

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

In the Matter of PUBLIC UTILITY  
COMMISSION OF OREGON  
Investigation into Pilot Programs to  
demonstrate the use and effectiveness of  
Volumetric Incentive Rates for Solar  
Photovoltaic Energy Systems.

STAFF OPENING COMMENTS

House Bill 3039<sup>1</sup> (HB 3039) mandates Volumetric Incentive Rate Pilot Programs (“pilots”, VIR Pilot Programs), for each electric company doing business in Oregon, to incent photovoltaic installations by retail electricity consumers. The purpose of these pilots is to demonstrate the use and effectiveness of volumetric incentive rates (“VIR”).

Staff proposes the VIR program pilots be structured to 1) learn which customers and customer segments are motivated by VIR (compared to existing incentives for the installation of solar capacity such as net metering, cash incentives at installation, and tax credits over the first years of installation) and 2) achieve installation of up to 25 MW of photovoltaic capacity in the first four years of the five year pilot.

On December 4, 2009, Staff of the Oregon Public Utility Commission (“Staff”) released a Straw Proposal in UM 1452, on behalf of parties engaged in workshops held to develop pilot program designs and Proposed Rules<sup>2</sup> (AR 538), as required by 2009 Or Laws Ch. 748 (also known as HB 3039). This Straw Proposal incorporated feedback received in three Staff-facilitated workshops held between September 30, 2009 and November 6, 2009.

Simultaneous Opening Comments were to have been submitted on December 18, 2009. On December 17, 2009, Staff filed a motion to indefinitely suspend the schedule in UM 1452, including the deadline for Opening Comments, citing Staff’s intention to propose changes to the Straw Proposal in response to Oregon Department of Justice (DOJ) concerns as to jurisdictional limitations on the Commission’s ability to establish VIR in the pilot programs.<sup>3</sup>

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<sup>1</sup> In this document, HB 3039 refers to the Enrolled version of the bill, passed and signed into law on July 22, 2009.

<sup>2</sup> The Straw Proposal is based on proposed division 084 rules, first revision, dated November 19, 2009. These rules were posted on the Commission website on November 19, 2009 and reviewed with parties at an AR 538/UM 1452 workshop held on November 23<sup>rd</sup>. The Staff Proposal includes second revision Proposed Rules, dated January 14, 2010. Design elements which have not changed between proposals are delineated as “revs 1 and 2.”

<sup>3</sup> This concern was communicated in a December 15, 2009 memorandum providing DOJ analysis addressing how the Federal Energy Regulatory Commission’s (FERC’s) exclusive jurisdiction to establish rates for wholesale sales of electricity in interstate commerce impacts the ability of the OPUC to implement HB 3039.

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In its filing on December 21, 2009, Staff provided Staff's interpretation of the impact of this DOJ analysis, proposed potential solutions in pilot program design for retail electricity consumers installing smaller, medium and large systems, and proposed a January workshop on the matter.

A new schedule for UM 1452 and AR 538 was established at the workshop, held on January 6, 2010. The schedule is targeted to have pilots in place, on or before April 1, 2010, as required by HB 3039.

Staff Opening Comments explain the Solar Capacity Standard and VIR Pilot Programs design elements and are filed in both UM 1452 and AR 538. Staff Opening Comments include two attachments: (a) Staff's Proposal (recommending changes in the original Straw Proposal), and b) a document providing transparency to Staff calculations and thinking in the matter of the proposed initial volumetric incentive rates. Staff proposed revisions to Proposed Division 084 Rules (proposed revision 2), will be filed with the Commission and served on all parties on January 15, 2009.

Addendums to Staff Opening Comments: Staff's Proposal (recommending changes in the original Straw Proposal), b) Proposed Division 084 Rules (proposed revision 2), and c) a document providing transparency to Staff calculations and thinking in the matter of the proposed initial volumetric incentive rates, will be filed with the Commission and served on all parties on January 15, 2009.

Staff's Proposal references the original Straw Proposal, which was created as a framework for parties, including Staff, for comment and to make recommendations to the Commission regarding the design of the pilot programs. Use of this structure is intended to enable Commission decision, by providing a common framework for the parties. Staff expects that there will be alternate proposals by the parties. In Closing Comments, Staff will comment on each of these proposals.

HB 3039 section 2(4) specifies that at the conclusion of a customer's 15-year contract under a VIR Pilot Program, the retail electricity consumer "may receive payments based upon the actual electricity generated from the qualifying system at a rate equal to the resource value." For the reasons discussed in the December 15, 2009 DOJ Memorandum, the path forward to implement this provision is not clear. Staff will continue to investigate how to implement this provision.

Because it is not necessary to implement this section in order to implement the VIR Pilot Programs, Staff's proposal does not include any recommendations as to how to implement this language. Any recommendations regarding this provision that are found in the the Straw Proposal preceded the December 15, 2009 DOJ Memorandum and are not currently supported by Staff.

*Italicized text represents language taken directly from the original Straw Proposal or changes to the Straw Proposal recommended by Staff. Standard text comprises Staff explanation.*

## **Solar Capacity Standard**

*Staff recommends that the capacity conversion factor to be used to convert DC nameplate capacity to an AC representation of capacity should be given in the rules, instead of through Commission guidelines. Staff does not identify any Commission decision that must be made in Docket No. UM 1452 to implement the Solar Capacity Standard.*

Staff supports the proposed Division 084 rules for the Solar Capacity Standard, with the following changes:

- a) The majority of the section entitled “Qualifying Systems,” should be deleted.<sup>4</sup>
- b) References to non-inverter based systems should be deleted.<sup>5</sup>
- c) Capacity counting towards the 20 MW Solar Capacity Standard must be measured on the alternating current side of the system inverter. Staff proposes that rules describing conversion of DC nameplate capacity to its AC equivalent<sup>6</sup> be modified, as given below:

*(2) Each electric company must convert nameplate capacity ratings reported by manufacturers in term of direct current watts under standard test conditions to an alternating current rating in watts to account for inverter and other system component losses and to account for the effect of normal operating temperatures on solar module output. This conversion will be calculated as 85% of the manufacturer’s nameplate rating.*

### **Explanation & Support – division 084 rules – 0010 to 0080**

The Solar Capacity Standard is a legislative mandate to add photovoltaic energy systems to the generation portfolio of each electric company doing business in the State of Oregon.

This Solar Capacity Standard requires that a minimum of 20 MW of photovoltaic generating capacity be on-line (owned or contracted) by January 1, 2020; the standard applies to qualifying systems with capacities between 500 kilowatts and 5 megawatts.<sup>7</sup>

The standard incents early acquisition of solar capacity by allowing each MWh of energy generated, by qualifying photovoltaic systems that are physically installed in Oregon before January 1, 2016, to count as two MWhs of energy<sup>8</sup> towards the obligation of the electric company under Oregon’s Renewable Portfolio Standard (RPS), up to 20 MW of installed capacity per electric company.

The standard also incents acquisition by establishing that all costs prudently incurred to comply with the standard are recoverable in rates through the renewable energy automatic adjustment clause.<sup>9</sup>

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<sup>4</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0030 (1) – (4).

<sup>5</sup> Proposed Rules, AR 538, November 19, 2009; OAR 860-084-0040 (3).

<sup>6</sup> Revised Proposed Rules, January 4, 2010, OAR 860-084-0040 (2).

<sup>7</sup> HB 3039, July 2009, Section 3.(1) and Proposed Rules, January 14, 2010; OAR 860-084-0030.

<sup>8</sup> HB 3039, July 2009, Section 4.(2) and Proposed Rules, revs 1 and 2, OAR 860-084-0070 (2)

<sup>9</sup> HB 3039, July 2009, Section 3.(5) and Proposed Rules, revs 1 and 2; OAR 860-084-0060

Proposed rules define the capacity that each electric company must own or contract to purchase on or before January 1, 2020.<sup>10</sup> Proposed Rules require that this capacity be measured on the alternating (AC) side of the photovoltaic system inverter. Manufacturer's nameplate capacity rating is provided as a DC (direct current) rating, measured under standard test conditions (STC). Staff proposes that the Commission adopt, in rule, the methodology historically utilized by the California Public Utilities Commission which converts to an AC rating from manufacturer's nameplate capacity under standard test conditions (PTC). This conversion factor is roughly 85% of the manufacturer's nameplate capacity.<sup>11</sup>

The Proposed Rules require that the electric companies acquire the following minimum solar capacities: Idaho Power Company, 0.3 MW; Portland General Electric, 11.8MW; Pacific Power 7.9 MW. These allocations distribute the 20 MW solar capacity target according to each company's share of retail electricity revenue in Oregon in 2008. The proposed allocation is based on the assumption that the electric companies will acquire solar resources for similar costs (\$/MWh). If this assumption proves true, retail electricity revenue is the representation of retail electricity sales that results in the most even rate impact across the companies.<sup>12</sup>

Each electric company should incorporate its plan to achieve, or exceed, its allocation of the photovoltaic capacity standards into its renewable portfolio standard implementation plans.<sup>13</sup>

These plans, required by OAR 860-083-0400, are filed in January of even numbered years. The utility should describe its progress towards achieving its share of the solar Capacity Standard. The utility should also describe how it intends to fill any shortfall between its current level of installed solar capacity and its share of the Solar Capacity Standard for 2020. Finally, the utility should explain if any RECs from the qualifying systems installed to meet the Solar Capacity Standard will be used to comply with the Oregon Renewable Portfolio Standard (RPS). This planning will provide greater regulatory certainty for the utilities, as well as parties interested in the overall performance of the Solar Capacity Standard.

Finally, on or before, February 1, 2020, each electric company must file a report with the Commission demonstrating compliance or explaining its failure to comply with the Solar Capacity Standard.<sup>14</sup> This report must provide detailed information about the facilities counted as complying with the standard, including: a) the name and location of the facility, b) the in-service date of the facility and the execution date of any associated power purchase agreement, and c) the manufacturer's nameplate capacity rating and the electric company's capacity rating on the alternating current side of the system's inverter or the contracted capacity and output delivery period of any associated power purchase agreement.

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<sup>10</sup> HB 3039, July 2009, Section 3.(2) and Proposed Rules, revs 1 and 2; OAR 860-084-0020.

<sup>11</sup> See "Tracking the Sun II", The Installed Cost of Photovoltaics in the U.S. from 1998-2008. Lawrence Berkeley Labs, October 2009. Page 1, footnote #4. <http://eetd.lbl.gov/ea/ems/reports/lbnl-2674e.pdf>

<sup>12</sup> HB 3039, July 2009, Section 3.(2) requires distribution of capacity according to company's share of retail sales. Sales could represent either volume of electricity sold or revenue. Staff chooses revenue, for the reasons given above.

<sup>13</sup> Proposed Rules, revs 1 and 2, OAR 860-084-0080.

<sup>14</sup> Proposed Rules, revs 1 and 2, OAR 860-084-0050.

## **Staff Proposal: Overall Pilot Program design (Proposed Commission Decisions and Rules)**

Staff largely supports the ideas in the Straw Proposal and in the November 19, 2009 revision of Proposed Rules. VIR Pilot Programs described in these documents accomplish the objectives outlined on page one of Staff Opening Comments. Figure 1 is a tabular summary of the strategies contained in the Straw Proposal and Proposed Rules. *Figure 1 also includes Staff's recommended change to the Straw Proposal's distribution of capacity across years and system sizes.*

The Straw Proposal has two strategies to enable the Commission and the legislature to learn which customers and customer segments are motivated by VIR and to establish the efficacy of a VIR:

- 1) Establish data collection expectations and reporting as key expectations of the pilots.

Data collection will enable determination of which VIR motivate which customer or industry segment, whether pilot program design meets ratepayer, developer, and financier requirements, whether improvements or challenges to the distribution system result from photovoltaic installations, what reasons retail electricity consumers claim for participation in the pilot program, and key characteristics of program participants.

- 2) Distribute available pilot program capacity, annually, across three sizes of systems.

This strategy allows the pilot programs to work as four consecutive pilots across different markets in the solar industry and allows for changes in the VIR over time. *Figure 1 and Table 3 contain Staff's proposal* as to how capacity should be allocated across system size in each of the VIR Pilot Program years. This proposal for the distribution of capacity across years and across system sizes is explained in Section J, "Deployment of Pilot Capacity."

*Further, Staff introduces VIR Pilot Program options: a VIR bid option and a net metered option with excess generation saleable at market rates, to allow the Commission to test the effectiveness of VIR, within Commission authority to set rates. These options introduced as proposed rules OAR 860-084-0100 (2) through (4).*

One additional strategy is proposed to achieve installation of up to 25 MW of photovoltaic capacity during the pilot program period:

- 3) Plan a capacity distribution and recommendation checkpoint, near the end of pilot year three, or earlier.

