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December 19, 2013

Email / US Mail

puc.filingcenter@state.or.us

Oregon Public Utility Commission
Attn: Filing Center
3930 Fairview Industrial Dr. SE
PO Box 1088-97308-1088

RE: UM 1673 - PGE's Comments HB 2893 Solar Incentive Report to Legislature

Filing Center:

Portland General Electric encloses Comments to be filed today in the above-referenced docket. An electronic copy of this filing will be provided to all parties on the UM 1673 service list.

If you have any questions or require further information, please call Bonnie Gariety (503) 464-7470. (Please direct all formal correspondence and requests to the following email address: pge.opuc.filings@pgn.com.)

Sincerely,

A handwritten signature in blue ink, appearing to read "Karla Wenzel". The signature is fluid and cursive, written over a white background.

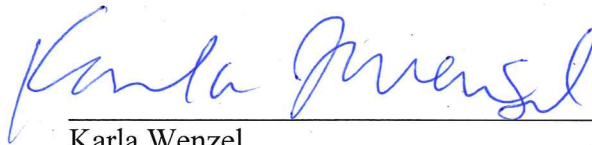
Karla Wenzel
Manager, Pricing & Tariffs

KW:sp
encl.

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused **PORTLAND GENERAL ELECTRIC COMPANY'S COMMENTS** to be served by electronic mail to those parties whose email addresses appear on the attached service list for OPUC Docket No. UM 1673.

DATED at Portland, Oregon, this 19th day of December, 2013.



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**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1673

In the Matter of)	
)	
PORTLAND GENERAL ELECTRIC COMPANY,)	PORTLAND GENERAL ELECTRIC'S COMMENTS
)	
HB 2893 Solar Incentive Report to Legislature)	
PUC Staff Questions for Stakeholders)	

Portland General Electric is pleased to submit these comments in response to key topics raised by Staff. Staff is tasked by House Bill 2893 to study and evaluate solar photovoltaic incentive programs in order to develop a report to the legislature. Staff issued specific questions to the parties to elicit comments to assist in the Oregon Public Utility Commission (OPUC) in its report. Staff's questions are attached.

In our comments, rather than address each question individually, we address the overarching key issues, including the rationale for promoting solar photovoltaic (PV) electricity generation, the utility role in that promotion, the established Oregon approach to calculating solar resource value, and other approaches to calculating resource value. In addition, PGE provides information about its fixed cost recovery and the issue of subsidies by customers without solar PV to those customer-generators who have installed solar PV.

Finally, when we refer to distributed solar generation or customer owned solar generation, we mean solar generation installed on the customer premises. This encompasses two metering configurations. The first is a solar system owned by the customer or a third party that is net metered where the price paid or credited to the customer for the solar energy produced is

the PGE full retail cost of service price. The second is a system enrolled in Oregon's Feed-in Tariff Pilot Program (a.k.a. PGE's Solar Payment Option Pilot) where the customer pays PGE's cost of service rate for the PGE electricity and is paid the Solar Pilot Program "volumetric incentive rate" for the solar energy produced over a fifteen year contract term.¹

Purpose of docket

This docket was opened to elicit comments for OPUC consideration in its report to the legislature. The following, from Section 4 of HB 2893, sets forth the expectations for the study and report:

- (1) The Public Utility Commission shall study the effectiveness of programs that provide incentives for the use of solar photovoltaic energy systems. As part of the study, the commission shall:
 - (a) Investigate the resource value of solar energy;
 - (b) Investigate the costs and benefits of the programs for retail electricity consumers and how those costs and benefits are distributed among retail electricity consumers;
 - (c) Forecast the costs associated with solar photovoltaic energy systems located in Oregon;
 - (d) Identify barriers within the programs to providing incentives for the development of solar photovoltaic energy systems; and
 - (e) Make recommendations for modifying the programs or establishing new programs for the purpose of providing incentives for the development of solar photovoltaic energy systems in a manner that is cost effective and protects ratepayers, including ratepayers that do not participate in the programs.

General comments

PGE supports solar development and state policies that encourage and publicly promote solar deployment. For example, we were supportive of the adoption of legislation promoting solar PV (HB 3039 (2009)), the bill that created both the Feed-in Tariff Pilot Program and the Solar Capacity Standard); we have worked diligently to improve our interconnection processes to reduce time and expense for our customers installing solar PV; and we lead the state in

¹ The approved volumetric incentive rates for small customer owned PV solar system generation (0-10 kW), for October 2013, is set at \$0.39 per kWh for climate zone 1, which encompasses most of PGE's customers. OPUC Order 13-291.

installation or purchase of energy from utility scale solar facilities. There has been, and should continue to be, a role for the utility in the distributed solar generation area that is more than as just a facilitator and collaborator.

