Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204

February 12, 2010

Via Electronic Filing and U.S. Mail

Oregon Public Utility Commission
Attention: Filing Center
550 Capitol Street NE, #215
PO Box 2148
Salem OR 97308-2148

Re: AR 538 – RULEMAKING REGARDING SOLAR PHOTVOLTAIC ENERGY SYSTEMS (HB 3039)

UM 1452 – INVESTIGATION INTO PILOT PROGRAMS TO DEMONSTRATE THE USE & EFFECTIVENESS OF VOLUMETRIC INCENTIVE RATES FOR SOLAR PHOTOVOLTAIC ENERGY SYSTEMS

Attention Filing Center:

Enclosed for filing in AR 538 and UM 1452 are an original and one copy of:

Closing Comments of Portland General Electric Company

These documents are being filed by electronic mail with the Filing Center. An extra copy of the cover letter is enclosed. Please date stamp the extra copy(s) and return to me in the envelope provided.

These documents are being served separately upon the AR 358 and UM 1452 service lists.

Thank you in advance for your assistance.

Sincerely,

J. Richard George
Assistant General Counsel

JRG:smc
Enclosures
cc: Service List-AR 538/UM 1452

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
AR 538/UM 1452**

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON AR 538, In The Matter of Rulemaking Regarding Solar Photovoltaic Energy Systems (HB 3039) UM 1452, In the Matter of Investigation into Pilot Programs to demonstrate the use and effectiveness of Volumetric Incentive Rates for Solar Photovoltaic Energy Systems.	**Closing Comments of Portland General Electric Company**

INTRODUCTION

Portland General Electric Company ("PGE") appreciates the opportunity to provide closing comments on the proposed draft Oregon Administrative Rules ("OAR") in the AR 538 Rulemaking and the UM 1452 Investigation into pilot programs for photovoltaic ("PV") systems. We also respond to the Commission's ruling dated January 22, 2010 where parties are invited to address ten questions posed by Commissioners. The Commissioners' questions are presented in italics. Our responses to those questions are highlighted in a question and answer format and incorporated within each major issue addressed in our comments.

In our opening comments, we addressed issues facing the utilities in implementing a successful Feed-in Tariff ("FiT") pilot program such as rate impact, cost recovery, interconnection rules, capacity allocation, and qualified third parties. We also commented on the volumetric incentive rate ("VIR") and the Federal Energy Regulatory Commission ("FERC") jurisdictional issue.

We reaffirm our opening comments, but also in these comments, PGE particularly expresses concern over effectively implementing the pilot program, if implementation continues to remain April 1, 2010, as set forth in HB 3039.[1] Until an order is issued by the Commission, there is significant uncertainty concerning issues such as pricing, program structure, and eligibility. Establishing a new program will take a substantial amount of time after the order is issued, including potentially hiring additional staff to manage the volume of applications, interconnections, and billing requirements.

For example, if a "net-metering" configuration is selected by the Commission, the billing for customer usage and payments for generation are tied together which will require additional set-up and steps in order to properly bill for utilities service, and pay for solar output. This is more complex than reading a FiT meter and computing payments.

Thus, we request sufficient time to appropriately set-up the program. We strongly urge the Commission require the program go live on or after October 1, 2010. PGE emphasizes that taking the time now to implement the program in a careful and thoughtful manner will aid us in developing a successful pilot program.

PGE supports implementing the FiT VIR in a carefully controlled approach, starting with a VIR that is generally equivalent to the value of the state tax credits and Energy Trust of Oregon ("ETO") incentives for solar PV projects. We expect that such a rate will see participation and provide an excellent basis from which to initiate comparisons to the incentives currently available from the state and ETO.

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[1] PGE notes that HB 3039 requires the Commission to act by that date, but does not specifically require the utilities to implement the program by that date. Also, there are legislative proposals being considered in the current legislative session that could extend this deadline. See discussion below.

PGE prefers that the FiT start with a modest up-take rate and expand as familiarity and functionality of the pilot grows and solar PV costs fall. A moderate activity level will certainly help the company adjust resources and processes in a paced manner. A quick sell out of a capacity allocation would not suggest that the FiT is a balanced and useful pilot. The required 15 year FiT payment and funding commitments placed on utility customer further warrants a prudent approach.

Our closing comments discuss pilot implementation, the VIR, the solar capacity standard, the FERC jurisdictional issue, and qualified third parties. In Attachment B, we also propose changes to the draft OAR in the AR 538 Rulemaking. These proposed changes are mostly clarifying in nature, limited in scope, and do not imply the rules are complete.

PILOT IMPLEMENTATION

Implementation Timeline

In our opening comments, we briefly discussed that HB 3039 allows the Commission to establish parameters of the program by April 1st, rather than an actual pilot "launch date" of April 1st. Parties also have agreed to recommend a legislative fix for the deadline by delaying the April 1st date to July 1, 2010. PGE supports this extension and suggests the utilities implement the program at a subsequent date as ordered by the Commission. We request the Commission, in its order, allow a reasonable window of time before such subsequent date so that we may coordinate and communicate the requirements of this pilot to our various departments (billing, interconnections, customer service, accounting, IT, and others).

PacifiCorp and Idaho Power jointly recommended a 90-day window for the utility to coordinate with departments internally. We believe this is the minimal amount of time required; but are also cognizant that the order may include other provisions that are not apparent at this time, which may require even further program development time. We strongly urge the Commission require the program go live on or after October 1, 2010.

Incremental Support Personnel

PGE will need incremental program management resources to implement and manage the FiT pilot in our service area. Their activities would include processing FiT applications and purchase agreements, establishing and carry out billing and payment activities, managing Fit payment options, managing applicant queues, completing physical interconnection reviews, processing data collection and tracking, and web development.

Although we want to employ existing skills and capability as much as possible, there is minimal capacity to absorb an additional 1,000 or more applications and installations per year. PGE currently has a small team managing the expanding net metering ("NM") program. Further expansion with the new pilot will require more resources. Initially, based on program activity levels suggested by several parties, we estimate that additional personnel will be required to handle interconnections (1 to 2 full-time employees ("FTEs")), applications and agreement processing (1 to 2 FTEs), and billing and billing arrangements (1 or more FTEs depending on volume).