Proposed rules include a capacity distribution checkpoint, near the end of pilot year three, to enable the Commission to redistribute capacity, based on what has been learned by this time. This strategy is also intended to maximize installation of capacity by smaller systems.

Staff believes these strategies will enable the Commission to deliver on legislative expectations.<sup>15</sup>

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<sup>15</sup> HB 3039, Section 7.

**Figure 1. Summary of Pilot Program and Staff’s proposal for Capacity Deployment**

<b>Pilot Program Year:</b>	<b>4/2010 thru 3/2011</b>	<b>4/2011 thru 3/2012</b>	<b>4/2012 thru 3/2013</b>	<b>4/2013 thru 3/2014</b>	<b>4/2014 thru 3/2015</b>
<b>Capacity Distribution &amp; No. of Projects</b>					
<b>Smaller Systems*</b>	5% = 1.4 MW 130 – 700 systems	10% = 2.7 MW 260 – 1400 systems	15% = 3.7 MW 370 – 1900 systems	20% = 5 MW 500 - 2500 systems	
<b>Medium**</b>	10% = 2.5 MW 25- 100 systems	10% = 2.5 MW 25- 100 systems	5% = 1.25 MW 12 - 50 systems	5% = 1.25 MW 12 - 50 systems	
<b>Large**</b>	5% = 1.25 MW 2 - 10 systems	5% = 1.25 MW 2 - 10 systems	5% = 1.25 MW 2 - 10 systems	5% = 1.25 MW 2 - 10 systems	
<b>Pilot Program Checkpoints:</b>					
<b>Reports to the Legislature</b>	Open docket for Report to 2011 legislature (Oct 2010)		Open docket for Report to 2013 legislature (Oct 2012)		Open docket for Report to 2015 legislature (Oct 2014)
<b>Executing the Pilots</b>					
		**	Reallocation of capacity, if any (January 2013)	**	
	Capacity reservation (April)	Capacity reservation (April)	Capacity reservation (April)	Capacity reservation (April)	
	New VIR, if any (June)	3 <sup>rd</sup> new VIR, if any (June)	5th new VIR, if any (June)	7th new VIR, if any (June)	
	First review of rate impact and resource value (July)		2 <sup>nd</sup> review of rate impact and resource value (July)		3 <sup>rd</sup> review of rate impact and resource value (July)
	2 <sup>nd</sup> VIR, if any (Dec)	4th new VIR, if any (Dec)	6th new VIR, if any (Dec)	8th new VIR, if any (Dec)	

\*Year 1 and 2 include Idaho Power capacity; 100% dedicated to smaller systems

\*\* Reallocation of capacity can occur at any time, subject to Commission decision.

**Section A. Pilot Program Requirements**

*Pilot program participants will be retail electricity consumers (“consumers”) who install qualifying photovoltaic systems and enter into a standard contract with their utility to receive a VIR payment for energy generated and renewable energy certificates provided to the utility.*

*Definitions of qualifying photovoltaic systems and definitions of system and participant eligibility are established in proposed rules (OAR 860-084-0110 through 0130).*

*Requirements regarding installation and operation of qualifying systems, transfer of energy and renewable energy certificates to the utility in return for payment, and the content of standard contracts offered to consumers are in proposed rules(OAR-860-084-0130 and OAR 860-084-0240).*

Staff recommends a revision to the proposed rules so that eligibility criteria more closely reflect the language of OR Laws Chapter 748; *systems must be “on-line after April 1, 2010” rather than “installed after April 1, 2010,”*<sup>16</sup> *Staff also proposes elimination of most of the “Qualifying Systems” section.*<sup>17</sup>

Staff recommends amending the proposed rules and Straw Proposal to provide two options under the VIR Pilot Programs:<sup>18</sup> *(1) a net metered option (with qualifying systems installed on the customer side of the service meter and with payments at Commission established VIR up to the actual annual usage of the retail electricity consumer and excess generation saleable at market based rates), and (2) a VIR bid option (with payments for 100% of energy generated, net of system requirements, at a VIR bid by the consumer). Staff proposes that eligibility for these options and the capacity distribution mechanism in the pilots be determined by system size*<sup>19</sup>, *as given in Table 1.*

*Table 1. Pilot Program Options and Mechanisms for Capacity Distribution*

PILOT PROGRAM OPTION:	Capacity Distribution Mechanism		
	Distributed throughout the year (first-come, first-serve)	Distributed during one month/year (by lots, if necessary)	Distributed by bid
Net Metered Option	Smaller Systems	Medium Systems	
Volumetric Incentive Rate Bid Option			Large Systems

*Staff proposes that the utilities own 100% of Renewable Energy Certificates (RECs) generated by qualifying systems under the VIR Pilot Programs*

<sup>16</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0120 (e).

<sup>17</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0110 (1) through (4).

<sup>18</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0100 (2) and (3).

<sup>19</sup> Revised Proposed Rules are restructured to separate system size definition from definition of capacity distribution mechanisms. OAR 860-084-0190 has been split into OAR 860-084-0190 and 860-084-0195.

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## Section A. Pilot Program Requirements (continued)

HB 3039 requires that, prior to April 1, 2010, the Commission establish a pilot program for each electric company and adopt requirements for participation in pilots. The design elements, below, largely comprise legislative requirements; all are given in rule.

Qualifying systems must have a nameplate generating capacity less than or equal to 500 kilowatts.<sup>20</sup> Eligible systems under the VIR Pilot Programs must be installed in the service territory of the electric company,<sup>21</sup> and on the property where the consumer receives service from the electric company.<sup>22</sup> These requirements are designed to ensure that pilot participants are retail electricity consumers. These design elements are further described, below.

Eligible systems under the VIR Pilot Programs must also meet the design, interconnection, installation and electric output standards and codes required by the laws of this state and must have meters or other devices in place to monitor and measure the quantity of energy generated.<sup>23</sup> Systems installed under the net metering option must connect to the customer side of the service meter. Proposed interconnection rules for both the net metering option and VIR bid option broadly leverage net metering interconnection rules.<sup>24</sup> See Section E. “Interconnection,” below.

The following examples illustrate situations that are expected to arise and how these situations are accommodated by the rules:

a.) A consumer who wants to place a photovoltaic system on the roof of a neighbor’s house (the “owner neighbor”) may not do so directly. Only the neighbor receiving electricity service at the location where the photovoltaic system will be installed (the “hosting neighbor”) may apply for a capacity reservation and enter into a contract with the utility.

The rules enable this arrangement, as follows. Two neighbors reach agreement on what each will give to the other to make this arrangement work (perhaps through contracting with each other). The hosting neighbor secures a capacity and interconnection agreement with the utility. The owner neighbor pays for the photovoltaic system and makes sure it is installed and operational. The hosting neighbor signs the contract and assigns payments to the owner neighbor to allow the owner neighbor to gain the fruits of his/her investment. See Section I. “Payments and Assignment of Payments”

b) An investor who owns land that is remotely located may want to install a photovoltaic system on this land. If this investor does not have electrical service at this property, he is not a retail electricity consumer and is not eligible to participate in the pilot program. The land owner must first install electrical service at the site in question before participating in the pilot program.

This rule ensures that the VIR pilot programs do not subsidize the extension of electrical infrastructure to remote property.

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<sup>20</sup> HB 3039, Section 2.(1); Proposed revised rules, January 14, 2010; OAR 860-084-0110.

<sup>21</sup> Proposed revised rules, January 14, 2010; OAR 860-084-0120 (1)(d)

<sup>22</sup> Proposed revised rules, January 14, 2010; OAR 860-084-0130 (2)

<sup>23</sup> HB 3039, Section 1.(3) (C) and (D). Proposed revised rules, January 14, 2010; OAR 860-084-0120 (1) (a) and (b)

<sup>24</sup> Oregon Administrative Rules, Chapter 860, Divisions 039 and 082, respectively.



## Section A. Pilot Program Requirements (continued)

Finally, eligible systems must be permanently installed in the State of Oregon and be financed without expenditures under ORS 757.612(3)(b)(B) or tax credits under ORS 469.160 or ORS 469.185 to 469.225.<sup>25</sup> These requirements are implemented in the following design elements which are set forth in the Straw Proposal:

- a) A limitation on the eligibility of a system that precludes the system from being disconnected and reinstalled in a different location or the same location, under a different generation contract, during the fifteen year VIR contract term,<sup>26</sup> and
- b) An allowance for systems to be disconnected or uninstalled for repair of the system or repair of the structure supporting the system and reinstalled at the same or different location, under the same generation contract.<sup>27, 28</sup>

To ensure that the statutory expectations for project funding are met, the Straw Proposal requires that:

- a) Participants certify that systems are new and are financed without Energy Trust of Oregon certifications or tax credits from the State of Oregon.
- b) Participants agree to electric company releases of information about their participation to the Department of Revenue, the Department of Energy and the Energy Trust of Oregon.

*Staff proposes that a customer who is found by the Commission to have made a false certification is no longer eligible for the VIR Pilot Programs and any Pilot Program contract the customer may have entered into is void.*<sup>29</sup> See Section C, “Standard Contracts.”

## Section B. Quality and Reliability

Systems eligible for enrollment in the pilots must be constructed from new components.<sup>30</sup>

Staff proposes an addition to the Straw Proposal: Require that systems meet Commission established guidelines for quality and reliability.<sup>31</sup> Participants must certify that systems meet both of these criteria, at the time of capacity reservation.

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<sup>25</sup> HB 3039, July 2009,

<sup>26</sup> Proposed Rules, revs 1 and 2, January 14, 2010; OAR 860-084-0120 (3)

<sup>27</sup> A system may be moved if there is damage to the property where the system is installed, if an owner moves (within the same electric company territory) and reinstalls the system under the same contract, or if a system becomes inoperable at the current location (shade from trees, a building built that blocks the sun, etc.) In any of these cases, the system would resume operation under the same contract, reassigned to a new address or to a new owner. All expenses of moving the system and interconnection are borne by the retail electricity consumer.

<sup>28</sup> Proposed Rules, revs 1 and 2, January 14, 2010; OAR 860-084-0120 (3) and OAR 860-084-0280 (4)

<sup>29</sup> Proposed Revised Rules, January 14, 2010; OAR 860-084-0410 (3).

<sup>30</sup> Proposed revised rules, January 14, 2010; OAR 860-084-0120 (1) (g).

<sup>31</sup> Proposed revised rules, January 14, 2010; OAR 860-084-0120 (1) (h).

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## Section B. Quality and Reliability (continued)

Staff believes that these requirements are appropriate to ensure that the VIR Pilot Programs incent the same kind of systems incented under existing programs (ETO incentives and Oregon tax credits). Staff proposes that the Commission adopt guidelines for quality and reliability requirements from existing ETO and ODOE requirements, found as “Solar Electric System Installation Requirements, Developed by the Energy Trust of Oregon,” version 13, released 5/18/2009 and found at the following url: [http://energytrust.org/library/forms/SLE\\_RQ\\_PV\\_SysReq.pdf](http://energytrust.org/library/forms/SLE_RQ_PV_SysReq.pdf)

These proposed rules provide consumer protection by establishing standards that protect less technology savvy consumers from installing cheaper systems that fail before the owner pays off the system.

## Section C. Standard Contract

HB 3039 requires that an electric company enter into contracts with eligible participants who install capacity under its pilot program. To simplify the process of contracting with the electric companies, proposed rules call for a VIR standard contract to be offered by each electric company.<sup>32</sup> Proposed rules require the Companies to submit standard contracts, for Commission approval.

*Staff proposes that the following elements be added to the requirements for Standard Contracts, in rule, to implement Staff’s Proposal that each electric company offer two VIR Pilot Program options: (a) descriptions of the two options (net-metering and VIR bid) and a provision specifying which option applies to the consumer; (b), provisions explaining that a consumer may elect to donate excess generation or be paid for excess generation and a provision specifying which option the consumer chooses; (c) certification that systems meet VIR Pilot Program quality and reliability guidelines (d) a provision that assignees may be changed over the contract term, and (d) a provision that assignees may be changed over contract term (e) clarification that VIR payments may be taxable income, that systems may be subject to Oregon property taxes, and that consumers should seek professional tax advice and (f) information on the PV installation/financing.*

*Staff proposes that the standard contracts be approved as part of the electric companies’ VIR tariffs,<sup>33</sup> that all transactions under the VIR Pilot Programs are covered by a single contract with each electric company. Staff also recommends that the Commission not require a common standard contract across electric companies. Staff does not believe the additional effort required to create a single common contract will provide benefits to participants or to ratepayers.*

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<sup>32</sup> Proposed rules, November 19, 2009; OAR 860-084-0240

<sup>33</sup> Proposed rules, revs 1 and 2; OAR 860-084-0240 (1).