Further, PGE believes that there are both energy and non-energy, (e.g. health, environmental or societal) benefits due to increased solar installations. And while it is appropriate for utility customers to pay a fair value for the energy and associated energy benefits received from distributed solar generation because those benefits directly accrue to the utility system, we question whether it is appropriate for those same customers to fund non-energy benefits provided by solar energy. It is not fair for customers of investor-owned utilities to pay for the non-energy benefits of solar energy that generally accrue to the state, region or nation as a whole. PGE does not dispute that solar development may result in such benefits; indeed we see the value in such benefits. Instead, we argue that those benefits, should they need incentives to be obtained, be supported by the larger population of taxpayers and their tax dollars. In fact, the state policies recognize that renewable energy of many kinds, not just solar, support multiple societal benefits and the state provides support for those benefits through such programs as the Residential Energy Tax Credit program and the State Energy Loan Program.

If there is interest in identifying “non-energy” benefits and then quantifying those benefits in a value of solar approach, the attributes that may result in a value of solar being established at a rate above the resource value (determined in the Commission’s UM 1559 docket) should be clearly identified and transparent such that customers understand the portion of any incentive that pays for the energy-related benefits of distributed solar generation and the portion that does not.

Primary Goals and the Role of the Utility in Promoting Solar

Staff requests that stakeholders comment on the goals of promoting solar. There are several important goals in promoting solar, these are:

- Meeting customer desires in distributed solar
- Utility scale solar generation
- Increasing US energy independence
- Resource diversity
- Reducing dependence on fossil fuels and related carbon emissions
- Complying with the state Renewable Portfolio Standard (RPS)² and the Solar Capacity Standard (SCS).

PGE's Integrated Resource Plan (IRP) discusses solar among the supply side options and models utility-scale solar PV's use for serving PGE's load. In our IRP, PGE also identifies for study the assessment of the potential for solar PV distributed generation in our service area. In the IRP process, we seek customer and stakeholder feedback; our customers tell us that solar is a desired resource³. Solar is a small but growing part of our resource mix and PGE will continue to add solar as a resource when it makes sense.

PGE is active in, and should continue to be active in, acquiring and developing utility scale solar and promoting access to distributed solar PV development. Where appropriate, based on standard utility resource planning, PGE strives to include solar in our resource mix. The

² The state RPS requirement, enacted with SB 838, requires PGE to ensure that a percentage of the electricity sold to retail customers' in-state is derived from newer eligible renewable energy resources. By 2015 that required percentage is 15%, 20% in 2020 and 25% in 2025. ORS 469A.

³ In 2012, Momentum Market Intelligence completed an analysis of resource options customers would like to see included in PGE's resource mix. Solar was the preferred resource

VISOR report in particular, funded by the Oregon Solar Electric Industries Association, calls out the potential for utility-scale solar sited in the Willamette Valley. PGE has also supported initiatives, such as the US Department of Energy Sun Shot Initiative, facilitated access and reduced costs for customers desiring to host their own solar projects through streamlined interconnection and other processes. As a result of those efforts, and of existing state programs, PGE supports approximately 4,200 solar PV customer generators and 39 MW of capacity from those generators. However, with regard to distributed solar, PGE is also mindful of the rate and system impacts on customers who do not install solar. As more and more customers participate in solar programs, the potential deleterious effects on non-participating customers grows.

With regard to the Solar Capacity Standard, PGE has recently met the requirement seven years in advance of the deadline. PGE was an early national leader in solar promotion when we developed two customer-sited PV solar projects in our service territory in 2008 and 2009. PGE then worked with the Oregon Department of Transportation (ODOT) for the country's first solar highway project and has since partnered with them again on the Baldock project. One of the customer sited PV solar projects, ProLogis uses thin-film technology on existing rooftops and sells output to PGE under a power purchase agreement as a Qualifying Facility. In 2010, PGE signed contracts with enXco to purchase the power from the Bellevue and Yamhill Solar Facilities. Bellevue is a ground-mounted fixed-tilt solar PV plant near Amity, Oregon. Yamhill is a ground-mounted fixed-tilt solar PV plant in Yamhill County, Oregon. The contracts terms are 25 years and their output is Oregon RPS-qualified. In 2012, PGE contracted with Outback Solar, LLC to purchase the output of a ground-mounted tracking solar PV plant located in Lake County, Oregon.

