

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1505

In the Matter of)	SUPPLEMENTAL COMMENTS
)	RELATING TO NEW
PUBLIC UTILITY COMMISSION)	PROPOSALS IN 2/28 FILINGS:
OF OREGON)	
)	FROM OREGONIANS FOR
Solar Photovoltaic Program)	RENEWABLE ENERGY POLICY

Oregonians for Renewable Energy Policy (OREP) appreciates the opportunity to contribute comments and recommendations regarding new proposals made by any party in its February 28th filing.

In the following comments we shall address:

1. Proposal to collect data on disappointed applicants on a voluntary basis - as asserted by Pacific Power and Portland General Electric joint comments
2. Proposal that program design should emphasize achieving SPP objectives rather than decreasing demand - as asserted by OREP
3. Proposal to reduce capacity in the Solar Photovoltaic Program (SPP) for the April 1 allocation - as asserted by Staff (75% reduction) and by Pacific Power and PGE joint comments (67% reduction)
4. Proposal to vary VIR in medium category by geographic region - as asserted by Oregonians for Renewable Energy Policy (OREP)

Section 1: Proposal to collect data on disappointed applicants on a voluntary basis

Many stakeholders in past comments have stressed the absolute necessity of measuring interest in the program at the offered VIR. It has been agreed that interest in the program is not in any way knowable by the speed at which the very limited capacity is reserved. There has been general consensus that it is essential to capture data on disappointed applicants.

In February 28th joint comments, Pacific Power and PGE state, “ To capture the demand generated by the program, the Joint Commenters propose to create a short survey for those interested parties not selected for the program” and go on to propose a website link for customers of vendors to complete once the reservations are closed.

A voluntary survey does not rise to the task at hand. Who knows what percentage of applicants who have just been disappointed in their quest for capacity will feel inclined to follow a link to a survey? How can we assume that the same proportion of applicants for small-scale capacity as medium-scale capacity will take the time to complete a survey? How can we be sure that surveys are being filled out by serious applicants, rather than falsely in order to suggest greater demand in a given size class than exists in reality? The proposed voluntary surveys will raise more questions than they answer and are an entirely unacceptable response to the need for data about interested applicants.

We reiterate from the OREP comments of February 28th:

“We suggest that, on the date the enrollment period opens, the enrollment period be held open for a period of 24 hours and that, during that time, each applicant submit in addition to identifying information and the amount of capacity to be reserved, the following information:

- Anticipated system cost
- Anticipated installer
- Zip code of installed system”

Each application should be time-stamped at time of submission. At the close of data collection, it is a simple programming task to allocate capacity to the earliest applicants and send congratulation and disappointment emails to all applicants respectively.

Section 2: Proposal that program design should emphasize achieving SPP objectives rather than decreasing demand for solar

In February 28 comments, OREP states:

Some comments have asserted that the VIRs should be reduced sharply in order to decrease demand for the program. Decreasing demand for solar photovoltaic is not among the expressed goals of HB 3039. Instead, the Legislature directed the Commission to “consider regulatory policies designed to increase the use of solar photovoltaic energy systems, make them more affordable, reduce the cost of incentive programs to utility customers and promote the development of the solar industry in Oregon.”¹

Objective: “increase the use of solar photovoltaic energy systems” and “promote the development of the solar industry in Oregon”

Feed-in-tariff programs have been established internationally as the most effective way to rapidly deploy renewable energy and provide stable markets that encourage local investment²³⁴

¹ HB 3039, §7.

² Mendonça, M., Jacobs, D., Sovacool, B. (2010). Powering the Green Economy: The feed-in tariff handbook. Earth Scan Publications.

The value of the volumetric incentive rate (VIR) is key in determining success in attracting private capital and deploying renewable energy, and in determining the cost of the program. Methodologies for deriving VIRs have been developed for feed-in-tariff (FIT) programs in over 60 countries, providing a wealth of experience on which to base an Oregon methodology.

Experience shows that, for greatest success, the process by which the PUC establishes volumetric incentive rates for the SPP must be *methodical and transparent*. The PUC should provide the price-setting methodology and assumptions for public review so that public conversation can be substantive rather than speculative. Transparency decreases criticism and promotes productive public discourse, as has been demonstrated in the Ontario experience (See Appendix I for extensive references)

Volumetric incentive rates must be calculated *to cover the cost of generation and a reasonable return on investment*. This is necessary to attract capital for mass deployment of renewable energy in an expanded FIT program. Thus the methodology must strike a fair balance between the needs of customer-generators to be adequately compensated and of ratepayers not to be overcharged.