## Section C. Standard Contract (continued)

Proposed rules requires the following elements be included in standard contracts:

a) *Name and address of the retail electricity consumer and the installation address of the contracted system.*

b) *CHANGED: Volumetric Incentive rate. The standard contract must be based on the VIR (bid option) or VIR formula (net metering option) in place at the time of the capacity reservation for the retail electricity consumer.*

This contract element is explained in Section H, “Volumetric Incentive Rates”.

c) *NEW: Pilot Program Option. Each standard contract must allow a retail electricity consumer installing capacity under the net metered option to either choose to donate excess generation to the low income bill assistance program of the electric company or to receive payment for this excess generation at a market rate. Standard contracts must provide for certification by the retail electricity consumer that they are eligible to make wholesale sales of energy at market rates.*

d) *Contract Term and termination option. Each standard contract must include a date of initiation and a date of contract expiration.*

This contract element is explained in Section G, “Establishing and Terminating Contracts.”

e) *Certification of compliance. Each standard contract must include a section to record retail electricity consumer certifications that A) the system will not be subsidized by Energy Trust of Oregon incentives or State of Oregon Tax Credits, B) the system is a new system, and C) the system meets quality/reliability requirements established by Commission guideline.*

This contract element is explained in Sections A. “Pilot Requirements” and B. “Quality/Reliability.”

f) *Agreement to release information about participation. Each retail electricity consumer must sign a release that allows the electric company to release lists of all participants in the pilot programs to the Oregon Department of Revenue, the Oregon Department of Energy, the Public Utility Commission and the Energy Trust of Oregon. The standard contract must contain description of the confidentiality requirements that those receiving this information will follow.*

This contract element is explained in Section A, “Pilot Program Requirements.”

Section C. Standard Contract (continued)

g) *Certification of agreement to participate in up to three surveys on the effectiveness of the pilot programs and agreement that the electric company may release this information to Staff and the Energy Trust of Oregon,*

The purpose of the pilot programs is to demonstrate the effectiveness of the VIR; participant feedback is required. See Section L, “Learning and Recommendations.”

*Staff proposes that the standard contract provide that VIR payments will be withheld if consumers do not participate in these surveys.*

h) *Preferred payment option. Each standard contract must specify whether the retail electricity consumer elects to be paid monthly, through direct payment of the VIR payments, or elects that the payment and billing be aggregated on a single bill. The default payment method must be aggregation on a single bill.*

Staff believes that consumers will prefer to have this choice; a similar option is contained in net-metering rules.

i) *Assignment of payment. Each standard contract must allow a retail electricity consumer to assign payments to a qualifying assignee.*

This contract element is explained in Section I, “Payments and Assignment of Payments.”

*Staff proposes clarifying the language in rule<sup>34</sup> to allow the consumer to change assignees over the course of the contract, with reasonable fees imposed by the utilities for this modification.*

*Staff proposes that regulated utilities are not retail electricity consumers under the VIR Pilot Programs.*

j) *Transfer of contract. Each standard contract must allow the transfer of an existing retail electricity consumer’s contract under the pilot program to another retail electricity consumer eligible to receive payments from the electric company under the pilot program. This transfer requires that the receiving retail electricity consumer operate the same system at the same location or transfers the system to a new location, under an existing contract, within pilot program constraints for moving systems.*

This contract element is explained in Section I, “Payments and Assignment of Payments” and in Section A, “Pilot Program Requirements”.

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<sup>34</sup> Proposed Revised Rules, January 14, 2010, OAR 860-084-0240 and 0250.  
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### Section C. Standard Contract (continued)

*k) CHANGED: Disclosure that payments may be taxable as income, under Oregon and Federal Tax law, and that an eligible system may be subject to property tax in the State of Oregon.*

*Staff proposes that rules be modified in k) to disclose that payments are likely to be taxable as income and that property tax determinations may vary from county to county in Oregon. The contract should encourage participants to seek the advice of a tax professional. See Attachment B.*

Residential and some small commercial participants will be well served by having this disclosure; the tax treatment of net metering and volumetric incentive payments is an emerging area of tax law.

*l) NEW: Name and address of solar installer or contractor, name and address of system financier, and description of the PV equipment package.*

To enable reporting to the legislature as to the impact on the solar industry, the Commission must be able to describe what segments of the solar industry have been enabled by the VIR Pilot Programs. The sizes and types of solar installers, sizes and types of PV equipment packages and the range of financing mechanisms enabled by these pilots are relevant data sets to reports on the impact of the VIR Pilot Programs.

### Section D. Capacity Reservation

*A consumer becomes a pilot program participant by reserving capacity in the pilot program from its utility. On or after April 1, 2010, a retail electricity consumer may submit the applications required solicit a capacity reservation in the pilot programs; this application process is established by proposed rule (OAR 860-084-0230).*

*Proposed rule (860-084-0210) defines when a capacity reservation expires; a photovoltaic system must be installed, contracted and on-line within this capacity reservation window*

*Capacity is available based on the size of the qualifying system. Proposed rules (OAR 860-084-0190 and OAR 860-084-0195) define the categories of size for qualifying systems, establish an initial intent for distribution of the energy generated by installed systems, establish how many total capacity reservations a retail electricity consumer may secure in the pilot program, and establish processes for the utility to allocate capacity to these eligible participants.*

*OAR 860-084-0190 also reserves Commission authority to change these size definitions and the targeted distribution of the energy generated by installed systems.*

Capacity available for each system size, the proposed size ranges that describe smaller, medium, and larger systems, and the authority the Commission has to change these and other elements of the VIR Pilot Programs are explained in Section J, "Deployment of Pilot Program Capacity."

#### Section D. Capacity Reservation (continued)

Staff also proposes processes for the utility to allocate capacity to eligible systems by VIR Pilot Program option and size class. These processes are explained in Section J, “Deployment of Pilot Program Capacity” and summarized in Section A. Table 1.<sup>35</sup>

A retail electricity consumer initiates participation in the VIR Pilot Programs by submitting two applications to their electric company: a capacity reservation application and an interconnection application. An application package is not complete until both applications are submitted, and for retail electricity consumers installing medium or large systems, the application package is not complete until the retail electricity consumer has also paid an application fee.

A capacity reservation is made in the name of a particular retail electricity consumer at a particular address and establishes the VIR formula or VIR bid process assigned to this reservation

For retail electricity consumers qualifying for the “all year” mechanism for capacity distribution, application packages may be turned in any time of the year. Capacity will be reserved on a first-come, first-serve basis.

The Straw Proposal recommends the “reservation all year” mechanism for smaller systems. This mechanism is consistent with existing patterns of marketing to residential and commercial customers installing smaller systems and with system installation as part of other projects.

Consumers qualifying for the “once a year” mechanism for capacity distribution must submit applications during the month of April of each pilot year. If the total capacity available is oversubscribed by applications received during this month, the capacity will be distributed based on a random drawing held on the first business day of May. If the total capacity is not oversubscribed during the month of April, the remaining capacity will be reserved, on a first-come first-serve basis, until the following April.

The Straw Proposal recommends the “once-a-year” mechanism for medium systems. If Staff Proposals for system size definition and capacity allocation are accepted, there could be between 25 and 100 projects reserved under this mechanism in each of pilot years one and two.

Random Drawings. As part of the “once a year” mechanism for capacity distribution, workshop participants requested a Commission-imposed process to randomly choose among projects in order to mitigate public uncertainty regarding the fairness of these proceedings. In the Straw Proposal, it is proposed that the random drawings identified in proposed rule<sup>36</sup> are carried out by assigning each applicant a number, based on the order of applications received. A public drawing can then take place, selecting the winning applications by use of a random number generator contained in a simple calculator or other computing device. A drawing will be considered sufficiently public if it is a joint exercise undertaken by the utility with a staff member from the Commission.

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<sup>35</sup> Revised Proposed Rules, January 14, 2010, split OAR 860-084-0190 into OAR 860-084-0190 and OAR 860-084-195. This structural change is created to allow the Commission to use Commission Order to assign size classes to different mechanisms for capacity distribution, in response to comments from Staff and from Parties.

<sup>36</sup> Revised Proposed rules have moved this element, unchanged from OAR 860-084-0190 to 0195. Staff Opening Comments, UM 1452, January 14, 2010

#### Section D. Capacity Reservation (continued)

Staff proposes the calculator-random-number-generation option as a simple, but broadly accepted method of carrying out random drawings. Staff is open to any other random drawing suggestion that meets the objectives given above.

Finally, consumers assigned the “volumetric bid” mechanism for capacity distribution must submit applications, during May of each pilot year, as part of an annual VIR bidding process. Each electric company will execute a VIR bidding process under a Request for Proposal process, approved by the Commission. Staff recommends this mechanism for large systems because the mechanism requires a larger revenue stream to cover the costs of engaging in a bidding process.

Limitations on capacity reservations. A capacity reservation is a valuable commodity in the VIR Pilot Programs. For this reason, medium and large sized systems are required to make a substantial deposit at the time of their applications for capacity. Also, no single retail electricity consumer may make more than five capacity reservations in a VIR Pilot Program. This limitation is intended to a) broadly distribute the available capacity; b) prevent, to some degree, retail electricity consumers from making a reservation for systems that the consumer ultimately does not install; and c) prevent medium and large systems from breaking down a larger system into multiple pieces to utilize capacity allocated to a smaller category. *Staff proposes that no single retail electricity consumer, developer, installer or financier may successfully bid for or enroll for more than 15% of capacity available in the pilot programs.*

Electric companies will collect data on the types and timing of capacity reservations that are made and allowed to expire. If the companies find evidence of a pattern of capacity reservation that do not turn into installations, the companies may petition the Commission to impose non-refundable application fees for smaller systems.

The capacity reservation begins when the interconnection agreement is completed and parties have agreed that the system can be interconnected, to an estimate of costs that will be incurred in interconnection and system upgrades, and who will pay these costs, as defined in rule.

Expiration of capacity reservations: In general, a capacity reservation expires within one year of the capacity reservation start date. An extension to this one year reservation is given if components of a system are already purchased, installation is underway and if the contract shows that this system will be installed within four months of the capacity reservation expiration date. Staff finds this proposal reasonable.

## **Section E. Interconnection and Interconnection Applications**

*Proposed rules (OARs 860-084-0310 through 0340) detail the interconnection application process. Proposed rules (OAR 860-084-0260 through 0300 and OAR 860-084-0350) detail the responsibilities that utilities may impose on consumers connecting to utility distribution systems and the limitations on requirements that the utilities may impose.*

The interconnection application and interconnection responsibilities sections of the proposed rules are designed to ensure that 1) photovoltaic energy systems connected to electric company distribution systems integrate in a way that protects the continued safety, reliability and cost effectiveness of the distribution systems, and 2) the interconnection application process is not a roadblock to the timely achievement of the photovoltaic capacity target of the pilot programs.

The proposed interconnection rules largely adopt the interconnection application processes of net metering, with the following difference:

- 1) For medium and large capacity systems the Commission will determine an application fee by Order. If the interconnection request is denied, the application fee will be refunded.

Staff recommends that the Commission impose the same application fees established for net metering in OAR 860-039-0045 (2), and (3). Specifically, for a level 2 interconnection application fee the electric company will charge \$50.00 plus \$1.00 per kilowatt of the facility's capacity, and for a level 3 interconnection application fee the electric company will charge \$100.00 plus \$2.00 per kilowatt of the facility's capacity.

Staff recommends a minor change to the proposed rules; this change would extend the time in which an electric company must respond to an application. Staff recommends this change in the event electric companies receives a rush of applications once the VIR Pilot Programs commence.

The proposed rules largely adopt the interconnection review processes of net metering, with the following differences. Proposed rules require that:

- 1) The pilot program applicant may choose the location of the meter;
- 2) The costs of interconnection, up to a reasonable limit, are borne by the electric company, instead of by the applicant; and
- 3) The customer is responsible for interconnection costs exceeding the cost allowance limit that is established by the Commission.

Staff intends that the proposed rules associated with interconnection review be equivalent to the already established net metering rules, except for the cost responsibility of interconnection review and system modifications, which are the cost responsibility of the electric company. Staff bases its recommendation regarding cost allocation on the fact that the costs of the systems are recoverable in rates, whether they are integrated into the VIR or borne directly by the electric company.