Proposed rule OAR 860-084-0430(3) requires each electric company to make "graphically visible," on a publicly accessible website, the general locations and sizes of reserved and contracted systems. However, this is not required by HB 3039, and is an additional cost, that may require additional resources. It also adds another layer of complexity to this pilot program. The added cost associated with this level of public accessibility needs additional exploration relative to potential benefits.

Lastly, if the Commission determines a bid option is appropriate to establish a VIR for large projects, then this process may require additional effort and personnel to process the applications, score bids, and fulfill other requirements.

Bid Option and Request for Proposal

A separate rate bid-option or request for proposal ("RFP") process for some or all PV projects has been offered as a potential solution to the FERC jurisdictional issue. This approach, however, would be duplicative, time consuming and administratively expensive. The Commission and utilities will need to collaborate on the timelines and other guidelines for an RFP.

PGE already conducts RFPs for "all resources." PGE had a number of PV projects proposed in our last RFP, which could be used to establish a range of pricing for large customers. We have also completed a self-build project that could serve as a benchmark.

We are open to further discussion on the topic, but have some concerns that an RFP approach may not be as appropriate a solution as perceived by some parties. It is unclear whether an RFP for only PV systems would result in a legitimate market-based rate when not compared against all resources and when other various market power determinations are considered.[2] It is also unclear to what effect a significantly different

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[2] Even very small generators can have market power. See discussion below regarding market power authority.

rate from each utilities' separate RFPs would have on the participation levels and market development.

Commissioners Question No. 1 - Bidding:

If the Commission requires competitive bidding, how should it structure the bidding process for efficiency and effectiveness? What, if anything, should it include in the rules (docket AR 538) or in the UM 1452 order on the bidding process?

PGE recognizes the bid-option (or RFP) as a potential response to the FERC jurisdictional issue. There are aspects of the Integrated Resource Planning and RFP processes that may be illustrative for such an approach. For instance, a thorough scoring system, workshops and public meetings, a process to resolve data gaps in participant applications, verification that rules are met correctly, and validation of the process and results all might be incorporated in a FiT RFP approach. However, these aspects are very time intensive, and to develop an efficient and effective structure, we recommend instead setting a clear purpose for the bid option, with simple competitive bidding requirements, and a simple set of guidelines.

Other criteria worth considering include ensuring: that the bid-option process is conducted fairly and properly; that decision criteria are based on price; that the process and timeline are established to accommodate the receipt of a large number of applications; that there is a process for eliminating invalid applications; that an evaluation is done to determine if utility affiliates should be allowed to bid; and that price and non-price attributes are appropriately evaluated.

Interconnection Installation and Costs

Whether the pilot interconnection is a FiT, net-metering, or another arrangement, a new FiT meter is required for each solar PV project. We recommend FiT installation practices include the requirement that the dedicated FiT meter be co-located next to the existing meter when possible to for both safety and interconnection convenience. If the FiT meter is co-located with the existing retail customer meter, utility personnel will typically have reasonable access to the meter at all times.[3]

For this pilot, it is appropriate for the customer installing the PV system to be responsible for all interconnection costs. Interconnection costs are those costs incurred to connect the generator to the utility distribution system. Also, the customer should be responsible for installing, if needed, the raceway, trenching and conduit on customer property. This is completely consistent with current practice for similar interconnections. PGE will install the FiT meter in the customer-supplied meter-base and make necessary inspections, safety disconnects and reconnects, and also install necessary PGE-line side facilities and connections to the customer's wiring.

We recommend a monthly service charge for each FiT meter location of $10 per month, which is the same charge for QFs selling power to PGE under Schedule 201. The service charge recognizes that that FiT installations are more complex when compared to the current NM arrangements and that the FiT is very similar to a QF power purchase.

Finally, PGE agrees with Staff's recommendation that the Commission impose the same application fees established for NM in OAR 860-039-0045(2) and (3), which are: $50 plus $1 per kilowatt of capacity for level 2, and $100 plus $2 per kilowatt of capacity for level 3 interconnections.

Commissioners Question No. 8 – System Quality:

What system quality requirements should the Commission impose, if any?

[3] We do not recommend the customer choose the location of the meter behind a locked gate in the backyard or similar type of location where the utility does not have reasonable access. However, in some instances, the customer may choose an alternative location for the meter for aesthetic reasons.

System quality standards addressed in the rules are appropriate.

VOLUMETRIC INCENTIVE RATE DETERMINATION

Impact to Ratepayers

The impact to ratepayers under the pilot has the potential to exceed the 0.25% rate cap under targeted participation levels. The VIR is the primary driver of costs associated with the pilot. Table 1, below, assumes 25% of the 25 MW capacity is available in each of the first four years. This analysis illustrates the range of program costs and rate impacts for a range of VIRs. A VIR of 80 cents per kWh has the potential to exceed the rate cap in the first year. It only takes 40 cents per kWh in year two. At full capacity build out, the 20 cents per kWh VIR exceeds the rate cap.

Table 1
Estimated Statewide Annual Cost and Impact* to Ratepayers by VIR

	Year 1 6.25 MW***		Year 2 12.5 MW***		Year 3 18.75 MW***		Year 4 25 MW***	
VIR (cents /kWh)	Cost ** (,000s)	Percent Impact to Ratepayers	Cost ** (,000s)	Percent Impact to Ratepayers	Cost ** (,000s)	Percent Impact to Ratepayers	Cost ** (,000s)	Percent Impact to Ratepayers
20	$2,875	0.1%	$4,549	0.2%	$6,224	0.2%	$7,899	**0.3%**
40	$4,549	0.2%	$7,899	**0.3%**	$11,248	**0.4%**	$14,598	**0.6%**
60	$6,224	0.2%	$11,248	**0.4%**	$16,272	**0.6%**	$21,296	**0.8%**
80	$7,899	**0.3%**	$14,598	**0.6%**	$21,296	**0.8%**	$27,995	**1.1%**
100	$9,574	**0.4%**	$17,947	**0.7%**	$26,321	**1.0%**	$34,694	**1.4%**

* Estimated impact calculated as the percent increase using 2008 Oregon IOU utility revenue
** Assumes $1.2MM in annual costs for the utilities to run the pilot and a 13% average capacity factor
*** Capacity measured on the AC side of the inverter, assumed 85% of DC rating

Given VIR levels proposed in this proceeding, the effect on ratepayers warrants careful consideration. Accordingly, it is important to establish an initial VIR that is on the low end of estimates. There is more to learn from this pilot by starting at a lower VIR level, and then fine-tuning the VIR, reflecting experience, program learning, and trends in PV system costs and efficiencies.