VIRs must take into account cost of installation, cost of capital / reasonable return on investment (ROI), and ongoing costs of participation. Consideration of these inputs suggests areas for program cost savings.

A protocol with degression was developed in initial rule making. Initial rates calculated for the program were in fact higher than needed in light of the rapid fall in the cost of capital and drop in installed cost at that time. The 10% drop at each enrollment has, we believe, made the necessary corrections. However, a 10% drop at each enrollment is not sustainable as eight 10% drops would bring the rate to 43% of the initial rate. In a capped program with such a small capacity as the SPP we cannot expect to use a fixed degression on the expectation that advertised future rates will drive efficiencies in the market place. For this reason, following the April enrollment, we encourage the Commission to proceed with a data-based approach for the remainder of the SPP. Price reductions should be based on observed drops in costs which translate into inputs to a rate calculator. This will enable the PUC to refine the assumptions and selection of data needed to establish a VIR that is not over-generous but that will cover costs and a reasonable ROI for more than a very narrow group of participants.

³ Couture, T., Cory, K., Kreycik, C., Williams, E. (2010). A Policymaker's Guide to Feed-in Tariff Policy Design. National Renewable Energy Laboratory. Retrieval at <http://www.nrel.gov/docs/fy10osti/44849.pdf>.

⁴ Neff, R. (2009). The Right FIT for Oregon: Solar PV in Eugene as a Case Study for Feed-in Tariff Policy Design Retrieval at <http://www.oregonrenewables.com/Reports.html>.

Installed cost

A good value for installed cost can be ascertained from recent installs under the pilot and ETO programs, from data collected from survey information at the previous application period, from advertised prices by programs such as Solarize Portland and One Block off the Grid, and from available national surveys. If there is evidence of rapidly declining equipment costs, the value can be modified based on the change in average wholesale cost of materials since the previous application period. The VIR needed for a project to pencil out is quite strongly dependent on the installed cost. A \$0.50 reduction in installed cost per kW for a 5kW system results in a \$0.04 decrease in VIR.

Cost of capital

We recommend that the commission establish the cost of capital as an index plus margin, as is commonly used for determining mortgage and loan rates. As of 3/8/2011 the cost of capital for 15-year loans available at a local credit union and bank is: First Tech - home equity loan 6.49%; Umpqua Green Street Lending – 6.5%. Borrowers with excellent credit may have access to better rates than these from their home institutions. Advice from a financial expert would be helpful in establishing an appropriate index and margin.

Many FIT programs, including those in the UK and Ontario, Canada, use a weighted average cost of capital (WACC) model to provide a higher return for the money put up by the participant than for money borrowed so as to account for the risk taken by the investor. These programs assume a 70%/30% split of borrowed versus participant financing with ROIs of 6%- 9% in the UK and 7%-11% in Ontario (see Appendix I). The PUC calculator allows entry for weighted ROI as a risk premium on line 29.

The cost of capital is a significant contributor to the VIR. Creation of a State Bank as proposed by Rep. Bob Jensen and Sen. Phil Barnhart could provide low risk, low interest financing for solar installations, allowing for a substantially lower VIR in the future. A similar infusion of capital by a state institution was needed in Germany to lead the way; commercial banks soon followed suit. The VIR needed for a project to pencil out is strongly dependent on the cost of capital. A 2% reduction in loan rate for a 5kW system results in a \$0.06 decrease in VIR.

Ongoing expenses

There are ongoing expenses of participation (currently included in the model used by the PUC) that can be significantly reduced or eliminated.

SPP participants currently are charged an extra \$10 per month by the utility for the additional meter. This is equivalent to a second payment of the “Basic Charge”, which PGE defines on their bill as follows:

“The Basic Charge supports fixed costs such as meter reading, equipment, maintenance and billing necessary to serve customers, regardless of the amount of energy used. You pay the basic charge even if no electricity is used. It is a charge for having service available.”

Given the very small incremental cost in reading an additional meter and in incremental billing to an existing customer, we believe that the \$10 meter charge should be severely reduced, or, as an added efficiency, eliminated with extra costs to the utility rolled into the cost of the program. Eliminating the \$10 monthly charge for the second meter reduces the VIR by 4 cents/kWh for a 4kW system.

It is our understanding that the insurance for the ETO/State net-metering program is covered/waived by legislation. A reform of statute to similarly eliminate the need for insurance in the SPP would reduce the VIR by 2 cents/kWh for a 4kW system.

