It will use Oregon-made products: SolarWorld panels and PV Powered inverters.
- This project has already overcome the two major barriers to renewable energy projects in Oregon: it has a Business Energy Tax Credit (BETC) pre-certification, received before the BETC program was capped, and a tax equity investor.
- The project will be developed by PGE, immediately sold to tax equity partner, and leased back to PGE for six years. In year seven, PGE will buy out the project out and take full ownership. The project will remain on ODOT property, but ODOT will not own it.
- Power will be delivered directly to PGE, not used by ODOT. PGE will value the peak-period delivery of the power consistent with its updated Integrated Resource Plan forecasts.
- Final project capacity will depend on: (i) capacity of SolarWorld panels available at the time of installation; and (ii) whether the I-5/I-205 expansion is postponed for tax reasons.
- Energy Trust determines incentives based on a project's above-market cost: the difference between the cost of power from the project over its life and the market value of equivalent power. The analysis includes tax credits and other benefits available to the project. Above-market costs are calculated as a net present value.
- Staff recommends an incentive of $1.00/watt, to be applied to the final total project capacity. This rate is significantly less than the $1.75/watt incentive provided to the first

ODOT solar highway project and less than the $1.15/watt incentive approved in 2009 for the 3 MW enXco photovoltaic project. PGE supports this incentive rate.

- Staff evaluated the project at 1.76 MW, based on SolarWorld's currently available 230 watt panels and including the expansion to the existing solar-highway installation.
  - Total capital project cost is $9,982,486, or $5.67/watt, which is reasonable for a project of this size and design. The Energy Trust incentive, at $1.00/watt, is $1,760,000, covering 56% of the above-market cost of $3,136,088
  - Above-market costs were evaluated from PGE's perspective through the sale-leaseback deal structure. The net-present value of six years of lease payments plus a year seven buyout payment are modeled in lieu of third-party capital and tax benefits:

Project Financial Summary - NPV Basis

Project Capacity (MW)		1.76
Annual Output (MWh)		2,098
Evaluated Resource Life (Years)		25
NPV Revenues		
	Power Sales	$2,655,805
	Tax Benefits	$459,924
NPV Costs		
	Leaseback and Buyout Payments	$3,109,129
	Operations Expense	$1,283,565
	Maintenance Expense	$162,028
	Taxes	$494,217
	Total Project Cost	$5,048,939
Net Above Market Cost		$1,933,210
Net Above Market Cost After Tax Adjustment		$3,136,088

- It is possible a panel of 250 watts will be available from Solar World by the time of construction. If so, the project may use them and expand capacity to as much as 1.915 MW for both the new installation and the expansion of the existing facility.
- If final project capacity differs from 1.76 MW, staff will apply the incentive at $1.00/watt for the actual capacity installed, and recalculate the portion of above-market cost covered by the incentive.
- Energy Trust will receive green tags equal to its share of above-market cost or 65%, whichever is greater. Energy Trust's green tags will be assigned to PGE for use in complying with Oregon's Renewable Energy Standard (RES) and new 20 MW Solar Capacity Standard. PGE expects to receive 2-for-1 credit for these solar green tags toward the RES.

- PGE will divide the remaining green tags between ODOT and PGE's Clean Wind program based on their respective financial contributions to the project.
- Staff proposes to pay the entire incentive amount upon project commissioning, as is typical for solar installations.
- The project will generate 0.216-0.241 average megawatts. Risk of under-production is minimal due to the reliability of solar technology and PGE's role as a partner. Risk will also be mitigated by a payback provision in the contract.

Recommendation

Authorize up to $1,914,500 for the 1.715-1.915 MW ODOT Solar Highway PV project.

RESOLUTION 562
AUTHORIZING FUNDS FOR THE ODOT SOLAR PV PROJECT

WHEREAS:

1. **Oregon Department of Transportation (ODOT) plans to use highway rights-of-way to increase the visibility of solar and encourage its adoption in Oregon.**
2. **Portland General Electric (PGE) plans to install a total of 1.715-1.915 megawatts (MW) of solar photovoltaic generating capacity on ODOT property to count toward its state Renewable Energy Standard and Solar Capacity Standard mandates.**
3. **This project has already secured Business Energy Tax Credit precertification and a tax equity investor, two major barriers to renewable energy projects in Oregon.**
4. **Total project cost is estimated to be $9,982,486, which staff considers reasonable for a project of this size and design.**
5. **The above-market cost on a net-present value basis over 25 years is estimated to be $3,136,088.**
6. **Staff recommends an Energy Trust incentive of $1.00/watt, representing approximately 56% of the above-market cost, and PGE supports this incentive level.**
7. **Energy Trust will receive green tags equal to its share of above-market cost, which will be calculated based on final project size and cost, or 65%, whichever is greater.**

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

1. **Authorizes an incentive of up to $1,915,000 for a 1.715-1.915 MW, ground-mounted solar photovoltaic facility to be installed on ODOT property and operated by PGE.**

2. **Authorizes Energy Trust to assign its share of green tags from this project to PGE for the benefit of its ratepayers and for compliance with PGE's renewable energy generation obligations to the state.**
3. **Authorizes the executive director to negotiate and sign an agreement consistent with this resolution.**

Moved by: Seconded by:

Vote: In favor: Abstained:

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