Volumetric Incentive Rate

PGE refined the analysis originally presented in the Company's opening comments that uses National Renewable Energy Laboratory's ("NREL") Solar Advisor Model. Changes include:

- Recommended maximum VIR by system size (0 to 10 kW, >10 to 100 kW, and >100 to 500 kW)
- Depreciation assumptions for 0 to 10 kW systems
- Updated system costs
- Updated incentives to match the revised system costs
- VIRs that follow Staff's suggested "rate class" zones

PGE also updated systems costs to be closer to those presented by Oregonians for Renewable Energy Policy ("OREP") in the January 20 rate workshop. Revised costs are $8, $7, and $6 per installed watt starting with the 0 to 10 kW system small systems. We now assume participants with these systems take advantage of depreciation. Exhibit 2 in Attachment A lists PGE's revised assumptions.

PGE recommends FiT volumetric purchase pricing be initially set to a level no greater than that listed in Table 2 below.

Table 2
VIR (cents/kWh) With Geographic Differentiation

"Rate Class"	System Size		
Zone (per Staff)	0 to 10 kW	>10 to 100 kW	>100 to 500 kW
1	32	30	26
2	31	28	24
3	27	25	22
4	25	24	20

The rates above reflect a simple VIR. The VIR for the small systems is not a "net metering VIR" which requires a separate adjustment. PGE discusses issues relating to the implementation of a NM VIR below.

Rather than recommending a "matching incentive" VIR as in opening comments, PGE combined the result of the two methods. In order to arrive at the above rates, PGE used the average of the "matching incentive" VIR and the "cost based" VIR rounded to the nearest cent. See Exhibit 1 in Attachment A for the results from each of those methodologies.

We started with the "matching incentive" VIR, as it has the following attributes:

- It is much less sensitive to changes in input levels than a cost-based model.
- It approximates the current incentives offered in Oregon. These are incentives that work, based on the success of NM.

However, we discovered a critical factor that the Commission must consider in setting the FiT rates. The "matching incentive" VIR provides a result that does not decrease as system size increases due to the nature of the available incentives. Small (residential) systems are limited to $6,000 by the Residential Energy Tax Credit

("RETC"). This RETC is maximized at a 2 kW capacity. The Business Energy Tax Credit ("BETC"), however, has a limit not reached even with the largest systems eligible for the pilot. Basically, incentives under BETC are better than those under RETC. The equivalent rate over 15 years reflects this imbalance. The small systems have a much lower "matching incentive" VIR than the larger systems. The practical consequence is that larger systems with BETC (and ETO, see below) incentives have much more attractive paybacks due to substantial existing incentives when compared to the residential incentives. A large project VIR would have to be high to match these results.

The other state incentive comes from the ETO. The ETO incentive, based on system capacity, decreases with size. This is also reflected in the "matching incentive" VIR, which shows a decrease moving from the medium to the large size system.

The Solar Calculator available on the ETO website illustrates the effects of the RETC vs. the BETC and the ETO incentives.

Using an average of the "matching incentive" VIR and the "cost based" VIR:

- provides rates that decrease as system size increases.
- smoothes out the issues associated with the inequity between existing state incentives.
- provides a VIR that does not diverge from the existing state incentives under NM to the degree of a pure, cost-based VIR.

Again, PGE proposes that the Commission approve rates that do not exceed those listed in Table 2.

Implementation of a Net Metering VIR

Implementation of a NM VIR has potential rate and billing issues that need to be addressed. Under traditional NM, the retail customer bill includes only the net usage. Franchise fees, OPUC fees, public purpose charges, low-income assistance, and other supplemental charges are computed on the customers net usage bill, not the total household electricity usage (or business usage before netting for the generation). The Commission must decide whether the same rules apply to usage net of generation under a NM VIR. The FiT appears to be based on the concept that the utilities (1) purchase all the output from the PV systems for at least 15 years and, (2) separately measure and bill the retail electricity consumer for all electricity usage at the applicable retail prices. In this manner, customer usage and generation are cleanly defined. FiT NM may well create a new class of net metered customers where bills and payments differ from the model.

The calculation of the effective VIR rate to apply to generation output appears complex given retail rate structures where volumetric charges vary by block or time of use. The approach to a NM VIR, which parties discussed in workshops, attempts to achieve a target VIR. The VIR includes two components, (1) a bill offset and (2) a net VIR payment. However, due to blocked energy charges or time of use pricing, the marginal retail rate is not constant. If the gross usage is in one block, while the net usage is in another, the utility must then calculate a net VIR payment that includes two different rates. Otherwise, the potential for a FiT payment to effectively be greater or lesser than the designated VIR exists. Furthermore, the utility is required to reconcile the excess generation on an annual basis, which will increase the cost of the pilot.

Commissioners Question No. 5 - Pilot Testing:

What does the Commission need to do for an effective comparative assessment of the feed-in tariff approach versus the current tax credit/subsidy approach? For example, how would one determine that high or low participation in the pilot program vis-à-vis the current approach isn't simply a response to high or low volumetric incentive rates? Do the rules specify the right information to be collected for this analysis?

It is important for the Commission to establish a VIR that is roughly equivalent to the current incentives available in Oregon including NM bill offsets. PGE prepared the "matching incentive" VIR in an attempt to capture the equivalency in volumetric rates. PGE's comments above have addressed this question.