The current newness of the SPP and uncertainty regarding tax treatment makes it necessary for most participants to consult a tax advisor. This need may be eliminated over time by a finding from the IRS on tax treatment of income from FIT installations and by inclusion of FIT payments in home tax preparation software. The PUC can facilitate getting to this point by requesting a finding from the IRS and, as soon as clarity is achieved, by making tax treatment information available on its website. It is our understanding that the Energy Trust of Oregon went through such a process to get clarity for participants in its incentive programs. Eliminating the annual \$100 tax advice cost from the calculator reduces the VIR by 3 cents/kWh for a 4kW system

Together, these three savings in ongoing expenses create a cumulative reduction of \$0.09 in the VIR needed for a small system.

Racing to the bottom for rates in a pilot program with extremely limited capacity will teach us nothing of value for an expanded program ahead. The SPP has already proven the demand for a feed-in-tariff program; the work at hand is to develop methodologies and procedures that can be applied to create a successful, full-scale program at least cost to rate payers. Please see Appendix I for resources.

Objective: “make them more affordable”

An important secondary benefit of a well-established methodology for establishing VIRs is guidance in reducing the cost of the program and hence the impact on rate payers. Clearly enumerating costs to participants highlights inefficiencies and areas for cutting costs. As seen above, studies with the VIR spreadsheet used to develop rates at the outset of the SPP identify a possible further nine cent reduction in the VIR for small systems after eliminating some ongoing costs of participation.

Objective: “reduce the cost of incentive programs to utility customers”

There is increasing evidence that FITs are not only the fastest but also the cheapest way to deploy renewable energy. Toby Couture of NREL reported at a 2009 conference that "Countries with FITs ... have counter-intuitively delivered lower cost RE generation than countries employing policies like the RPS and Renewable Obligation in the UK".⁵

⁵ FARE 2009 Conference Renewable Energy Feed-in Tariffs: PP Presentation “Feed-in Tarrifs: A Policy and Economic Analysis presented Feb 3, 2009 by Toby Couture, National Renewable Energy Laboratory.

Likewise, a recent publication by the German government documents that over 75% of the 2009 cost of the German FIT was covered by savings due to the merit order effect.⁶

An accurate accounting of the costs and benefits of the SPP is needed in order to predict rate impacts on Oregon utility customers. We recommend opening a new docket after April 1 to establish resource value for distributed solar and to project customer rate impacts of the SPP and an expanded program. This process must be transparent and fully account for the values of point-of-use energy production, time of generation, the merit order effect, renewable energy certificates, the upcoming closure of Boardman, avoidance of future capital outlay for new generators, the benefit of power generation based on free resources (as we currently benefit in Oregon from the downward flow of water in our rivers), and other as yet to be identified factors. It is essential that the financial costs and benefits of distributed renewable energy, both short term and long term, be clearly understood by both policy makers and the public so as to make the wisest possible energy policy decisions going forward.

Section 3: Proposal to reduce capacity in the Solar Photovoltaic Program (SPP) by 75% for the April 1 allocation

Introduction

In opening comments of 2/11/2011, Staff expressed the opinion that, “given the level of demand in previous reservation windows ... a decrease [in VIR] of more than 10% is appropriate.” Based on this opinion, Staff recommended a rate reduction of greater than 10% for the April 1 capacity allocation. In simultaneous comments, many stakeholders expressed concern about negative effects from a last minute reduction to the VIR relative to the VIR anticipated by potential SPP participants and the solar industry. In response to these concerns, and asserting that “there is a general consensus that the high level of demand at the time of enrollment is due to an inappropriately high VIR”, Staff proposed in final comments of 2/28/2011 to approve the presumed 10% reduction in VIR rates but to limit their impact by reducing the available allocation by 75%.

OREP agrees with RNP (in its correspondence to the Law Judge asking for an opportunity to reply to this proposal) that the proposed “capacity reduction could have a dramatic effect on individuals and solar businesses participating in the SPP”. There is a need for the industry to receive the allocation it anticipated, rather than seeing its market cut by an unanticipated 75% for the next six months. As OREP has noted in previous comments, there is no data to support the idea that VIRs are inappropriately high. To reduce capacity abruptly by 75% with no data is arbitrary and capricious. The solar industry needs stability and deserves transparency.

Imagine a solar contractor who installed 16 solar pv systems in the last six months under the program. Assuming the same capacity reservation, that contractor could install

⁶ German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety. “Cost and benefit effects of renewable energy expansion in the power and heat sectors.” June 2010.
http://www.bmu.de/files/english/pdf/application/pdf/broschuere_ee_zahlen_en_bf.pdfOld

only 4 systems in the next six months. His or her overhead and staffing would have to be reduced by three-quarters. His or her ability to repay loans would be reduced by 75%. Then, following these business impacts, 87.5% of the pilot programs' annual capacity would be allocated on October 1. Laid-off employees or new employees would have to be re-hired (if the contractor were still in business) with unemployment compensation likely having been paid during the past six months. These are not the sorts of consequences that should be imposed without real data to support a sudden program change.