With regard to customers interested in distributed solar, we play a key role in communicating available incentives through the company website and in ensuring that our interconnections process is as least-burdensome as possible.⁴ We agree that facilitating available subsidies should be part of the utility role; however, absorbing above-market costs or providing additional subsidies should not be. Investor-owned utility customers already provide significant contributions to reducing the above-market costs of new renewables through the public purpose charge paid to the Energy Trust of Oregon.

UM 1559-- Calculating Resource Value of Solar in Oregon

Section 4 of HB 2893 asks the Commission to investigate the resource value of solar energy. PGE believes the outcomes in the UM 1559 investigation are still relevant and the approach of using the utility's renewable avoided cost should continue.

In statute, Oregon has determined the resource value of solar. ORS 757.360(5) defines resource value as:

The estimated value to an electric company of the electricity delivered from a solar photovoltaic energy system associated with:

- a) the avoided cost of energy, including the avoided fuel price volatility, minus the cost of firming and shaping the electricity generated from the facility; and
- b) avoided distribution and transmission cost. (*emphasis added*)

The PUC's Docket UM 1559 investigation was conducted for purposes of the Solar PV Pilot Program because after 15 years, the customer would be paid the resource value of solar and

⁴ http://www.portlandgeneral.com/renewables_efficiency/generate_power/home/go_solar/default.aspx

as long as the pilot program price was above the resource value, the customer could not take other state incentives. There was no dispute among the parties to that proceeding that Solar Pilot Program participants receive a value for the solar generation in excess of the resource value, regardless of the method used to calculate it.⁵ In its October 2012 order, the Commission decided it was unnecessary to determine the analytical approach to determine resource value of solar PV systems. The Commission instead chose to use utility reports to compare results and methods and directed the utilities to report resource values based on three methodologies: standard avoided cost, the renewable avoided cost methodology, and an IRP methodology (based on incremental additions of solar capacity and the resulting contribution to reliability using the Effective Load Carrying Capability method). PGE plans to make an updated filing in compliance with Order No. 12-369 in UM 1559.

The Commission also opined that it was not ready to require the utilities to report estimates for the components of: avoided transmission and distribution costs, avoided integration costs, avoided fuel price volatility and avoided CO2 costs.⁶ PGE agrees with the Commission and adds that it remains too early to report estimates for these components as only a year has transpired since the UM 1559 proceedings where PGE addressed these components. It should be noted that during the UM 1559 investigation, parties submitted comments supporting a variety of approaches to calculating the resource value of solar. The Renewable Northwest Project, for example, advocated for a methodology that recognized a much broader set of system benefits than the avoided cost, which was not ultimately supported in the aforementioned Commission order.

⁵ The Commission cited the current volumetric incentives rates range from 16.5 cents per kilowatt-hour for bidding option participants to 41.1 cents/kWh for net-metering option participants.

⁶ Although mentioned in the Commission Order, avoided CO2 costs are not identified in the statutory definition for resource value of solar. See ORS 757.630(5).

PGE continues to support the approach taken by the OPUC in UM 1559 and calculating the resource value of solar from the renewable avoided cost perspective. This is a transparent, determinable, replicable and reasonable approach.⁷ When PGE determines the value of a resource, the utility values it on the basis of the costs the utility avoids as a result of the resource. Distributed solar energy production clearly allows the utility to avoid energy costs from an alternative source of generation.

When some parties discuss the capacity benefits of distributed solar, PGE assumes that the intent is to suggest that these capacity benefits affect the utility's ability to delay or avoid construction of the next generator, transmission line or substation as a result of the distributed solar contribution to the utility's peak demand. But in PGE's case, distributed solar adds little such benefit. As noted in PGE's current draft IRP, in the winter solar provides relatively low overall energy and is not a good match to our peak load requirements. PGE is expected to remain a winter peaking utility throughout the planning horizon. In the summer, energy generation from distributed solar is much greater, but still does not wholly match peak load hours. Thus, there is little generation capacity contribution from distributed solar. With regard to distribution avoided costs, PGE has to build its system to meet peak loads. While a customer's solar PV production may reduce demand on that customer's distribution circuit during generation, it is not significant enough to defer investment, does not come at peak, and PGE still has to construct to meet peak load and reliability requirements.