## Section E. Interconnection and Interconnection Applications (continued)

*Staff proposes a change to the proposed rules*, which would eliminate the reasonable cost section, and instead, include language in the Interconnection Cost Responsibility that provides the applicant with an allowance towards interconnection review and system modifications.

*Staff recommends that the electric company credit the customer up to \$1,000* for Level 1, Level 2 or Level 3 interconnection costs associated with review and system modifications. Any costs above this interconnection cost allowance will be borne by the applicant. The electric utility will recover the used portion of the allowance in rates.

*Staff also proposes that systems serving multiple retail loads at differing retail rate be wired and metered as independent systems. Staff proposes that these systems be treated as multiple projects for the purpose of interconnection cost allowances.*

Consumers have expressed dissatisfaction with existing net metering rules, which do not allow aggregation of meters at differing retail rates, through the grid, under one generation unit. These existing rules make it difficult to install PV panels on sunny out-buildings (always on a commercial rate schedule) and supply electricity to the consumer's home (on a residential rate and likely to be the majority of the retail load on the property). This situation is particularly problematic if the home is built in the shade, properly situated for energy efficiency.

Staff investigations of Commission jurisdiction to execute the VIR Pilot Programs, indicates that the grid may not be used to aggregate meters across differing retail rates. Staff proposes that consumers be required to wire PV installations to independently serve retail loads, albeit from a single generating unit. To enable this solution, Staff proposes that each independently wired generation sub-unit be treated as an independent project, with a separate interconnection allowance.

## **Section F. Measuring Capacity**

*Proposed rule (OAR 860-084-0160) requires that the capacity of photovoltaic systems be counted as the capacity on the alternating current side of the system's inverter. Staff proposes that the Commission specify the methodology for converting DC to AC in rule, with a modification identical to that given under "Solar Capacity Standard," in these Comments.*

HB 3039 requires that capacity counting towards the 25 MW capacity target for the pilot programs be measured on the alternating current side of the photovoltaic system inverter. Manufacturer's nameplate capacity rating is provided as a DC current rating, measured under standard test conditions (STC). Staff proposes that the Commission adopt the methodology historically utilized by the California Public Utilities Commission which converts to an AC rating from manufacturer's nameplate capacity under standard test conditions (PTC). This conversion factor is roughly 85% of the manufacturer's nameplate capacity.<sup>37</sup>

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<sup>37</sup> See "Tracking the Sun II", The Installed Cost of Photovoltaics in the U.S. from 1998-2008. Lawrence Berkeley Labs, October 2009. Page 1, footnote #4. <http://eetd.lbl.gov/ea/ems/reports/lbnl-2674e.pdf>

## **Section G. Establishing and Terminating Contracts**

*VIR are paid to eligible retail electricity consumers for a term of 15 years, under standard contracts created for the pilot programs. Proposed rules define what must be included in a standard contract, how contracts can be transferred or terminated, what options exist for consumers at the end of the 15 year contract term, and which party bears the costs of changes to contracts once they have been initiated (OAR-860-084-0240).*

Contracted participants must be paid at a VIR or under a VIR formula that does not change over contract term. The standard contract is a fifteen year contract and expires at the end of its term.

Payments under the VIR bid option will compensate participants for “100% of energy generated by a qualifying system.” Payment under the net metering option will be made, at the VIR, up to the actual annual usage of the retail electricity consumer.

In both cases, the Straw Proposal recognizes that “100% of energy generated by a qualifying system” should be defined as the energy that is deliverable from the photovoltaic system. This deliverable energy is 100% of the energy generated minus the small amount of energy, called the parasitic load, required to power up and operate a photovoltaic system. In rule, this is described as total generation, net of system requirements. Because this parasitic load is not part of a retail electricity consumer’s standard load, and because it would be expensive and complicated to separately meter this extremely small amount of energy, Staff believes that this proposal is consistent with the intent of HB 3039.

## **Section H. Volumetric Incentive Rates**

*The categories shown in Table 1, below, and an initial incentive rate for each category, are proposed for Commission approval. Some or all of the initial volumetric incentive rates given in Table 1 may be adjusted over the pilot program timeframe, through a public process. Proposed rule (OAR 860-084-0360) describes this public process and its expected timelines.*

*Staff proposes that participants using the VIR bid option will be paid the successful VIR bid awarded to the participant. Participants using the net metering option will be paid the net VIR, a rate calculated as the difference between the VIR established under the standard contract and the retail rate current in the month of VIR payments.<sup>38</sup> This language is represented in formula, below:*

*Net volumetric incentive rate = (volumetric incentive rate<sub>e</sub> – retail rate<sub>p</sub>)*

*Where e = rate at time of enrollment*

*And p = time of payment*

*For participants electing to sell to the utility the energy that exceeds the participant’s annual usage, the applicable rate for the excess energy will be the ICE Day Ahead Mid C Peak Index <https://www.theice.com/marketdata/reports/ReportCenter.shtml?reportId=77>*

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<sup>38</sup> Staff proposes that the applicant must be notified of the VIR at the time of application. See Section C. “Standard Contracts”.

Initial rates for the net metering option of the VIR Pilot Program are proposed in Table 2, below.

**Table 2. Volumetric Incentive Rates by IOU, County and Project Size**

Rate Class	IOU Service Counties	IOUs	Project Size	
			Less Than or Equal to 10 kW	Less Than or Equal to 500 kW <sup>39</sup>
			\$/KWH	\$/KWH
1	Clackamas, Columbia, Multnomah*, Washington, Yamhill*, Clatsop	Pacific Power & PGE*	0.600	0.500
2	Benton, Lincoln, Linn, Marion*, Polk*, Tillamook, Lane	Pacific Power & PGE*	0.500	0.500
3	Jackson, Josephine, Klamath, Lake, Douglas, Coos	Pacific Power	0.450	0.400
4	Crook, Deschutes, Jefferson, Wasco, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wallowa, Baker*, Malheur*	Pacific Power & Idaho Power*	0.400	0.400

- + Based on project cost data for 2008-2009 from the Energy Trust of Oregon (nominal \$).
- + Assumes 15-year payback period with 6 percent interest
- + Assumes 30% federal tax credit.

The initial rates are based on estimates of what rate is needed for a participant to pay the costs of installing cost effective systems under the VIR Pilot Programs. See Addendum B of these Staff Opening Comments (Transparency of Rate calculations) for the data and approach used to propose these initial rates. A short summary of Staff’s methodology is given below. Data for these calculations came from the Energy Trust of Oregon and are recent installations under the existing net metering program.

Staff performed three calculations for each project in the database:

1. Staff estimated the expected annual kilowatt-hours of generation by multiplying the project’s nameplate capacity by its rate class LPC factor;
2. Staff calculated a fixed annual payment needed to payback the system cost of each project over a 15 year period assuming an interest rate of 6 percent;
3. Staff calculated a volumetric incentive rate needed to payback the system cost of each project by dividing the annual fixed payback payment for each project (calculated in #2) by the project’s expected annual kilowatt-hours of generation (calculated in #1).

<sup>39</sup> Greater than 10 kilowatts and Less than or Equal to 500 kilowatts  
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## Section H. Volumetric Incentive Rates (continued)

As a final step, Staff calculated a single VIR for each rate class and project size category by multiplying the median volumetric payback rate for each rate class and project size by 1 minus the assumed federal tax credit of 30 percent and rounding the result to the nearest \$0.05.

*Proposed rule (OAR 860-084-0200) details how the VIR is set for a retail electric customer based on the participant's capacity reservation date. Proposed rule (OAR 860-084-0360) also codifies Commission authority to set and to change volumetric incentive rates.*

Rule specifies that the VIR for a retail electricity consumer is the effective VIR on the date of the consumer's capacity reservation. This VIR will be provided on the application or on a copy of a Standard Contract provided to the applicant at the time of capacity reservation. This rule establishes a uniform application of rates and to protect net metering option participants who may have unintended delays in installing systems<sup>40</sup> or who may suffer interconnection approval delays.<sup>41</sup>

## Section I. Payments and Assignments of Payments

*Default and alternative processes for payments to consumers are given in proposed rule (OAR 860-084-0250). This rule also specifies that standard contracts must allow the assignment of payments to a qualifying assignee. Proposed rule (OAR 860-084-0010 (11)) defines qualifying assignees and establishes that electric companies are not qualifying assignees for the purposes of the pilots. Processes to allow assignment at the time of enrollment, to make changes during the contract term, and determinations of which party bears the costs of making these changes are established in proposed rule (OAR 860-084-0140).*

The Straw Proposal includes design elements that enable a broad range of participation in the VIR Pilot Programs including multiple ownership models: third party financing, participation by non-profits, and direct ownership by retail electricity consumers. To enable direct ownership by retail electricity consumers, the VIR Pilot Programs will offer VIR targeted to pay back cost efficient installations of photovoltaic systems financed on reasonable terms over fifteen years. Assignment of payments will enable third party financing. Accordingly, the ability to assign VIR Pilot Program payments is a required element of the standard contracts.

*Proposed rule (OAR 860-084-0360) establishes how payments are derived from these incentive rates.*

Proposed rules define a VIR payment as the product of the total deliverable electricity generated by a qualifying photovoltaic system and the VIR. This definition is accurate for the VIR bidding option.<sup>42</sup>

Staff recommends modifications to these proposed rules to describe how payments are calculated for the net metering option of the VIR Pilot Programs.<sup>43</sup>

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<sup>40</sup> Applicants will receive the VIR effective on the day they submitted a capacity reservation if their systems are on-line within the reservation window.

<sup>41</sup> This provision will minimize any motivation to delay interconnection approval ;

<sup>42</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0365.

<sup>43</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0360.

## Section I. Payments and Assignments of Payments (continued)

Staff's proposed language is:

*For 15 years from the date of the consumer's date of enrollment, payment equals the product of payable generation and the applicable net VIR, with the applicable rate per kilowatt-hour given by the rate formula given in a rate schedule in effect at the date of capacity reservation. Payable generation is the eligible generation for each month plus accrued excess generation, up to the actual monthly usage. Excess generation accrues monthly. Accrued excess generation is the sum of generation remaining above the sum of payable generation.*

*At the end of a generation year, established to end March 31<sup>st</sup> of each year, excess accrued energy will be either be sold at market rates or donated to the electric company account dedicated to low income bill assistance (valued at the avoided cost rate of the electric company).*

*The language given, above, is shown in formula, below.*

Monthly Volumetric Incentive Payments = (Net volumetric incentive rate) \* Payable generation<sub>m</sub>

*e = at time of enrollment*

*p = at time of payment*

*Payable generation for month<sub>m</sub> =*

*Min ((Actual generation<sub>m</sub> + Accrued generation), Actual monthly usage<sub>m</sub>)*

*Accrued generation =  $\sum_1^m$ (actual generation<sub>i</sub> – actual monthly usage<sub>i</sub>)*

## Section J. Deployment of Pilot Program Capacity

*The Straw Proposal recommends that the Commission:*

- a) Allocate a fraction of the 25 MW target for the VIR Pilot Programs to each electric company proportional to their share of the 2008 Oregon total electric retail sales (revenue) of investor owned utilities, and*
- b) Direct each electric company to offer a fraction of its allocated capacity in each pilot year across size classes, as given in Table 2. Size classes, given in Table 2, for reference, are included in proposed rule (OAR 860-084-0190).*

*This annual allocation structures the VIR Pilot Programs as four serial acquisition windows: pilot program years. Pilot program years are defined in proposed rule (OAR 860-084-0010 (10)).*

HB 3039 requires that the Commission establish pilot programs for each electric company and that these pilot programs may install up to 25 MW of qualifying photovoltaic systems.

## Section J. Deployment of Pilot Program Capacity (continued)

Staff proposes that the Commission view this 25 MW as a target for installation, rather than a just a limit to installed capacity. Feedback from public workshops indicates that this is a clear expectation of intervening parties in AR 538 and UM 1452.

To simplify VIR Pilot Program operation, Staff proposes that the Commission establish initial capacity targets for each electric company, distributing the 25 MW installation target across the electric companies in proportion to their share of the total Oregon retail electricity revenue for 2008. For Portland General Electric, this target is 14.9 MW; for Pacific Power this target is 9.8 MW; for Idaho Power, this target is 0.4 MW.

Staff further proposes that the Commission distribute these allocations by pilot year and by system size across the first four pilot years. This proposal, contained in the Straw Proposal, results in four serial pilots (one pilot program per year) that deliver information across three system size categories (smaller, medium and large).