The loss of 75% of program capacity will undoubtedly lead to financial hardship on the part of some solar installers and will lead to further outcries by disappointed applicants that application process is a casino in which the rules are constantly and abruptly changing, as opposed to a program with stable, predictable rules.

OREP has used the VIR spreadsheet used by Staff to develop rates at the outset of the SPP to determine up-to-date VIRs. As stated earlier, it is important to absolutely minimize the burden on rate-payers while at the same time covering customer-generator costs. In creating Table 1 we have endeavored to use updated inputs that are fair but minimal. We invite Staff to research costs and justify lower inputs required to generate lower rates. Indeed it is essential for transparency and accuracy that inputs be established by a rigorous, repeatable methodology, as discussed in Section 2. Below is the rationale (albeit non-rigorous) for the inputs used by OREP for creating the Table 1:

- Installed Cost @ \$6/watt based on communication with installers and Solar Oregon
- Capital Cost @ 6.5% based on Umpqua Green Street and First Tech Credit Union
- Risk Premium @ 0% Risk Premium @ 0% (We believe this should be included but allow that some individuals may have access to cheaper credit.)
- Solar Resource Fraction @ 89%. Note: must be greater than 75% to qualify for Energy Trust Incentive, so TSRF of 89% incents only more efficient systems

- Includes current costs for
 - second meter (\$10),
 - insurance (0.3%),
 - and tax preparation (\$100)

Table 1 – Volumetric Incentives Rates as Calculated from Current Data and as Proposed by Staff as 10% Decrease from October Rates

Zone	Small Scale (<10kW)				Medium Scale (>10kW and <100kW)			
	1	2	3	4	1	2	3	4
Volumetric incentive Rate	\$0.54	\$0.50	\$0.46	\$0.43	\$0.49	\$0.45	\$0.41	\$0.38
VIR with 10% Decrease 4/1/11	\$0.527	\$0.486	\$0.446	\$0.405	\$0.446	\$0.446	\$0.446	\$0.446
System Size	5000 W	5000 W	5000 W	5000 W	30,000 W	30,000 W	30,000 W	30,000 W
Installed Cost per Watt	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00
Interconnection Cost	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Monthly Service Charge for Meter	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00
Insurance Rate	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Operation & Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Replacement Inverter Cost	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Tax Preparation	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Contract Term	15	15	15	15	15	15	15	15
Loan Interest Rate	6.50%	6.50%	6.50%	6.50%	6.00%	6.00%	6.00%	6.00%
Loan Fee Rate & Appraisal Fee	1.00%	1.00%	1.00%	1.00%	0.75%	0.75%	0.75%	0.75%
Risk Premium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Local Production Capacity	1.1	1.2	1.3	1.4	1.1	1.2	1.3	1.4
Annual Panel Degradation Rate	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
Solar Resource Fraction	89%	89%	89%	89%	89%	89%	89%	89%
Depreciation Rate	6.70%	6.70%	6.70%	6.70%	6.70%	6.70%	6.70%	6.70%
Allowable Depreciation with Federal Tax Credit marginal state personal	85%	85%	85%	85%	85%	85%	85%	85%
Income Tax Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Marginal Federal Personal Income Tax Rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
Social Security and Medicare Rate	15.30%	15.30%	15.30%	15.30%	15.30%	15.30%	15.30%	15.30%
Local Income Tax Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Property Tax Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Business License and Fees	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Resource Value	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20	\$0.20

As shown in the table above, the VIRs resulting from the proposed 10% decrease for April 1, 2011 are generally in line with the values calculated as needed to cover costs in our present environment. The 10% reductions at each allocation period have caught up with the rapid decreases in installation costs and interest rates experienced in early 2010. We invite Staff to research costs and use current data to justify lower inputs needed to generate lower VIRs for the program at this time and place. Without such justification we offer the results in table 1 as evidence that the presumed VIRs are entirely appropriate.

OREP questions upon what data Staffs bases its statement that the proposed VIRS are inappropriately high. Given the evidence presented here and bearing in mind the impact on the industry of a sudden 75% loss of market, we recommend that the April 1 allocation be left as planned and that the rate adjustment be not more than 10%. The suggested 75% reduction in capacity is both harmful and unjustified and should not be adopted by the Commission.