If the VIR is set too high, the applications for NM may drop to zero, with pilot capacity filled immediately. If, however, the VIR is commensurate with NM and available incentives, both options will be considered by solar PV projects.

During the pilot, the Commission should track both the number and capacity of systems in the pilot, and the number and capacity of systems under NM. An appropriate pilot will increase PV systems overall, rather than simply shifting all systems away from NM. The rules should include a provision to compare to solar PV installations under traditional NM.

Commissioners Question No. 7 - Rate Calculations:

What explains the wide discrepancy in the Matching Incentive approach versus the Cost Model approach? What explains the wide discrepancy in results for different cost models? What is the basis for the input assumptions used to estimate breakeven costs/kWh for different project categories?

The "Matching Incentives" approach is not a cost-based model; there is no attempt to make the participant whole. However, it is an attempt to provide equivalency with the existing state incentives including a NM bill offset. The "matching incentive" VIR is feasible because of the success of the existing NM program.

In 2009, there were enough new NM customers added to fill the first year pilot requirements per the proposed rules, in terms of capacity. Thus offering additional incentives, or a higher VIR, may well trigger results that do not satisfy the goal of the pilot to test the use of VIRs.

OREP Model

PGE reviewed the model provided to parties by OREP. It is a comprehensive model that includes a large variety of inputs, assumptions, and calculations. PGE noticed several differences between the model provided by OREP and the Solar Advisor Model (NREL) used by PGE. PGE focused on the major differences, rather than more subjective fine-tuning. PGE offers several edits to the model in order for the Commission to see the impact assumptions used have on the final output. PGE concludes that PGE's use of the Solar Advisor Model and associated inputs offers a more appropriate valuation.

PGE suggests the elimination of several costs in OREP's model, including:

- Meter charges of $10 per month
- Insurance at 0.22% annually
- Tax Preparation at $100 annually
- Loan fee rate of 1%
- Risk premium of 2.5%

PGE suggests an additional modification to the DC to AC derate percentage. This value is reflected in two inputs in OREP's model. Some of the derate is shown in the "kW output factor," while the balance is shown in the "solar resource fraction." NREL advocates a derate of at least 77% as appropriate. The derate factor inherent in OREP's model is equivalent to 71.2%. In order to arrive at a derate factor of 77%, PGE suggests using a "solar resource fraction" of 96.2%, rather than 89%. This sets the kWhs in the first year equal to 1039 kWhs per kW DC for zone 1 (rather than 961 kWhs per kW DC), which is equivalent to the first year output used in PGE's analysis using the Solar Advisor Model. The Solar Advisor Model utilizes NREL's national solar radiation database.

Another way to look at PV output is using a capacity factor. Capacity factors from several models/sources include:

- ETO (online Solar Calculator): 12.8%
- PGE: 11.9%
- OREP: 10.97%

The OREP analysis appears on the low end of estimated capacity factor for zone 1. Using a 77% DC to AC derate brings the capacity factor to 11.9%. Based on the data compiled by the ETO, this may still be somewhat low. Both PGE and the ETO assume a 30% tilt.

By modifying the assumptions as outlined above, the following compares the results of OREP and OREP's results modified by PGE:

Example of Differences:

Zone 1	**OREP FIT Rate**	**Modified OREP FIT Rate**
Small Scale	$0.96	$0.64
Large Commercial Scale	$0.59	$0.44
Zone 2		
Small Scale	$0.82	$0.55
Large Commercial Scale	$0.50	$0.38
Zone 3		
Small Scale	$0.73	$0.48
Large Commercial Scale	$0.44	$0.33

The above results illustrate the high sensitivity to inputs. As explained above, PGE supports VIRs reflecting balance of cost and incentives considerations.

The OREP model uses a more simplistic approach to the VIR calculation, based on annual cost divided by kWh output, compared to the Solar Advisor Model. The OREP model assumes straight-line depreciation, while the Solar Advisor Model appropriately uses Modified Accelerated Cost Recover System ("MACRS") depreciation for tax purposes. MACRS is more valuable as it puts most of the depreciation, thus the benefit, in the early years.

The Solar Advisor Model also makes certain assumptions, which increase costs compared to OREP. For example, the model includes an inverter replacement at year 10. OREP's model does not assume inverter replacement.

Commissioners Question No. 9 - Rate Adjustments:

Should the Commission use a formulaic approach to adjusting rates (e.g., hardwired adjustments) or an approach that provides the Commission flexibility in how it adjusts rates?

Section 2 of HB 3039 states the Commission shall establish a program "to demonstrate the use and effectiveness of volumetric incentive rates." PGE supports a quasi-formulaic approach were the Commission sets out clear rules for participants and is flexible in making rate adjustments based on participation levels.

Empirical evidence has shown the initial FiT rate(s) will be either too high or too low at the onset. Therefore, the Commission may desire flexibility to correct the rate(s) in an effective and timely manner shortly after capacity is made available. This flexibility may be needed at various other times throughout the multi-year pilot depending on participation levels and market conditions. Setting an artificial limit (e.g., no more than 10% of a reduction from the previous VIR) to reduce a rate is a less effective method to manage participation levels than using current information. If the pilot is not immediately over subscribed, pre-determined triggers, benchmarks or markers may provide reasonable measures to calibrate the rate and participation levels. Comments on VIR levels and determinations are above.

Commissioners Question No. 6 - Carve-outs and/or Rate Differentials:

Should the Commission provide 'carve-outs' and/or higher rates for non-profit organizations? For other groups? Why or why not?

Rate differentials add another layer of complexity to the pilot; however, PGE supports non-profits and similar organizations participating in the FiT pilot program.

SOLAR CAPACITY STANDARD

Staff's opening comments proposed a capacity allocation method in OAR 860-048-0020 based on utility revenue. PGE proposes a more equitable approach, which is to allocate capacity based on retail MWh sales. MWh energy sales (usage) provide a more comparable basis for capacity allocation because it reflects the proportion of load supplied by each utility. Utility revenues reflect rate levels in addition to load, which unnecessarily skews the capacity allocation.