⁷ We note the consistency between this approach and our comments above regarding the energy and non-energy benefits of the solar resource. ORS 757.360 cited above specifies the resource value is the value of the delivered electricity to the utility, not all values that can be attributed to solar generation generally.

In our UM 1559 comments, the resource value for solar PV was tied to PGE's wind-based renewable avoided cost.⁸ The comments further discussed the elements of fuel price volatility (not added to the renewable avoided cost since the renewable avoided cost is based on a wind resource and wind resources have no associated fuel costs and are not subject to the volatility of fuel prices), firming and shaping (not included), and avoided transmission and distribution costs (in which line losses are included as a benefit for distributed solar PV). As a result of the Solar PV Pilot, PGE does not expect to avoid distribution or transmission investments.

In sum, the renewable avoided cost approach is the most fair as it has our customers paying costs that PGE actually avoids and not broader societal benefits that should be borne by all beneficiaries. Again, we are not suggesting that non-energy value does not exist, merely who pays for that value. PGE's renewable avoided cost approach includes a resource (wind) with similar environmental attributes as solar generation. We use wind because we are directed to use the next planned avoidable renewable resource in our IRP. (In UM 1559, the PUC declined to order resource specific renewable avoided costs). In addition, the avoided cost approach recognizes the capacity value of solar by paying on and off peak differentiated prices. Finally the price will also reflect whether PGE is resource sufficient or deficient. With the planned Tucannon Wind Farm now under construction, PGE will have sufficient renewables to meet the RPS requirement with physical resources at least through 2016. This resource sufficiency will affect the price that is appropriate to be paid for additional generation, including generation with a renewable component.

Other Approaches to Calculating the Value of Solar

⁸ The renewable avoided cost rate is filed with the Commission pursuant to Order 11-505 in UM 1396. PGE's filed renewable avoided cost is pending with the Commission.

While PGE supports the approach agreed to in UM 1559 of using the renewable avoided cost approach for the resource value of solar and advocates its continuation as the standard for determining resource value of solar, staff asked questions about other approaches. In the interest of assisting the PUC's report, we discuss other approaches below.

There has been a lot of activity across the country on the issue of how to value distributed solar generation. In addition to the avoided cost approach, others include a value of solar (VOS) and benefit cost analyses. Austin Energy was among the first to pilot a VOS tariff. In the Austin approach, the inquiry started with the question, "what value can customer generated solar PV bring to the grid of the local utility?" The question did not differentiate between the value to electricity customers and to the general public and who pays. The initial list of value attributes solar PV can contribute to the grid included: energy production, generation capacity, transmission and distribution (T&D) deferrals, reduced transformer and line losses, environmental benefits⁹, natural gas price hedge, disaster recovery, blackout prevention and emergency utility dispatch, managing load uncertainty, retail price hedge, and reactive power control. The last four were not included in the final study.¹⁰ The value of solar approach has been applied with very divergent results. For example, Austin's value was about \$0.03 higher than its retail rate; while a sister Texas utility in San Antonio came to a calculation half the retail rate.¹¹

Similarly, in Arizona, Arizona Public Service and advocates each commissioned their own value of solar study, resulting in a value of \$0.04 per kwh by the APS study and \$0.21 per kwh by the advocates. The processes were highly contentious and adversarial. The first area of

⁹ Environmental benefits include avoided emissions from nonrenewable generation when the customer generates with solar PV.

¹⁰ <http://www.solarabcs.org/about/publications/reports/rateimpact/>

¹¹ Reported in A Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation, Interstate Renewable Energy Council, Inc. October 2013.

contention was identifying the particular benefits and the second, the valuation of those benefits. The APS study identified the following benefits: avoided T&D line losses, deferral of T&D capacity upgrades and additions, reduction in necessary equipment size within the distribution system, avoided electric generation capacity costs, avoided fixed operating costs, avoided energy purchases, and avoided fuel purchases. APS modeled a low, medium and high solar PV penetration scenarios for its valuation exercise.

Credited with being a more collaborative approach, the 2013 Minnesota legislature enacted a law allowing utilities to apply to the state commission to substitute a value of solar tariff in place of net metering, setting the required value attributes for a value of solar tariff and noting explicitly that the value includes value to society as well as value to the utility and customers.¹² The value of solar would be a credit to the customer for the solar energy produced. The Minnesota Department of Commerce is charged with establishing a methodology by January 31, 2014, based on the value attributes identified in the statute. The required value attributes include energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value. Utility customers pay for the societal value of solar production.