Staff proposes that the system size categories are:

- a) 0 to 10 kW systems, likely to be installed by residential or small commercial customers, but may be installed by any customer class;
- b) Systems greater than 10 kW, up to 100 kW; likely to be installed by a broad range of customer classes; and
- c) Systems greater than 100kW and up to 500kW, likely to be installed by large commercial or industrial customers, but may be installed by any customer class.

Staff proposes modifications to the capacity distribution advanced in the Straw Proposal. These are given in Table 3 (NEW), on the following page.

## Section J. Deployment of Pilot Program Capacity (continued)

Each pilot program year runs from April 1 of the year through March 31 of the following year. The first pilot program year begins April 1, 2010; the fourth program year begins on April 1, 2013 and ends on March 31, 2014.

The Commission, in response to petition by any person or on its own motion, may: a) redistribute the capacity targets between electric companies, b) change the distribution of capacity targets to spread across more or fewer years, c) redefine the system size categories or add additional system size categories, or d) modify the distribution of capacity allocations across sizes.

### Staff proposes modifications to the capacity distribution advanced in the Straw Proposal .

These are given in Table 3 (NEW), below. Staff proposes that the distribution of capacity across years and system size categories given in the original Straw Proposal are not ideal for learning about systems in the medium size category.<sup>44</sup> Staff also proposes that smaller systems may benefit from delayed capacity allocations, designed to give this customer class time to learn about and embrace the pilot programs.

Energy distribution by system size. Staff has allocated a majority share of capacity to smaller systems; HB 3039 calls for 75% of the energy generated to be generated by smaller systems.<sup>45</sup> Staff has proposed that smaller systems be defined as systems up to 10kW, based, in part, on DOJ research showing that, in testimony to legislators, smaller systems were largely portrayed as residential.

In the Straw Proposal, the allocation to the smaller capacity size category is 60%; *in the current Staff Proposal, this allocation is 50%*. (In both proposals, the allocation across the aggregation of smaller and medium sized systems is 80%).

Staff believes HB 3039 requires that the pilots be positioned to acquire 25 MW of installed capacity and to achieve as close to 75% of the energy generated in the pilots from smaller systems as possible. Staff proposes front loading of capacity for medium size systems to test the effectiveness of VIRs across a larger sample of expected projects. Staff proposes a ramping capacity profile for smaller systems to enable the expected slower marketing of retail and small commercial systems to successfully utilize assigned capacity. Attachment A of Staff Opening comments gives an idea of how many projects could be installed each year.

In order to maximize the likelihood of 75% of capacity being installed for smaller systems, the Straw Proposal suggests that the Commission revisit the allocation between smaller and medium sized systems during a year 3 (or earlier) VIR Pilot Program checkpoint.

In a situation where capacity is reallocated to smaller systems, so as to meet the 75% energy generated by smaller systems, the pilot program would end for medium and large capacity systems and continue for smaller systems only.

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<sup>44</sup> Table 3 (NEW) is Staff's proposal; Table 3 (Obsolete) is the original Table from the Straw Proposal.

<sup>45</sup> The legislature, however, leaves it open to the Commission to define the size range so as to accomplish the goals of the legislation.

**Table 3. STRAW PROPOSAL(obsolete by Table 3 new, below)**

		Project Size		
Timing	Utility	Smaller (Less Than or Equal to 10 kW)	Medium (Greater Than 10 kW and Equal to or Less Than 100 kW)	Large (Greater Than 100 kW and Equal to or Less Than 500 kW)
		Allocation	Allocation	Allocation
Annual <sup>46</sup>		15%	5%	5%
	Portland General Electric	2.2 MW	.75 MW	.75 MW
	Pacific Power	1.5 MW	.5 MW	.5 MW
Yr 1 & 2	Idaho Power	.1 MW	0	0
TOTAL		60%	20%	20%
	Portland General Electric	8.8 MW	3.0 MW	3.0 MW
	Pacific Power	6.0 MW	2.0 MW	2.0 MW
	Idaho Power	.2 MW	0	0

<sup>46</sup> Allocation given is for each of the first four years of the five year pilot term.  
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Table 3, NEW, below is Staff's Proposal.

Obsolete: (Table 3, above, is the capacity allocation recommended in the Straw Proposal.)

NEW: Table 3. Deployment of Pilot Program Capacity by Project Size (*proposed*)

Timing	Utility	Smaller (Less Than or Equal to 10 kW)	Medium (Greater Than 10 kW and Equal to or less than 100 kW)	Large (Greater Than 100 kW and Equal to or less than 500kW)
		Allocation	Allocation	Allocation
First Year allocation	5.1	5%	10%	5%
	PGE, MW	0.7	1.5	0.7
	Pacific Power, MW	0.5	1.0	0.5
Yr 1 & 2 @ 50%, all smaller	Idaho Power, kW	188	0.0	0.0
Second Year allocation	6.3	10%	10%	5%
	PGE, MW	1.5	1.5	0.7
	Pacific Power, MW	1.0	1.0	0.5
Yr 1 & 2 @ 50%, all smaller	Idaho Power, kW	188	0.0	0.0
Third Year Allocation	6.2	15%	5%	5%
	PGE, MW	2.2	0.7	0.7
	Pacific Power, MW	1.5	0.5	0.5
Fourth Year Allocation	7.4	20%	5%	5%
	PGE, MW	3.0	0.7	0.7
	Pacific Power, MW	2.0	0.5	0.5
TOTAL, MW	25.0	50%	30%	20%
	Portland General Electric	7.44	4.5	3.0
	Pacific Power	4.9	2.9	2.0
	Idaho Power	0.4	0	0

## **Section K. Rate Impact and Cost Recovery**

*No initial rate impact ceiling is proposed. A process is established to determine the costs of complying with HB 3039 and allows the Commission to establish a rate impact ceiling (OAR 860-084-0380). Proposed rule (OAR 860-084-0370) describes the requirements of utility filings on resource value; these filings are foundational to the determination of compliance costs.*

*Proposed rule (OAR 860-084-0390) provides that the utilities may request recovery of prudently incurred costs associated with compliance with these rules. The utilities will propose mechanisms for utility cost recovery in Opening Comments in these proceedings.*

*Staff also proposes that resource value may be provided for smaller, medium and large systems and for remote and centrally located systems.*

Staff proposes that it is premature to set capacity limits or to decide whether a 0.25 percent rate cap is appropriate. Although initial VIR are proposed in the Straw Proposal and in these Comments, the actual VIR could go down or up over the pilot program. Staff proposes the Commission make these decisions as part of proceedings aimed at determining the resource value and the costs of complying with HB 3039.<sup>47</sup>

Reviews of the resource value are scheduled for July of even numbered years, in years 2010-14. These filings, estimates of the 15 year levelized resource value, will provide the basis for determining the recoverable, subsidy portion, of the VIR.

Staff proposes that, in order to identify the avoided costs of transmission and distribution from such a small installation of photovoltaic capacity, the utilities may need to develop methodologies that look at the positive (and negative) impacts of distributed generation, on a more discrete scale.<sup>48</sup>

HB 3039 provides that all prudently incurred costs associated with VIR Pilot Programs are recoverable in the rates of the electric company. The costs associated with the resource value<sup>49</sup> are recoverable in the rates of all retail electricity consumers. Prudently incurred costs, in excess of resource value, are recoverable from customer classes eligible for the pilot programs.<sup>50</sup> All customer classes are eligible for the pilot programs.

Staff has asked the electric companies to propose, in their Opening Comments, which rate adjustment mechanism seems most appropriate to utilize in this cost recovery.

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<sup>47</sup> Proposed Rules, revs 1 and 2, OAR 860-084-0370 to 0390.

<sup>48</sup> Staff Proposal, January 14, 2010, Rate Impact and Cost Recovery.

<sup>49</sup> HB 3039, July 2009, Section 1(4).

<sup>50</sup> HB 3039, July 2009, Section 1(10).

Staff Opening Comments, UM 1452, January 14, 2010

## **Section L. Learning and Recommendations**

*Utility data collection and reporting requirements are established for the pilots in proposed rules OAR 860-084-0400 through 0430. Customer requirements for providing data are established in proposed rules OAR 860-084-0410. Requirements for utility, Staff, and public participation in generating recommendations from these pilots are established in proposed rules OAR 860-084-0440 through 0450. Data collection, reporting and decision making to improve capacity reservation systems are proposed in OAR 860-084-0210 (2). These data will determine whether application fees should be imposed to ensure that capacity reservations made are converted to installations in the pilot program.*

Staff proposes the fact that the pilot program is targeted to last five years implies that the authors recognized that trial and error learning is likely to be required.

Further, HB 3039 requires that the Commission recommend legislative changes to improve implementation of the pilot programs and consider regulatory policies designed to increase the use of photovoltaic energy systems, make them more affordable, promote the development of the solar industry in Oregon, and do this while reducing the cost of incentive programs to utility customers.<sup>51</sup>

Staff proposes that data collection is a central requirement of the VIR Pilot Programs. Data collection should be targeted to learn which customers and customer segments are motivated by VIR (as compared to existing incentives for the installation of solar capacity such as the existing form of net metering, cash incentives at installation, and tax credits over the first years of installation), whether distributed generation can be cost effective and/or improve distribution systems in other ways, and whether electric companies can cost effectively contract for and maintain a network of smaller purchased power agreements (ppa's) with its customers while maintaining customer satisfaction.

Data collection will be required in order to know when the program has reached capacity targets, to measure the percentage of energy generated that comes from smaller system sizes, and determine the cost and technology trends in system and installation costs in Oregon over the pilot term.

As a condition of receiving VIR payments, pilot participants are required to participate in surveys.<sup>52</sup> These surveys will be designed to identify which customers, geographies and customer segments are motivated by VIR and to measure the success electric companies have in effectively contracting and maintaining a network of smaller purchased power agreements with customers.

Further, surveys should measure customer satisfaction with power quality on their distribution systems before and after distribution system upgrades enabling distributed capacity additions to the system. Finally, surveys should solicit customer feedback on policies or pilot program constructs that would meet the goals outlined in the legislation and attract others to the programs.

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<sup>51</sup> HB 3039, July 2009, Section 7.

<sup>52</sup> Proposed Rules, revs 1 and 2, OAR 860-084-0440 and OAR 860-084-0240 (g) – rev 2. Staff Opening Comments, UM 1452, January 14, 2010

## **Section M. Pilot Year and Program Termination**

*At the end of each pilot year, capacity allocated to that year, but not reserved, is transitioned to the next pilot year as described in proposed rule OAR 860-084-0220.*

*This proposed rule also allows the Commission authority to reallocate capacity, as needed, near the end of pilot year three (or at any other time during the pilot program). Processes that describe capacity reallocation are given in proposed rules OAR 860-084-0170.*

*Proposed rule 860-084-0100 (2) defines that the last capacity reservation application in the pilot program may be filed on March 31, 2015, but must be filed before the pilot program capacity is fully reserved, whichever comes first.*

*The pilot program of a utility ends on March 31, 2015 or when its capacity allocation is fully installed, unless more capacity is allocated to the utility. Proposed rules that describe the end of the pilot program are OAR 860-084-0010, OAR 860-084-0170, and 860-084-0150*

It is not known how rapidly, or if, each customer segment will learn about and embrace the VIR Pilot Programs. Accordingly, Staff proposes initial capacity allocations by pilot year and by system size (given in Table 3, above), and proposes three mechanisms to adjust these allocations.

The first reallocation mechanism is very simple: at the end of a pilot year, remaining capacity allocated to a system size category rolls over into the allocation for the same size category in the next year. This mechanism is intended to adjust for adoption rates that are slower than forecasted.

The second mechanism is also simple. During periodic review of the VIR, parties are likely to assert that the capacity allocated to a system size will never be utilized and that it should be reallocated to a different system size. The Commission has the authority to make adjustments of this type at any time during the pilots.

Finally, a capacity allocation review is scheduled for the end of pilot year three (Winter 2012-2013). If needed, Staff will recommend reallocation of capacity at that time. The objective of this reallocation would be to 1) maximize the likelihood that 25 MW of photovoltaic energy systems would be installed by March 31, 2015, 2) reallocate capacity in order to target gaps in Commission understanding of the use and effectiveness of VIR, and 3) maximize the likelihood of installing smaller systems that generate 75% of energy generated under the pilots.