Commissioners Question No. 10 – Capacity Reservation Activity:

What information about the level of activity, (e.g., percent of available capacity reserved), should be made public? Why?

Information about the percent of available capacity reserved should be transparent to the public if we want to facilitate full participation levels. It would be reasonable to inform potential FiT participants of certain milestones of the percent of capacity reserved such as when capacity is initially available, when it has reached 50%, 90% and 100%. PGE suggests this information be made available on the utility, ETO, and PUC web sites.

FERC JURISDICTIONAL ISSUE

In our opening comments, we agreed with the conclusion reached by the Department of Justice ("DOJ") that participant sales are likely FERC jurisdictional. For market based sales, the OPUC cannot establish the rates; however, for sales by QFs under the Public Utility Regulatory Policies Act ("PURPA"), the Commission does have authority to establish the avoided cost pricing for such sales. It may be possible to establish avoided costs rates that are specifically adjusted to the factors enumerated by PURPA that would reflect the unique characteristics of solar. However, Staff's proposed solutions to the FERC jurisdictional issue – net metering and bid option – are less clean.

PGE continues to be wary of the alternative fixes proposed. PGE strongly requests the Commission include a hold-harmless provision for the utilities if the proposed alternatives are adopted.

Commissioners Question No. 4 – Market Rate Authority:

How difficult is it for small project owners to obtain FERC market rate authority? How viable are other options for project owners (such as the Commission obtaining a blanket authority for all participants)?

Obtaining FERC market rate authority is governed by rules codified at 18 C.F.R § 35, Part H. An applicant must make a filing under Section 205 of the Federal Power Act. FERC's web site provides some guidance as to the form of this filing — the site provides a sample application in a word document format, which includes a cover letter, petition, asset appendix, and FERC Electric Tariff. FERC states what elements should be included in the application. An applicant must demonstrate it and its affiliates satisfy

FERC's standard for the grant of market-based rate authority regarding horizontal and vertical market power plus that its proposed tariff contains those provisions FERC requires. This information is located at www.ferc.gov/industries/electric/gen-info/mbr/authorization.asp.

For utilities, such as PGE, market power tests are very involved, require specialized expertise, and can be extremely time consuming. As such determinations are made on a case by case basis, PGE cannot opine as to how difficult it may be for an individual FiT program applicant to obtain this authority.[4] PGE does note that it is unaware of instances where FERC has granted blanket authority to an aggregated group of generators, or where it has allowed a Commission or other entity to seek authority on behalf of a non-affiliate. Although there are some provisions to allow a somewhat streamlined process for owners of less than 500Mw of generation, applicants are still required to submit all necessary application components and information. This process may be burdensome for many potential participants in a FiT program.

Commissioners Question No. 3 – Net Metering Incentives:

Some parties are concerned about the perverse incentive for owners to waste energy under the net metering approach. Is this a problem? If so, how should the Commission address it (if the net metering approach is adopted)? Can (and should) the Commission limit the size of system installed relative to the consumer's usage?

Limiting the size of the system installed relative to the consumer's usage would be appropriate in most cases. Parties discussed instances were select participants may be

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[4] *Renewable Energy Prices in State-Level Feed-in Tariffs: Federal Law Constraints and Possible Solutions.* January 2010. National Renewable Energy Laboratory. "Even small sellers can have market power, if for example, (a) the geographic market is constrained because of transmission shortages (meaning buyers have limited access to alternative supplies) and/or (b) the state's tariff has defined the product so narrowly that the seller has a high market share or is "pivotal." If the seller has market power, FERC will deny blanket approval. The seller still can sell, but its price will be subject to FERC's cost-based pricing review procedures on a contract-by-contract basis. FERC will cap the price – either on a cost basis or at the level FERC believes is the proper market price." (p. 31)

penalized in some circumstances. We are not opposed to provisions that may be made to accommodate these circumstances as long as they do not add complexities to the pilot program. If the lost energy becomes sufficiently large enough, this could warrant further examination of the issue during the term of the pilot.

QUALIFIED THIRD PARTIES

Commissioners Question No. 2 – Utility and Affiliate Ownership:

Should the Commission allow utilities or their affiliates to own and operate eligible projects as qualifying third parties? If so, how would it work? How would the Commission address issues of payment, ratemaking treatment, etc?

PGE requests the Commission allow utilities and or their affiliates to own and operate eligible projects as qualifying third parties for two reasons. One, HB 3039 explicitly allows an electric company to satisfy the PV generating capacity standard with PV energy systems owned by the company or with contracts for the purchase of electricity from qualifying systems. Two, HB 3039 is a pilot program designed to facilitate development of the most efficient PV systems. The pilot phase is the appropriate time in which to learn how best to facilitate the development of these systems.

If the utility or its affiliate were to own and operate eligible projects, most likely it would do so in a manner similar to the arrangement made for PGE's existing PV projects (e.g., Sunways 1 and 2). PGE would sign a purchase power agreement with its affiliate. The affiliate would receive the VIR payment. The participating utility could provide a filing for Commission approval describing any financing , ownership structure, and payment arrangements. Utilities would already be providing significant information to ensure transparency. In proposed OAR 860-084-0400, retail electricity consumers participating in the pilot program are required to provide a host of data on the installed solar PV energy system.[5]

CONCLUSION

PGE appreciates the diligent efforts of Staff and the parties in this docket to develop a pilot program for solar PV VIRs. While there may be a significant issue concerning FERC jurisdiction over the power purchased from potential FiT customers, we hope appropriate resolutions and certainty can be obtained to enable the pilot to be successfully implemented. This challenge, as well as challenges due to the added complexities of the FiT pilot program, requires sufficient time to evaluate. Once direction is provided by the Commission, additional time will be needed by the utility to establish and implement the program. We hope the Commission will consider such suggestions as we continue to work through the requirements of HB 3039.

DATED, this 12th day of February, 2010.