California took a different approach. It reviewed costs and benefits of net metering solar PV. Among the benefits identified were avoided costs from energy purchases, generation capacity or resource adequacy, line losses, T&D capacity, environmental compliance, ancillary services, and renewable energy purchases by the utilities under California's RPS. The costs included bill credits provided to net metered participants, administrative costs, and interconnection costs which are not billed to net metering customers.

Comparing costs of utility scale solar to distributed solar PV

¹² MN Laws 2013, Chapter 85 HF 729, Article 9, Section 10

Staff asks about comparing utility scale to distributed solar. PGE's most recent IRP, we noted that is an open question whether siting solar in a sunnier remote location would be more economic than siting it within our service territory. Potential benefits of utility scale include: higher insolation, axis tracking, RPS compliance, control of maintenance, and economies of scale. Potential benefits of distributed solar include avoided line losses, avoided transmission, reduced site costs (rooftops) and geographic diversity. We expect to have more information as we study this through our IRP.

Utility Fixed Cost Recovery

Finally, we comment on staff's questions regarding utility fixed cost recovery, who pays and fairness. A significant issue we have with using a retail rate or a volumetric incentive rate set above the renewable avoided cost is that nonparticipating customers are potentially paying a portion of the fixed costs that net metering and solar pilot participating customers continue to incur. When a customer installs solar PV on her rooftop, she will consume less energy from PGE as her panels produce solar energy. Given that PGE does not recover its fixed costs through its monthly customer charge, much of the fixed cost recovery occurs in volumetric charges collected from the customer according to her use. In our decoupling mechanism, Schedule 123, we identify this amount in our volumetric kWh charge that collects fixed charges, at about \$0.06 per kWh. So, the amount of fixed cost recovery that is not collected from the distributed solar PV customer is the fixed cost portion per kWh (the \$0.06) multiplied times the total kWh produced by that customer's solar system that month. PGE then recovers the fixed costs predominantly from nonparticipating customers.

For example, PGE estimates that about 28 MW of net metered solar capacity was installed as of mid-2013. Assuming a 12 percent capacity factor for distributed solar, fixed costs

that are not collected from distributed solar net metered customers are over \$1.7 million per year.¹³ For the Solar Pilot participants, the subsidy is even greater. The Solar Pilot customers have locked in rates of \$0.65 per kwh (small systems) and \$0.55 per kwh for medium systems, at the program's outset and \$0.39 per kwh for small systems for those successful in the October 2013 window. While the Solar Pilot participants pay for their share of fixed costs by paying PGE's retail cost of service rate for electricity delivered to them, they are significantly overpaid for the distributed solar production, based on the energy benefit provided to the utility system. The Solar Pilot Program amplifies the subsidy as nonparticipating customers are paying the cost of administration and for the payments to the distributed solar producers for their solar generation.

Total cost for PGE's Solar Payment Option Pilot Program is approximately \$5-\$6 million annually. Program costs and payments are expected to peak about a year after all capacity is installed and systems are generating. The rate impact is expected to rise above the .25 percent cap to over .30 percent such that the current solar feed-in tariff pilot program is not sustainable.

The intent of paying the utility's cost of service retail rate to customers with distributed generation is to provide an incentive to install. The incentive helps make the system an economic choice for the customer. In the past several years, the cost of solar module and installation costs have dropped significantly. As the cost of solar approaches the cost of grid electricity, the incentives become less necessary. PGE's retail electricity rates are expected to increase, in the next couple years with the addition of generating plants. If the utility's payment to customers for distributed generation continues to be the retail rate, other customers will be paying above and

¹³ \$1.76 million = 28 MW of solar capacity x 1,000 x 8,760 hours x .12 capacity factor x \$0 .06 per kWh of fixed costs stated in PGE Schedule 123 Decoupling Adjustment.

beyond the point of reducing the above market costs and providing an incentive for installing distributed solar.

Conclusion

PGE appreciates the opportunity to provide comments in this docket. PGE supports solar development and continues to evaluate ways to promote solar PV in a way that ensures all customers are contributing to and being appropriately compensated for the value it provides with an eye toward long-term sustainability of incentive programs and policies. The issues of solar value beyond the energy system benefits, and who pays, are state policy issues and appropriate for the state legislature to consider. PGE understands there will be more opportunities to comment and looks forward to reading and responding to other parties' comments.

These comments are respectfully submitted by:



Karla Wenzel, Portland General Electric