Section 4: Proposal to vary VIR in medium category by geographic region

All VIRs should vary by region to incent solar installations throughout the state as currently implemented for the < 10kW category. In the 10kW to 100kW size category the VIR is currently set the same for all regions in Oregon. This oversight should be corrected as we believe it currently creates a higher than needed VIR for regions 3 and 4, creating an unnecessary burden on ratepayers as shown in Table 1 above.

Appendix I

Resources and experts for developing a FIT price setting methodology

Deutsche Bank Group, DB Climate Change Advisors. "Paying for Renewable Energy: TLC at the Right Price. Achieving Scale through Efficient Policy Design." December, 2009. http://www.oregonrenewables.com/Assets/Reports/Paying_for_Renewable_Energy.pdf (accessed 3/9/2011)

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Hilary Flynn /C: 617-276-7121 w: 617-245-0283 / hilary.flynn@mc-group.com / Project Consultant, Meister Consultants Group, 98 N Washington St, Boston, MA 02114 / www.mc-group.com /Notes: Guest Speaker at SF FIT conference July 2010; from website - Nova Scotia Utility and Review Board - Client: MCG is assisting the Nova Scotia Utility and Review Board with its feed-in tariff (FIT) rate-setting process. The province plans to provide community-based FITs for select technologies and retained MCG to support the stakeholder process to determine appropriate rates and contract terms for the program

Bernard Chabot /P +33 (0)9 60 11 97 36 ; M +33 (0)6 63 84 81 98 / bechabot@wanadoo.fr / Consulting and Training on Renewable Energy , GARBEJAIRE B107 06560 VALBONNE France / Notes: led price setting workshop at SF FIT conference July 2010 ; brought to the US by Paul Gipe ; Monsieur Chabot is the developer of the Profitability Index Method of Feed-In Tariff Price Calculation now widely used in Europe.

It is instructive to note the transparent process used by the Ontario Power Authority to develop its tariff rates.

Ontario FIT Price Determination Summary--How Did They Do It
<http://www.wind-works.org/FeedLaws/Canada/OntarioFITPriceDeterminationSummary--HowDidTheyDoIt.html>

See opening documents used to begin public consultation on OPA's draft tariffs.

[Archive: March 17 Session Info - Objectives of FIT Program](http://fit.powerauthority.on.ca/Page.asp?PageID=122&ContentID=10102&SiteNodeID=1061)
(<http://fit.powerauthority.on.ca/Page.asp?PageID=122&ContentID=10102&SiteNodeID=1061>)

All assumptions were made public in the consultation documents. See Archive: April 7 Session Info - FIT price schedule (i.e., technologies, size, and prices) of the session on Tuesday, April 7, 2009. [Archive: April 7 Session Info - FIT price schedule \(i.e., technologies, size, and prices\)](http://fit.powerauthority.on.ca/Page.asp?PageID=122&ContentID=10114&SiteNodeID=1061&BL_ExpandID=272)

(http://fit.powerauthority.on.ca/Page.asp?PageID=122&ContentID=10114&SiteNodeID=1061&BL_ExpandID=272)

Details of proposed ground mounted solar PV rate calculation
<http://microfit.powerauthority.on.ca/Program-updates/detail-propose-rate.php>

Weighted Average Cost of Capital as Used in UK and Ontario

The UK's FIT provides a 6-9% ROI for rooftop solar ("Enlightened Energy"
<http://www.ft.com/cms/s/2/b222679c-29a3-11e0-bb9b-00144feab49a.html#ixzz1CXHVfjFpEnergyEfficiencyandFITs>:) .

Also using the WACC model, Ontario's microFIT provides a 7-11% ROI ("Details of proposed ground mounted solar PV rate calculation /
<http://microfit.powerauthority.on.ca/Program-updates/detail-propose-rate.php>).

Merit Order Effect is on the same order as cost of FIT in Germany

German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety. "Cost and benefit effects of renewable energy expansion in the power and heat sectors." June 2010.
http://www.bmu.de/files/english/pdf/application/pdf/broschuere_ee_zahlen_en_bf.pdfOld
Merit order effect of renewable energy estimated at 3.6 to 4 billion Euros in 2008. Cost of developing EEG = 4.5 billion Euros in 2008.

DATED this 14th day of March 2011.

Oregonians for Renewable Energy Policy (OREP)

/s/ Kathleen A. Newman
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CERTIFICATE OF SERVICE

I certify that I have caused to be served the foregoing REPLY COMMENTS OF OREGONIANS FOR RENEWABLE ENERGY POLICY, PUC Docket No. UM 1505, by electronic mail to the persons listed on the attached Service List on March 9, 2011.

Dated this 14 day of March 2011.

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