Respectfully Submitted,

J. RICHARD GEORGE, OSB No. 97469
Portland General Electric Company
121 SW Salmon Street, 1WTC1300
Portland, OR 97204
Telephone: 503-464-7611
Fax: 503-464-2200
E-Mail: richard.george@pgn.com

[5] The collected data elements must include, but are not limited to nameplate capacity; total installed cost; photovoltaic module cost; non- photovoltaic module cost (including other hardware, labor, overhead, and regulatory compliance costs); total financing cost; financing terms (including interest rate); system location; technology type (building-integrated versus rack-mounted; crystalline silicon versus thin-film; solar tracking versus rack-mounted; etc.); federal tax credit; in-service date; expected annual energy output; date of certification of compliance; and class of service of retail electricity consumer.

Exhibit 1
Matching Incentive and Cost Based VIR by Geographic Zone

	Matching Incentive VIR (cents/kWh)	Cost Based VIR (cents/kWh)	Average VIR (cents/kWh)
Staff "Rate Class" Zone 1			
0-10 kW (4 kW sample)	20.23	43.99	32.11
10-100 kW (70 kW sample)	40.71	18.57	29.64
100-500 kW (199 kW sample)	35.68	15.41	25.55
Staff "Rate Class" Zone 2			
0-10 kW (4 kW sample)	19.11	41.92	30.52
10-100 kW (70 kW sample)	38.87	17.69	28.28
100-500 kW (199 kW sample)	34.25	14.69	24.47
Staff "Rate Class" Zone 3			
0-10 kW (4 kW sample)	17.40	35.92	26.66
10-100 kW (70 kW sample)	34.61	15.16	24.89
100-500 kW (199 kW sample)	30.65	12.59	21.62
Staff "Rate Class" Zone 4			
0-10 kW (4 kW sample)	16.71	33.50	25.11
10-100 kW (70 kW sample)	32.89	14.14	23.52
100-500 kW (199 kW sample)	29.20	11.74	20.47

Exhibit 2
Solar Advisor Model
Assumptions and Inputs

	System Size		
	0-10 kW	>10 to 100 kW	>100 to 500 kW
Zone 1 Location	Portland		
Zone 2 Location	Eugene		
Zone 3 Location	Medford		
Zone 4 Location	Redmond		
Zone 1 Capacity Factor	11.9%		
Zone 2 Capacity Factor	12.4%		
Zone 3 Capacity Factor	14.5%		
Zone 4 Capacity Factor	15.6%		
Zone 1 First Year kWh Output	4,155.2	72,715.7	206,720.3
Zone 2 First Year kWh Output	4,360.1	76,302.5	216,917.2
Zone 3 First Year kWh Output	5,088.4	89,047.8	253,150.2
Zone 4 First Year kWh Output	5,456.9	95,496.3	271,482.3
Residential Marginal Utility Rate ($/kWh)	0.09534		
Business Marginal Utility Rate ($/kWh)		0.0793	0.0793
Analysis Time Period	15 years		
Inflation Rate	2.5%		
Real Discount Rate	5.5%		
Federal Tax Rate	28%	35%	35%
State Tax Rate	9%	6.6%	6.6%
Loan Term	15 years		
Loan Rate	7%		
Depreciation	MACRS Mid-Quarter Convention		
RETC	6,000		
BETC		245,000	597,000
Federal ITC	30%		
Zone 1 ETO Incentive ($/Wdc)	1.75	1.1324	0.75
Zone 2 ETO Incentive ($/Wdc)	1.50	0.8824	0.50
Zone 3 ETO Incentive ($/Wdc)	1.50	0.8824	0.50
Zone 4 ETO Incentive ($/Wdc)	1.50	0.8824	0.50
Annual System Degredation Rate	0.8%	0.8%	0.8%
Module Cost ($/Wdc)	2.84	2.70	2.70
Inverter Cost ($/Wdc)	0.60	0.55	0.55
Installed Cost per Capacity ($/Wdc)	8.00	7.00	6.00
DC Rating (kW)	4	70	199
DC to AC Derate Factor	77%		
Tilt	30 degrees		
Azimuth	180 degrees		

Portland General Electric
Proposed Clarifying Revisions to Rules
Based on Staff Revision 2, 2/14/2010

(Additions in Bold , Deletions in strikethrough w ith brackets, all other comments in Italic)

860-084-0010, Definitions for Solar Photovoltaic Capacity Standard and Pilot Programs

(7) "Eligible Energy" means the kilowatt hours **generated by the retail electric consumer's eligible system up** [~~that may be paid at the volumetric incentive rate under the net metering option of the volumetric incentive rate pilot. Eligible energy is equal~~] to the **consumer's** actual annual **kilowatt hours (kWh)** usage, **as measured by the utility meters, that excludes the installed photovoltaic generation at the consumer's location** [~~of the retail electricity consumer in the year that the energy is generated by the eligible system~~]. **Generation by the eligible system in excess of monthly consumer usage will be carried forward as eligible energy for remaining months of the year.** [~~Eligible energy is equal to the actual annual usage of the retail electricity consumer in the year that the energy is generated by the eligible system.~~]

(14) *delete (a) though (d), not a necessary specification*
(17) "Reserved system" means an eligible system that has been granted a capacity reservation in the solar photovoltaic program **and executed all agreements with the electric company.**
(18) *2nd sentence* [~~A regulated utility~~] **An electric company** is not a retail electricity consumer.
(23) "Volumetric incentive rate" means the rate per kilowatt-hour paid by an electric company to retail electricity consumer **or assignee** for **eligible energy** [~~generated by a contracted system~~].

860-084-0100, Solar Photovoltaic Pilot Programs
(1) [~~Prior to April 1, 2010,~~] **The Commission shall establish for** each electric company [must establish] pilot programs to demonstrate the use and effectiveness of volumetric incentive rates and payments for electricity delivered from qualifying solar photovoltaic energy systems.

(2) a) Qualifying systems installed on the customer side of the service meter **and with separate electric company metering of the solar photovoltaic system output**
(2) c) Volumetric incentive rate payments for **eligible energy** [~~generation up to the actual annual usage of the retail electricity consumer~~],

(3) b) Volumetric incentive rate payments for [~~100%~~] **all** energy generated, net of system requirements.