HB 3039 specifies that the pilots close to new participants on March 31, 2015 or when 25 MW of capacity has been installed by retail electricity consumers, whichever comes first.<sup>53</sup> Staff proposes that “closing to new participants” means that March 31, 2015 is the last day that a capacity reservation application may be filed under the VIR Pilot Programs. In an extreme case, allowing applications for remaining capacity to be filed as late as March 31, 2015, could mean that installations and final enrollment (contract signing) may be made as late as July 31, 2016.

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<sup>53</sup> HB 3039, July 2009, Section 2 (12).

This concludes Staff Opening Comments

Dated at Salem, Oregon, this 14th day of January, 2010

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**Theresa Gibney**  
Utility Analyst  
Electric Rates & Planning

Attachment A.

Table A NEW, below, replaces the Table 2 from the Straw Proposal:

**NEW: Table A. Rough Number of Projects Achievable by Project Size<sup>54</sup>**

Projects available for allocation (rounded)	Project Size								
	Smaller (Less Than or Equal to 10 kW)			Medium (Greater Than 10 kW and Equal to or Less Than 100 kW)			Large (Greater Than 100 kW and Equal to or Less Than 500 kW)		
Utility	2	5	10	25	50	100	125	250	500
<b>First Year allocation</b>									
PGE	370	150	75	60	30	15	6	3	1
Pacific Power	240	100	50	40	20	10	4	2	1
Idaho Power	90	40	20						
<b>Second year allocation</b>									
PGE	740	300	150	60	30	15	6	3	1
Pacific Power	480	200	100	40	20	10	4	2	1
Idaho Power	90	40	20						
<b>Third year allocation</b>									
PGE	1110	445	225	30	15	7	6	3	1
Pacific Power	730	300	150	20	10	10	4	2	1
<b>Fourth year allocation</b>									
PGE	1480	600	300	30	15	7	6	3	1
Pacific Power	970	400	200	20	10	10	4	2	1
<b>Total allocation (4 yrs)</b>									
PGE	3700	1480	740	180	90	45	24	12	6
Pacific Power	2440	1000	490	120	60	30	16	8	4
Idaho Power	190	80	40						

<sup>54</sup> This table is for reference only, so that the reader may internalize what the capacity allocations represent  
Staff Opening Comments, UM 1452, January 14, 2010

**OBSOLETE: Table A. Number of Projects Achievable by Project Size<sup>55</sup>**

Projects available for allocation	Project Size								
	Smaller (Less Than or Equal to 10 kW)			Medium (Greater Than 10 kW and Equal to or Less Than 100 kW)			Large (Greater Than 100 kW and Equal to or Less Than 500 kW)		
Utility	2	5	10	25	50	100	125	250	500
Annual allocation <sup>56</sup>									
PGE	1100	440	220	30	15	7	6	3	2
Pacific Power	700	280	140	20	10	5	4	2	1
Idaho Power	50	20	10						
Total allocation (4 yrs)									
PGE	4400	1760	880	120	60	28	24	12	8
Pacific Power	2800	1120	560	80	40	20	16	8	4
Idaho Power	100	40	20						

Attachment B: Possible Tax Implications as of November 2009

VIRs are new in the United States. Tax rules are in development at the Federal level and are expected to be newly released at the time of the pilot program launch.

It is expected that some volumetric incentive payments will be taxable under Federal Tax law. Today, generation to offset usage, under net metering arrangements are not taxable. How this will proceed in the face of VIR payments is uncertain.

Staff understanding at the Oregon Department of Revenue is that interest expenses and other O&M will not offset this VIR income on ?personal? Federal Taxes forms. Oregon tax code generally follows Federal tax code, unless specific provision is given by legislation.

Our best information to date is that property tax determinations are likely to be made at a county by county level.

Staff assumes that the retail electricity consumer, as the contracting party, will receive volumetric incentive payments as income, even if they assign payments to a third party. It may be that assignment of tax liability, along with assignment of payments, can be accomplished.

The need to seek the advice of a tax accountant should be clearly spelled out in the contracts and explained to contracting participants.

<sup>55</sup> This table is for reference only, so that the reader may internalize what the capacity allocations represent

<sup>56</sup> IPCO has an annual allocation for the first two years of the pilot program

Staff Opening Comments, UM 1452, January 14, 2010

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON  
UM 1452**

In the Matter of PUBLIC UTILITY  
COMMISSION OF OREGON  
Investigation into Pilot Programs to  
demonstrate the use and effectiveness of  
Volumetric Incentive Rates for Solar  
Photovoltaic Energy Systems.

STAFF PROPOSAL  
(Addendum A. to Staff Opening Comments)

On December 4, 2009, Staff of the Oregon Public Utility Commission (“Staff”) released a Straw Proposal in UM 1452, on behalf of parties engaged in workshops held to develop pilot program designs and Proposed Rules<sup>1</sup> (AR 538), as required by 2009 Or Laws Ch. 748 (also known as HB 3039). This Straw Proposal incorporated feedback received in three Staff-facilitated workshops held between September 30, 2009 and November 6, 2009.

Simultaneous Opening Comments were to have been submitted on December 18, 2009. On December 17, 2009, Staff filed a motion to indefinitely suspend the schedule in UM 1452, including the deadline for Opening Comments, citing Staff’s intention to revise the Straw Proposal in response to Oregon Department of Justice (DOJ) concerns regarding jurisdictional limitations on the Commission’s ability to establish Volumetric Incentive rates (“VIR”) in the pilot programs.<sup>2</sup> On December 21, 2009, Staff filings provided Staff’s interpretation of the impact of this DOJ analysis, proposed potential solutions in pilot design for retail electricity consumers installing photovoltaic systems, and proposed a January 6<sup>th</sup> workshop to review these potential solutions and solicit alternate proposals from the parties.

This document presents Staff’s recommendations for changes in the Straw Proposal, based on comments and feedback received between December 22, 2009 and January 6, 2010.<sup>3</sup> This revised Straw Proposal (also referred to as “Staff Proposal”), along with changes in the Proposed Rules,<sup>4</sup> enable Volumetric Incentive Rate Pilot Programs (“pilots”, VIR Programs), within Commission jurisdiction, by introducing a bidding mechanism for determining VIR for larger sized systems and introducing a net metered design, with VIR established by Commission Order, for smaller and medium sized systems. Additionally, qualifying systems that are eligible to do so may opt to sell “excess” generation, (generation above actual annual usage), at market rates.

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<sup>1</sup> The Straw Proposal is based on proposed division 084 rules, first revision, dated November 19, 2009. These rules were posted on the Commission website on November 19, 2009 and reviewed with parties at an AR 538/UM 1452 workshop held on November 23<sup>rd</sup>.

<sup>2</sup> This concern was communicated in a December 15, 2009 memorandum providing DOJ analysis addressing how the Federal Regulatory Commission’s (FERC’s) exclusive jurisdiction to establish rates for wholesale sales of electricity in interstate commerce impacts the ability of the OPUC to implement HB 3039.

<sup>3</sup> This Staff Proposal incorporates changes derived from the November 23<sup>rd</sup> and January 6<sup>th</sup> workshop and from comments received during this time.

<sup>4</sup> Proposed division 084 rules, Staff revision 1/14/2010, are posted on the Commission website.



This Staff Proposal builds on the original Straw Proposal (which was created as a framework for all parties, including staff, to make comments on for change to both Proposed Rules and proposed Commission decisions, in Opening and Final comments). Text in italics represents changes from the original Straw Proposal.

Solar Capacity Standard

*The Staff proposal suggests that the capacity conversion factor to be used to convert DC nameplate capacity to an AC representation of capacity should be given in the rules, instead of through Commission guidelines. As such, the Staff proposal does not identify any Commission decision that must be made in Docket No. UM 1452 to implement the Solar Capacity Standard.*<sup>5</sup>

Pilot Program Participation

Pilot program participants will be retail electricity consumers (“consumers”) who install qualifying photovoltaic systems and enter into a standard contract with their utility to receive a VIR payment for energy generated and renewable energy certificates provided to the utility.

Staff recommends amending the proposed rules and Straw Proposal to *provide two options under the VIR Pilot Programs:*<sup>6</sup> (1) **a net metered option** (with the qualifying system installed on the customer side of the service meter<sup>7</sup> and with payments at Commission established VIR up to the actual annual usage of the retail electricity consumer and excess generation saleable at market based rates), and (2) a **VIR bid option** (with payments for 100% of energy generated, net of system requirements, at a VIR bid by the consumer). Staff proposes that eligibility for these options and the capacity distribution mechanism in the pilots be determined by system size<sup>8</sup>, as given in Table 1.

**Table 1. Pilot Program Options and Mechanisms for Capacity Distribution**

PILOT PROGRAM OPTION:	Capacity Distribution Mechanism		
	Distributed throughout the year (first-come, first-serve)	Distributed during one month/year (by lots, if necessary)	Distributed by bid
Net Metered Option	Smaller Systems	Medium Systems	
Volumetric Incentive Rate Bid Option			Larger Systems

<sup>5</sup> See Proposed Rules, Staff Revision, 1/14/2010, 860-084-0040 (2).

<sup>6</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0100 (2) through (4).

<sup>7</sup> Revised Proposed Rules, January 14, 2010; OAR 860-084-0100 (2) a

<sup>8</sup> Revised Proposed Rules are restructured to separate system size definition from definition of capacity distribution mechanisms. OAR 860-084-0190, November 19, 2009 has been split into OAR 860-084-0190 and 860-084-0195.

## Pilot Program Participation (continued)

Definitions of qualifying photovoltaic systems and definitions of system and participant eligibility are established in proposed rules (OAR 860-084-0110 through 0120). Staff proposes a change to eligibility criteria to more closely reflect the language of OR Laws Chapter 748; *systems must be “on-line after April 1, 2010” rather than “installed after April 1, 2010.”*<sup>9</sup>

Requirements for installation and operation of qualifying systems, for consumers to transfer ownership of renewable energy certificates to the utility in return for payment and for elements to be included in standard contracts offered to consumers are given in proposed rules (OAR-860-084-0130 and OAR 860-084-0240).

Staff proposes an addition to the Straw Proposal: *Require that systems meet Commission established guidelines for quality and reliability.*<sup>10</sup> *Participants must certify that systems meet both of these criteria, at the time of capacity reservation.*

## Capacity Reservation

A consumer becomes a pilot program participant by reserving capacity in the pilot program from its utility. On or after April 1, 2010, a retail electricity consumer may submit the applications required to solicit a capacity reservation in the pilot programs; this application process is established by proposed rule (OAR 860-084-0230).

Capacity is available *and distributed through capacity distribution mechanisms* based on the size of the qualifying system. Proposed rules (OAR 860-084-0190) define the categories of size for qualifying systems and establish an initial intent for distribution of the energy generated by installed systems. *Proposed rules (OAR 860-084-0195) establish mechanisms for distributing pilot capacity during the pilot year and establish the total number of capacity reservations or percent of total pilot capacity that a retail electricity consumer or developer/installer/financer may secure in the pilot program.*

OAR 860-084-0190 also provides Commission authority to change these size definitions and the targeted distribution of the energy generated by installed systems.

It is proposed that the random drawings identified in proposed rule (OAR 860-084-0195) are carried out by assigning each applicant a number, based on the order of applications received. A public drawing can then take place, selecting the winning applications by use of a random number generator contained in a simple calculator or other computing device. A drawing will be considered sufficiently public if it is a joint exercise undertaken by the utility with a staff member from the Commission.

Proposed rule (860-084-0210) defines when a capacity reservation expires; a photovoltaic system must be installed, contracted and on-line within this capacity reservation window.

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<sup>9</sup> See Proposed Rules, revision 2, 860-084-0120 (1) d.

<sup>10</sup> Proposed revised rules, January 14, 2010; OAR 860-084-0120 (1) (h).

## Interconnection

Proposed rules (OARs 860-084-0310 through 0340) detail the interconnection application process. Proposed rules (OAR 860-084-0260 through 0300 and OAR 860-084-0350) detail the responsibilities that utilities may impose on consumers connecting to utility distribution systems and the limitations on requirements that the utilities may impose.

*Staff proposes that projects with a single physical installation that intend to serve multiple loads at differing retail rates, must have separate meters for each generation sub-unit serving a retail load. Staff proposes that each of these meters and interconnections be treated as an independent project for the purposes of an interconnection allowance.*

*Staff proposes that a \$1000 interconnection allowance also be established for Level 1 interconnection.*

## Measuring Capacity

Proposed rule (OAR 860-084-0160) requires that the capacity of photovoltaic systems be counted as the capacity on the alternating current side of the system's inverter.

