RAC Review

Christmas Valley 5MW solar – incentive up to $5 million

November 30, 2011

Summary

Authorize funding of up to $5,000,000 toward the above-market cost of a 5 megawatt (MW) ground-mounted solar photovoltaic facility in Christmas Valley, developed by Obsidian Finance Group and delivering energy to Portland General Electric (PGE).

Energy Trust Goals

This 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.

Background

- This solar project will be capable of generating up to 5 MW of power measured on the alternating current (AC) side of the system's inverter. The nameplate capacity of the photovoltaic array will be approximately 5.88 MW (direct current, or DC).
- This 5 MW_{AC} project will help PGE meet its mandate to install 10.9 MW_{AC} of photovoltaic capacity by 2020, as required by the solar capacity standard established in 2010 by Oregon House Bill 3039.
- PGE brought this project to Energy Trust, seeking above market cost funding. The Energy Trust incentive will accelerate the acquisition of this solar generation by several years. Without Energy Trust funding, PGE will likely wait several years to comply with the mandate in anticipation of solar electric system costs continuing to decline.
- There is sufficient PGE funding in the 2012 solar program budget for the requested incentive. The Renewable Energy programs expect to have approximately $8 million in uncommitted PGE incentives at the end of 2011. Much of that surplus was placed in the 2012 solar budget to fund a large project such as this.
- There are no other renewable resource projects currently competing for these PGE incentive funds.
- A custom incentive based on above market cost has been calculated for this project, since it far exceeds the size supported by the standard solar electric incentive program.

Discussion

- At 5.88 MW_{DC}, this will be the largest solar electric project Energy Trust has funded, and the largest in the state. For comparison, the enXco solar projects in Yamhill County total 3 MW_{DC} and the Baldock solar highway project is 1.75 MW_{DC}.

- The project will be installed in Christmas Valley, Oregon, interconnect to Midstate Electric, transmit power through Bonneville Power Administration and sell power to PGE. This will be the first solar project in Oregon to wheel power through a consumer-owned utility and BPA. Because the solar resource is 30 percent greater in Christmas Valley than in locations within PGE service territory, the additional cost of wheeling power to PGE will be outweighed two-to-one by the additional revenues from the solar electric generation compared to the same system installed on PGE's network.
- The project will sell power to PGE under a 20-25 year contract with a negotiated power purchase price.
- The project will likely use trackers, making it the first large solar installation in Oregon to track the sun. Tracking would boost the generation approximately 20 percent compared to a fixed tilt array. We are confident that the developer, held accountable by Energy Trust and PGE agreements, would maintain the trackers over the life of the system.
- The project has a coveted Business Energy Tax Credit (BETC) pre-certification, received before the BETC program was capped. Because of its ability to leverage state funding this is the only viable large solar project that PGE is considering. The project seeks a pass-through partner to claim the BETC. To qualify for its BETC, the project must be operational and receive final certification by end of 2012.
- The project is contracting with a tax equity partner to claim the federal tax benefits.
- The project is being developed by Obsidian Finance Group, and will be owned and operated by a second developer that meets PGE's financial and credit requirements. The developer will bring investor(s) to provide the equity and claim the tax benefits.
- Staff reviewed the project design and costs and found them to be reasonable for a project of this size, type and design. Compared to previously funded large solar projects, this project has lower up-front cost ($3.82 per watt) and comparable operation and maintenance costs.
- Staff recommends an incentive of up to $0.85 per watt, to be applied to the final total project capacity. PGE is optimistic that it can offer a power purchase price that will support this incentive rate. This incentive rate is less than the $1.15 per watt for enXco (3 MW, 2009) and the $1.00 per watt for Baldock (1.75 MW, 2010). Although it is higher than the $0.75 per watt incentive offered through the standard solar program for commercial projects, it is slightly lower on a per-kilowatt hour basis due to the additional generation from the trackers.
- Above market costs were modeled with a 25 year power purchase agreement, 1-axis trackers and 80% equity. Costs will be reevaluated after the second developer is confirmed.
- Total capital project cost is $22,478,896. An Energy Trust incentive of $5,000,000 would cover 90% of the above-market cost of $5,558,004.
- The final incentive, not to exceed $5,000,000, will be negotiated with the developer. Depending on the power purchase price offered by PGE, Energy Trust's incentive may be reduced.

Project Financial Summary - NPV Basis

Project Capacity (MW)			5.88
Annual Output (MWh)			10,054
Evaluated Resource Life (Years)			25
NPV Revenues			
	Power Sales	$	9,547,252
	BETC pass through	$	6,118,721
	Tax Benefits	$	8,369,300
	Total NPV Revenues	$	24,035,273
NPV Costs			
	Capitalized Construction Cost	$	22,336,411
	Operations Expense	$	34,919
	Maintenance Expense	$	719,604
	Other Expense	$	2,752,302
	Transmission Expense	$	1,450,892
	Taxes	$	167,322
	Total NPV Cost	$	27,461,449
	Net Above Market Cost	$	(3,426,176)
Net Above Market Cost After Tax Adjustment		$	(5,558,004)

- Energy Trust will receive 100% of the Renewable Energy Certificates for this project and will assign them all to PGE for use in complying with Oregon's Renewable Energy Standard (RES) and Solar Capacity Standard. PGE expects to receive 2-for-1 credit for these solar green tags toward the RES.
- The project will generate 1.15 average megawatts.
- Staff proposes to pay the entire incentive amount upon project commissioning, as is typical for solar installations. Risk of under-production is minimal due to the reliability of solar technology and will be mitigated by a payback provision in the Energy Trust contract and likely by penalties in the PGE power purchase agreement.