860-084-0120, Systems Eligible for Enrollment in Pilot Program

(1) (c) Installed with **electric company** or other devices to monitor and measure the quantity of energy generated;

(1)(i) **in compliance** [Compliant] with Commission quality and reliability requirements **as specified in 860-084-00260** [~~for photovoltaic systems~~].

(3) Systems that are [~~uninstalled~~] **removed from service** before the end of the contract term are not eligible ....

860-084-0130, Ownership and Installation

(2) Eligible systems must be installed on the same property as the property where the retail electricity consumer [~~buys~~] **receives** electricity from the electric company....

(5) (a) *delete the "(a)"* For both options of the pilot program, the electric company **must** receive [~~ing energy from photovoltaic energy systems meeting the requirements of OAR 860-084-0120~~] **and** will own 100 percent of the renewable energy certificates created [s] through the generation of [~~energy by these~~] **qualifying** systems.

860-084-0200, Capacity Reservation, Timing and Volumetric Incentive Rates

Delete entire section; redundant with OAR 860-084-0240

860-084-0230, Application for Capacity Reservation

(1) The electric company must establish, in compliance with Commission Order, a capacity reservation application process for both the net metering and volumetric incentive rate bid option. The electric company must provide instructions to enable retail electricity consumers to [~~generate~~] **submit** capacity **reservation** applications that meet the established criteria in **these rules** [~~OAR 860-084-0280~~].

860-084-0240, Standard Contracts

(1) *delete second sentence – the tariff, rules and laws also govern transactions*

(3) (c) Excess energy option **for net metering option.** Each standard contract must allow a **qualifying system** [~~retail electricity consumer installing capacity~~] under the net metered option to [~~donate~~] **transfer in a manner approved by the Commission** [~~excess~~] generation **in excess of eligible energy** to the low income bill assistance program of the electric company [~~or to sell this excess generation to the electric company at a market based rate~~]. *Delete last sentence, not necessary for net metering option*

(3)(h) Preferred payment option. Each standard contract must specify **allow** [whether] the retail consumer **with a reserved system to** elect[~~s~~] to [~~have the payment and billing be aggregated on a single bill or elects to be paid~~] **receive payments for eligible energy either applied as a credit to the consumer's retail electricity bill at the location,** or be paid monthly through direct payment.

860-084-0250, Billing and Payment Requirements

delete section, redundant with previous section

860-084-0280, Interconnection Cost Responsibility

PGE has proposed in 2/12/2012 comments that cost responsibility be assigned to the consumer consistent with net metering and QF interconnection requirements.

PGE has proposed in comments that meter locations not be solely a customer-determination

860-084-0360, Volumetric Rates [~~and Payments~~] – Net Metering Option

(1) A retail electricity consumer participating in the volumetric incentive rate **net metering option** [~~formula option~~] under a pilot program ....

(1) (a) For 15 years from the date of the consumer's [~~date~~] enrollment, the payment equals the product of [~~payable generation~~] **eligible energy** and the applicable volumetric incentive rate ....

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused **Closing Comments of Portland General Electric Company** to be served by electronic mail to those parties whose email addresses appear on the attached service list, and by First Class US Mail, postage prepaid and properly addressed, to those parties on the attached service list who have not waived paper service from OPUC Docket Nos. AR 538 and UM 1452.

Dated in Portland, Oregon, this 12th day of February, 2010.

J. Richard George

J. RICHARD GEORGE

UM 1452
SERVICE LIST – 02/12/10

* Waived Paper Service

TEDDY KEIZER 1615 SE 30TH AVE PORTLAND OR 97214 teddy@goteddygo.com; teddy1a@aol.com *	RAYMOND P NEFF 465-1/2 RIVER RD EUGENE OR 97404 rpneff@efn.org *
DANIEL WELDON 19790 SOUTH FERGUSON TERRACE OREGON CITY OR 97045 danweldon@bctonline.com *	**CABLE HUSTON BENEDICT HAAGENSEN & LLOYD, LLP** RAYMOND S KINDLEY 1001 SW FIFTH AVENUE, SUITE 2000 PORTLAND OR 97204-1136 rkindley@cablehuston.com *
CITIZENS' UTILITY BOARD OF OREGON GORDON FEIGHNER ENERGY ANALYST 610 SW BROADWAY, SUITE 308 PORTLAND OR 97205 gordon@oregoncub.org *	**CITIZENS' UTILITY BOARD OF OREGON** ROBERT JENKS 610 SW BROADWAY STE 308 PORTLAND OR 97205 bob@oregoncub.org *
CITIZENS' UTILITY BOARD OF OREGON G. CATRIONA MCCRACKEN LEGAL COUNSEL/STAFF ATTY 610 SW BROADWAY - STE 308 PORTLAND OR 97205 catriona@oregoncub.org *	**DAVISON VAN CLEVE** IRION A SANGER ASSOCIATE ATTORNEY 333 SW TAYLOR - STE 400 PORTLAND OR 97204 ias@dvclaw.com
DAVISON VAN CLEVE PC MELINDA J DAVISON 333 SW TAYLOR - STE 400 PORTLAND OR 97204 mail@dvclaw.com	**DEPARTMENT OF JUSTICE** STEPHANIE S ANDRUS ASSISTANT ATTORNEY GENERAL REGULATED UTILITY & BUSINESS SECTION 1162 COURT ST NE SALEM OR 97301-4096 stephanie.andrus@state.or.us
ECUMENICAL MINISTRIES OF OREGON JENNY HOLMES ENVIRONMENTAL MINISTRIES DIRECTOR 0245 SW BANCROFT, SUITE B PORTLAND OR 97239 jholmes@emoregon.org *	**ECUMENICAL MINISTRIES OF OREGON** KATHLEEN NEWMAN OREGON INTERFAITH POWER & LIGHT 1553 NE GREENSWORD DR HILLSBORO OR 97214 knewman@emoregon.org; k.a.newman@verizon.net *
ENERGY TRUST OF OREGON KACIA BROCKMAN 851 SW SIXTH AVE - STE 1200 PORTLAND OR 97204 kacia@energytrust.org *	**ENERGY TRUST OF OREGON** JOHN M VOLKMAN GENERAL COUNSEL 851 SW 6TH AVE SUITE 1200 PORTLAND OR 97204 * john.volkman@energytrust.org