*This Straw Proposal proposes that the factor required to convert manufacturer's DC nameplate capacity to its AC equivalent be included in rule.<sup>11</sup> Staff proposes a methodology historically utilized by the California Public Utilities Commission, an AC-PTC rating which is roughly 85% of DC-STC capacity.<sup>12</sup>*

## Establishing and Terminating Contracts

*For systems eligible for the net metering option of the VIR Pilot Programs, volumetric incentive rate payments are made, for eligible energy generated, to retail electricity consumers for a term of 15 years, under standard contracts created for the pilot programs. Retail electricity consumers may opt to be paid for excess generation, above actual annual usage, with certification that they are eligible to make wholesale sales of energy at market rates.*

*For consumers participating in VIR Pilot Programs under the VIR bidding option of the pilots, VIR are paid, for 100% of energy generated, net of system requirements, to retail electricity consumers for a term of 15 years, under standard contracts created for the pilot programs.*

Proposed rules define what must be included in a standard contract, how contracts can be transferred or terminated, and which party bears the costs of changes to contracts once they have been initiated. These elements are contained in proposed rule (OAR-860-084-0240).

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<sup>11</sup> See Proposed Rules, revision 1/14/2010, 860-084-0160 (2).

<sup>12</sup> See "Tracking the Sun II", The Installed Cost of Photovoltaics in the U.S. from 1998-2008. Lawrence Berkeley Labs, October 2009. Page 1, footnote #4. <http://eetd.lbl.gov/ea/ems/reports/lbnl-2674e.pdf>

Staff proposes that the following elements be added to requirements for the Standard Contracts, in rule, to implement Staff's Proposal that each electric company offer two VIR Pilot Program options: (a) descriptions of the two options (net-metering and VIR bid) and a provision specifying which option applies to the consumer; (b, provisions explaining that a consumer may elect to donate excess generation or be paid for excess generation and a provision specifying which option the consumer chooses; (c) certification that systems meet VIR Pilot Program quality and reliability guidelines, (d) a provision that assignees may be changed over contract term (e) clarification that VIR payments may be taxable income, that systems may be subject to Oregon property taxes, and that consumers should seek professional tax advice and (f) information on the PV installation/financing.

Staff proposes that the standard contracts be approved as part of the electric companies' VIR tariffs,<sup>13</sup> that all transactions under the VIR Pilot Programs are covered by a single contract with each electric company. Staff also proposes that the Commission not require a common standard contract across electric companies.

Finally, Staff proposes that a customer who is found by the Commission to have made a false certification is no longer eligible for the VIR Pilot Programs and any Pilot Program contract the customer may have entered into is void.<sup>14</sup>

### Volumetric Incentive Rates

Proposed rule (OAR 860-084-0200) establishes that the volumetric incentive rate is set for a retail electric customer based on the participant's capacity reservation date. Proposed rule (OAR 860-084-0360) also describes Commission authority to set and to change volumetric incentive rates.

The categories given in Table 2, below, and the initial volumetric incentive rate shown for each category, are proposed for Commission approval. Some or all of the initial volumetric incentive rates given in Table 2 may be adjusted over the pilot program timeframe, through a public process. Proposed rule (OAR 860-084-0360) describes this public process its expected timelines.

*Staff proposes that the volumetric incentive rate formula for the net metering option of the VIR Pilot programs be given by the following formula:*

*Net volumetric incentive rate = (volumetric incentive rate<sub>e</sub> – retail rate<sub>p</sub>)*

*Where e = rate at time of enrollment*

*And p = time of payment*

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<sup>13</sup> Proposed rules, revs 1 and 2; OAR 860-084-0240 (1).

<sup>14</sup> Proposed Revised Rules, January 14, 2010; OAR 860-084-0410 (3).

**Table 2. Volumetric Incentive Rates by IOU Service County and Project Size**

Rate Class	IOU Service Counties	IOUs	Project Size	
			Less Than or Equal to 10 kW	Less Than or Equal to 500 kW <sup>15</sup>
			\$/KWH	\$/KWH
1	Clackamas, Columbia, Multnomah*, Washington, Yamhill*, Clatsop	Pacific Power & PGE*	0.600	0.500
2	Benton, Lincoln, Linn, Marion*, Polk*, Tillamook, Lane	Pacific Power & PGE*	0.500	0.500
3	Jackson, Josephine, Klamath, Lake, Douglas, Coos	Pacific Power	0.450	0.400
4	Crook, Deschutes, Jefferson, Wasco, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wallowa, Baker*, Malheur*	Pacific Power & Idaho Power*	0.400	0.400

+ Based on project cost data for 2008-2009 from the Energy Trust of Oregon (nominal \$).

+ Based on 15-year payback period with 6 percent interest.

+ Assumes 30% federal tax credit

### Payments and Assignments of Payments

Proposed rule (OAR 860-084-0360) establishes how payments are derived from these incentive rates, and how rates and payments are determined after the 15 year VIR contract period has passed. Proposed rule (OAR 860-084-0370) describes the requirements of utility resource value filings that are foundational to determination of payments after the 15 year VIR contract ends.

*Staff proposes that participants installing systems under the net metering option of the VIR Pilot Programs receive payment for 100% of generation up to the retail electricity consumer's actual annual usage, paid at the volumetric incentive rate in place on the date of the consumer's capacity reservation. These consumers may also elect to either:*

- a) Donate generation in excess of actual annual usage to the low income assistance program of the electric company, valued at the electric company's avoided cost,*
- or*
- b) Receive payment for 100% of generation in excess of actual annual usage upon certification that of eligibility to make wholesale sales of energy at market rates.*

<sup>15</sup> Greater than 10 kilowatts and Less than or Equal to 500 kilowatts

*For participants electing to sell to the utility the energy that exceeds the participant's annual usage, the applicable rate for the excess energy will be the ICE Day Ahead Mid C Peak Index <https://www.theice.com/marketdata/reports/ReportCenter.shtml?reportId=77>*

*Staff proposes that participants intending to install systems under the VIR bid option of the VIR Pilot Programs receive payment for 100% of generation, including generation above actual annual usage, paid at a rate set through a Commission approved VIR bidding process..*

*Staff proposes that the utilities own 100% of Renewable Energy Certificates (RECs) generated by qualifying systems under the VIR Pilot Programs.*

Default and alternative processes for payments to consumers are given in proposed rule (OAR 860-084-0250); this rule also proposes that pilot contracts must allow the assignment of payments to a qualifying assignee identified by the consumer at the time of enrollment.

*Proposed rule (OAR 860-084-0010 (11)) defines qualifying assignees and establishes that electric companies or other regulated utilities are not qualifying assignees for the purposes of the pilots. Specifically, regulated utilities may not engage in business arrangements for financing or installation/ownership of photovoltaic systems as a regulated business activity. Regulated utilities do not qualify as a retail electricity consumer under the pilot program.*

Processes to allow assignment of payments at the time of enrollment, to make changes to assignment during the contract term, and to make determinations of which party bears the costs of making these changes are established in proposed rule (OAR 860-084-0140).

*Staff proposes that retail electricity consumers will be paid, monthly, for 100% of generation up to actual monthly usage under the volumetric incentive rate formula. Excess energy (from months where generation exceeds usage) will be accrued, monthly, and will be netted against future usage. At the end of a generation year, established to end March 31<sup>st</sup> of each year, excess accrued energy will be either be sold at market rates or donated to the electric company account dedicated to low income bill assistance (valued at the avoided cost rate of the electric company)*

*Staff proposes that the volumetric incentive payments to retail electricity consumers installing systems under the net metering option be governed by the formula given below:*

Monthly Volumetric Incentive Payments =

*(Net volumetric incentive rate) \* Payable generation<sub>m</sub>*

*e = at time of enrollment*

*p = at time of payment*

*Payable generation for month<sub>m</sub> =*

*Min ((Actual generation<sub>m</sub> + Accrued generation), Actual monthly usage<sub>m</sub>)*

*Accrued generation =  $\sum_1^m$ (actual generation<sub>i</sub> – actual monthly usage<sub>i</sub>)*

*Accrued generation<sub>April 1</sub> = 0*

## Deployment of Pilot Program Capacity

The Straw Proposal recommends that the Commission:

- a) Allocate a fraction of the 25 MW target for the VIR Pilot Programs to each electric company proportional to their share of the 2008 Oregon total electric retail sales (revenue) of investor owned utilities, and
- b) Direct each electric company to offer a fraction of its allocated capacity in each pilot year across size classes, as given in Table 2. Size classes, given in Table 2, for reference, are included in proposed rule (OAR 860-084-0190).

**Table 3. Deployment of Pilot Program Capacity by Project Size** *(revised from Straw Proposal)*

Timing	Utility	Smaller (Less Than or Equal to 10 kW)	Medium (Greater Than 10 kW and Equal to or less than 100 kW)	Large (Greater Than 100 kW and Equal to or less than 500kW)
		Allocation	Allocation	Allocation
1 <sup>st</sup> Year allocation	5.1	5%	10%	5%
	PGE, MW	0.7	1.5	0.7
	Pacific Power, MW	0.5	1.0	0.5
Yr 1 & 2 @ 50%, all smaller	Idaho Power, kW	188	0.0	0.0
2 <sup>nd</sup> Year allocation	6.3	10%	10%	5%
	PGE, MW	1.5	1.5	0.7
	Pacific Power, MW	1.0	1.0	0.5
Yr 1 & 2 @ 50%, all smaller	Idaho Power, kW	188	0.0	0.0
3 <sup>rd</sup> Year Allocation	6.2	15%	5%	5%
	PGE, MW	2.2	0.7	0.7
	Pacific Power, MW	1.5	0.5	0.5
4 <sup>th</sup> Year Allocation	7.4	20%	5%	5%
	PGE, MW	3.0	0.7	0.7
	Pacific Power, MW	2.0	0.5	0.5
TOTAL, MW	25.0	50% <sup>16</sup>	30% <sup>17</sup>	20%
	Portland General Electric	7.44	4.5	3.0
	Pacific Power	4.9	2.9	2.0
	Idaho Power	0.4	0	0

<sup>16</sup> Decreased from Straw Proposal by 10% (was 60%). Ramped capacity allocation from 5% to 20% of capacity.

<sup>17</sup> Increased from Straw Proposal by 10% (was 20%). Front loaded capacity allocation for this category.

This annual allocation structures the VIR pilot as four serial acquisition windows: pilot program years. Pilot program years are defined in proposed rule (OAR 860-084-0010 (10)).

*Staff proposes a greater allocation of capacity to medium systems, in years one and two, and a ramping of smaller systems capacity from pilot year one to pilot year four.*

#### Rate Impact and Cost Recovery

No initial rate impact ceiling is proposed. A process is established to determine the costs of complying with HB 3039 and allows the Commission to establish a rate impact ceiling (OAR 860-084-0380). Proposed rule (OAR 860-084-0370) describes the requirements of utility filings on resource value; these filings are foundational to the determination of compliance costs.

*Staff proposes that utilities may be asked to report resource values based on the impact of resource size and location.*

Proposed rule (OAR 860-084-0390) provides that the utilities may request recovery of prudently incurred costs associated with compliance with these rules. The utilities will propose mechanisms for utility cost recovery in Opening Comments in these proceedings.

#### Learning and Recommendations

Utility data collection and reporting requirements are established for the pilots in proposed rules OAR 860-084-0400 through 0430. Customer requirements for providing data are established in proposed rules OAR 860-084-0410. Requirements for utility, Staff, and public participation in generating recommendations from these pilots are established in proposed rules OAR 860-084-0440 through 0450. Data collection, reporting and decision making to improve capacity reservation systems are proposed in OAR 860-084-0210 (2). These data will determine whether application fees should be imposed to ensure that capacity reservations made are converted to installations in the pilot program.

#### Pilot Year and Program Termination

At the end of each pilot year, capacity allocated to that year, but not reserved, is transitioned to the next pilot year as described in proposed rule OAR 860-084-0220.

This proposed rule also allows the Commission authority to reallocate capacity, as needed, near the end of pilot year three (or at any other time during the pilot program). *Staff proposes that capacity be reallocated to smaller systems, from medium and larger systems, during years three and four of the pilot program, if smaller systems demonstrate full utilization of pilot capacity during years one and two.*

Proposed rule 860-084-0100 (2) defines that the last capacity reservation application in the pilot program may be filed on or before March 31, 2015, but must be filed before the pilot program capacity is fully reserved, whichever comes first.