ENVIRONMENTAL LAW ALLIANCE WORLDWIDE JENNIFER GLEASON 1877 GARDEN AVE EUGENE OR 97403 jen@elaw.org *	**ESLER STEPHENS & BUCKLEY** JOHN W STEPHENS 888 SW FIFTH AVE STE 700 PORTLAND OR 97204-2021 stephens@eslerstephens.com *
IDAHO POWER COMPANY RANDY ALLPHIN rallphin@idahopower.com *	**IDAHO POWER COMPANY** CHRISTA BEARRY PO BOX 70 BOISE ID 83707-0070 cbearry@idahopower.com *
IDAHO POWER COMPANY KARL BOKENKAMP GENERAL MANAGER-POWER SUPPLY PLANNING PO BOX 70 BOISE ID 83707-0070 kbokenkamp@idahopower.com *	**IDAHO POWER COMPANY** RICK GALE rgale@idahopower.com *
IDAHO POWER COMPANY BARTON L KLINE SENIOR ATTORNEY PO BOX 70 BOISE ID 83707-0070 bkline@idahopower.com *	**IDAHO POWER COMPANY** JEFF MALMEN PO BOX 70 BOISE ID 83707-0070 jmalmen@idahopower.com *
IDAHO POWER COMPANY LISA D NORDSTROM ATTORNEY PO BOX 70 BOISE ID 83707-0070 lnordstrom@idahopower.com *	**IDAHO POWER COMPANY** GREGORY W SAID DIRECTOR - REVENUE REQUIREMENT PO BOX 70 BOISE ID 83707 gsaid@idahopower.com *
IDAHO POWER COMPANY MARK STOKES MANAGER, POWER SUPPLY & PLANNING PO BOX 70 BOISE ID 83707 mstokes@idahopower.com *	**IDAHO POWER COMPANY** MICHAEL YOUNGBLOOD SENIOR PRICING ANALYST PO BOX 70 BOISE ID 83707 myoungblood@idahopower.com *
MCDOWELL & RACKNER PC WENDY MCINDOO OFFICE MANAGER 520 SW 6TH AVE STE 830 PORTLAND OR 97204 wendy@mcd-law.com *	**MCDOWELL & RACKNER PC** LISA F RACKNER ATTORNEY 520 SW SIXTH AVENUE STE 830 PORTLAND OR 97204 lisa@mcd-law.com *
MULTNOMAH COUNTY WARREN FISH 501 SE HAWTHORNE, STE 600 PORTLAND OR 97214 warren.fish@co.multnomah.or.us *	**MULTNOMAH COUNTY COMMISSIONER** COMMISSIONER JEFF COGEN 501 SE HAWTHORNE, STE 600 PORTLAND OR 97214 district2@co.multnomah.or.us *

OREGON AFL-CIO 2110 STATE ST SALEM OR 97301 afl-cio@oraflcio.org; duke@oraflcio.org *	**OREGON AFL-CIO** JOHN BISHOP 1635 NW JOHNSON ST PORTLAND OR 97209 jbishop@mbjlaw.com *
OREGON DISTRICT COUNCIL OF LABOERS BEN NELSON 10245 SE HOLGATE BLVD PORTLAND OR 97266 nrocnelson@qwest.net *	**OREGON DISTRICT COUNCIL OF LABORERS'** MELODY GUY melodyg@qwestoffice.net *
OREGONIANS FOR RENEWABLE ENERGY PAYMENTS JUDY BARNES 1425 SE 37TH PORTLAND OR 97214 jbarnes@hevanet.com *	**OREGONIANS FOR RENEWABLE ENERGY PAYMENTS** MARK PETE PENGILLY PO BOX 10221 PORTLAND OR 97296 mpengilly@gmail.com *
PACIFICORP RYAN FLYNN 825 NE MULTNOMAH, SUITE 1800 PORTLAND OR 97232 ryan.flynn@pacificorp.com *	**PACIFICORP, DBA PACIFIC POWER** PACIFIC POWER OREGON DOCKETS 825 NE MULTNOMAH STREET, STE 2000 PORTLAND OR 97232 oregondockets@pacificorp.com *
PGE RATES & REGULATORY AFFAIRS DOUG KUNS PORTLAND GENERAL ELECTRIC COMPANY 121 SW SALMON STREET, 1WTC0702 PORTLAND OR 97204 pge.opuc.filings@pgn.com	**PORTLAND GENERAL ELECTRIC COMPANY** J RICHARD GEORGE 121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 richard.george@pgn.com
PUBLIC UTILITY COMMISSION OF OREGON THERESA GIBNEY PO BOX 2148 SALEM OR 97308 theresa.gibney@state.or.us	**RENEWABLE NORTHWEST PROJECT** ANN ENGLISH GRAVATT 917 SW OAK - STE 303 PORTLAND OR 97205 ann@rnp.org *
RENEWABLE NORTHWEST PROJECT SUZANNE LETA LIOU 917 SW OAK STE 303 PORTLAND OR 97205 suzanne@rnp.org *	**SOLAR ENERGY SOLUTIONS, INC.** ANDREW KOYAANISQATSI 3730 SE LAFAYETTE CT PORTLAND OR 97202 andrew@solarenergyoregon.com *
SOUTHEAST UPLIFT NEIGHBOORHOOD COALITION TIM O'NEIL 3534 SE MAIN ST PORTLAND OR 97212 tim@southeastuplift.org *	**SUNEDISON** JOE HENRI 12500 BALTIMORE AVE BELTSVILLE MD 20705 jhenri@sunedison.com *
SUSTAINABLE SOLUTIONS UNLIMITED LLC STEVEN MCGRATH	

1339 SE 8TH AVE # B PORTLAND OR 97214 steve@solutions21st.com *	