The pilot program of a utility ends on March 31, 2015 *and ceases to solicit and accept applications when its capacity allocation is fully installed*, unless more capacity is allocated to the utility. Processes that describe capacity reallocation are given in proposed rules OAR 860-084-0170. Proposed rules that describe the end of the pilot program are OAR 860-084-0010, OAR 860-084-0170, and 860-084-0150.

This concludes the Staff Proposal.

Dated at Salem, Oregon, this 14th day of January, 2010.

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**Theresa Gibney**  
Utility Analyst  
Electric Rates & Planning

Attachment A.

Table A NEW, below, replaces the Table 2 from the Straw Proposal:

**NEW: Table A. Rough Number of Projects Achievable by Project Size<sup>18</sup>**

Projects available for allocation (rounded)	Project Size								
	Smaller (Less Than or Equal to 10 kW)			Medium (Greater Than 10 kW and Equal to or Less Than 100 kW)			Large (Greater Than 100 kW and Equal to or Less Than 500 kW)		
Utility	2	5	10	25	50	100	125	250	500
<b>First Year allocation</b>									
PGE	370	150	75	60	30	15	6	3	1
Pacific Power	240	100	50	40	20	10	4	2	1
Idaho Power	90	40	20						
<b>Second year allocation</b>									
PGE	740	300	150	60	30	15	6	3	1
Pacific Power	480	200	100	40	20	10	4	2	1
Idaho Power	90	40	20						
<b>Third year allocation</b>									
PGE	1110	445	225	30	15	7	6	3	1
Pacific Power	730	300	150	20	10	10	4	2	1
<b>Fourth year allocation</b>									
PGE	1480	600	300	30	15	7	6	3	1
Pacific Power	970	400	200	20	10	10	4	2	1
<b>Total allocation (4 yrs)</b>									
PGE	3700	1480	740	180	90	45	24	12	6
Pacific Power	2440	1000	490	120	60	30	16	8	4
Idaho Power	190	80	40						

<sup>18</sup> This table is for reference only, so that the reader may internalize what the capacity allocations represent in terms of potential projects.



# **Volumetric Incentive Rate Calculations**

## **Solar PV Pilot Programs in Oregon**

**Prepared by Staff of the Oregon PUC**

**January 14, 2009**

### **Introduction**

The purpose of this paper is to describe the calculations the Staff of the Oregon Public Utility Commission ("Staff") used to determine its recommended volumetric incentive rates for pilot programs designed to incent installation of Solar PV systems in Oregon investor-owned-utility service territories.

### **Methodology**

On November 2, 2009, Staff received an electronic database from the Energy Trust of Oregon (ETO) containing solar electric participant project information for the period of 2003 through 2009. Because this database contains personal identifying information, the ETO requested that the Staff treat this material as confidential. The Staff used this database as the foundation for the calculation of its proposed volumetric incentive rates.

The database contains reported system costs and system capacity for 1,148 solar PV projects that received an incentive payment from the ETO. The ETO's residential solar program attracted 863 projects and the commercial solar program attracted 285 projects over the 2003 through 2009 time period. The average cost per installed watt of capacity of these projects trends upward during this time period. In 2003, the average cost per installed watt of capacity was \$6.84 per watt (in nominal dollars). In 2006 the average cost had increased to \$8.12 per watt. In 2008, the average cost had again increased to \$8.99 per watt. In 2009, the average cost of solar PV projects climbed to \$9.29 per watt.

Staff based the calculation of its proposed volumetric incentive rates on projects installed during 2008 and 2009 with system capacities less than or equal to 100 kilowatts (kW). This database extract includes 422 projects with system capacity less than or equal to 10 kW and 83 projects with system capacities in the 10 kW to 100 kW range. Figures 1 and 2 show the distributions of cost per installed watt for smaller and medium size projects.

## ADDENDUM B. Volumetric Incentive Rate Calculations

Figure 1. Histogram of Installed System Cost per Watt for Smaller Size Projects.

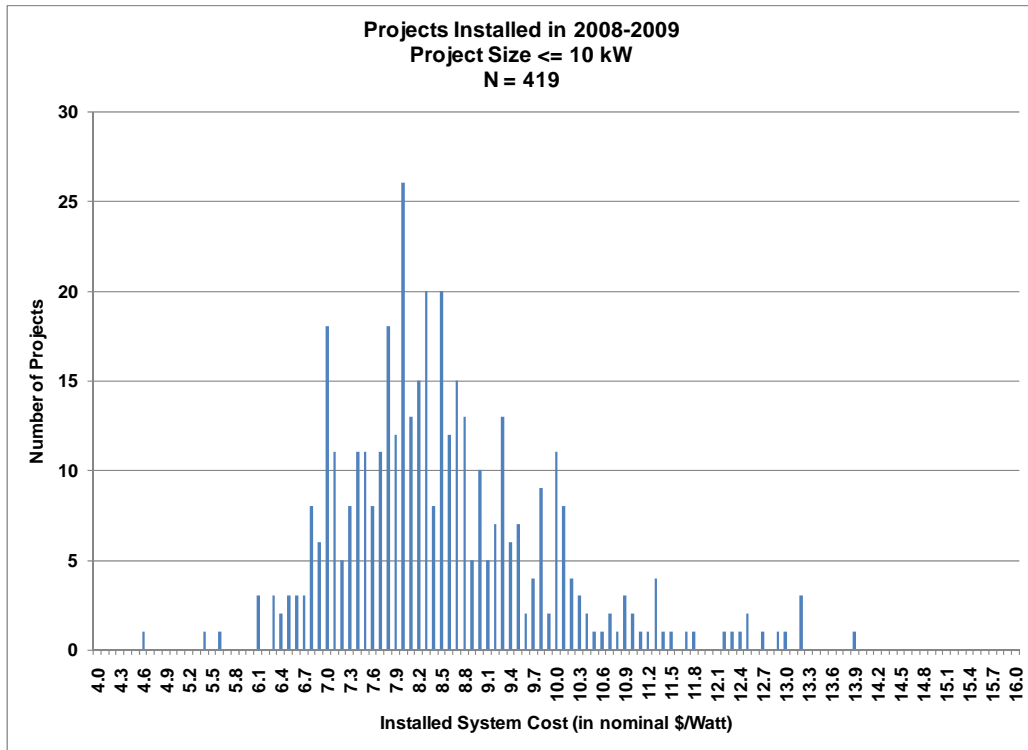
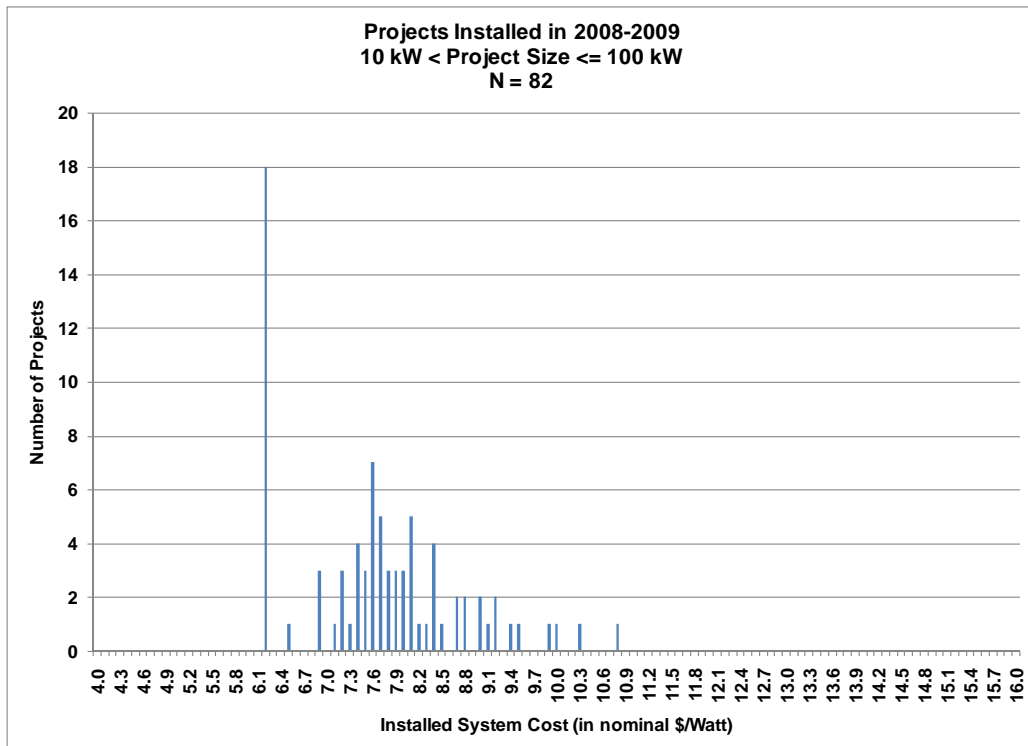


Figure 2. Histogram of Installed System Cost per Watt for Medium Size Projects.



## ADDENDUM B. Volumetric Incentive Rate Calculations

The solar PV projects included in the ETO database are concentrated in several geographic locations. The projects are predominately located in Benton, Clackamas, Deschutes, Jackson, Marion, Multnomah, and Washington counties. However, eligibility for the volumetric incentive rate pilot programs spans the service territories of Oregon investor-owned utilities. The ETO database does not have any projects located in Baker or Malheur counties, and the number of projects located in Clatsop, Coos, Crook, Douglas, Hood River, Josephine, Klamath, Lake, Lincoln, Linn, Polk, Umatilla, Wallowa, Wasco, and Yamhill counties are insufficient for calculating county-level volumetric incentive rates. In order to overcome the problem of small sample sizes, Staff grouped the counties in the investor-owned utilities' service territories into 4 rate classes based on the relative average cost of the projects in the counties, the local production factor used by the ETO for cities located in the counties, and the relative proximity of the counties. Table 1 shows the counties that Staff grouped together in each rate class and the resulting sample sizes.

**Table 1. Number of Solar PV Projects in Each Rate Class by Project Size.**

Rate Class	IOU Service Counties	IOUs	Project Size Less Than or Equal to 10 kW	Project Size Greater Than 10 kW and Less Than or Equal to 100 kW
			N	N
1	Clackamas, Columbia, Multnomah*, Washington, Yamhill*, Clatsop	Pacific Power & PGE*	160	49
2	Benton, Lincoln, Linn, Marion*, Polk*, Tillamook, Lane	Pacific Power & PGE*	82	21
3	Jackson, Josephine, Klamath, Lake, Douglas, Coos	Pacific Power	101	7
4	Crook, Deschutes, Jefferson, Wasco, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wallowa, Baker*, Malheur*	Pacific Power & Idaho Power*	79	6

The ETO uses a conversion factor, called the local production capacity (LPC), to estimate the annual electricity generation of each project over the course of a year under ideal conditions (i.e., no shade and ideal project orientation). LPC is stated in terms of annual kilowatt-hours per watt of nameplate capacity. The ETO uses 11 LPCs for various groups of cities in Oregon. For example, Medford, Klamath Falls, Grants Pass, and Ashland comprise a single group and all have an LPC of 1.32 kilowatt-hours per watt of nameplate capacity. Staff assigned an ETO LPC to each of the 4 rate classes based on the city-group most represented in each rate class. Table 2 shows the LPC assigned to each rate class.

## ADDENDUM B. Volumetric Incentive Rate Calculations

Table 2. Local Production Capacity (LPC) by Rate Class.

Rate Class	IOU Service Counties	IOUs	LPC
1	Clackamas, Columbia, Multnomah*, Washington, Yamhill*, Clatsop	Pacific Power & PGE*	1.08
2	Benton, Lincoln, Linn, Marion*, Polk*, Tillamook, Lane	Pacific Power & PGE*	1.14
3	Jackson, Josephine, Klamath, Lake, Douglas, Coos	Pacific Power	1.32
4	Crook, Deschutes, Jefferson, Wasco, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wallowa, Baker*, Malheur*	Pacific Power & Idaho Power*	1.43

Next, Staff performed three calculations for each project in the database:

1. Staff estimated the expected annual kilowatt-hours of generation by multiplying the project's nameplate capacity by its rate class LPC factor;
2. Staff calculated a fixed annual payment needed to payback the system cost of each project over a 15 year period assuming an interest rate of 6 percent;
3. Staff calculated a volumetric rate needed to payback the system cost of each project by dividing the annual fixed payback payment for each project (calculated in #2) by the project's expected annual kilowatt-hours of generation (calculated in #1).

Finally, Staff calculated a single volumetric incentive rate for each rate class and project size category by multiplying the median volumetric payback rate for each rate class and project size by 1 minus the assumed federal tax credit of 30 percent and rounding the result to the nearest 0.05.

### Results

Figures 3 through 6 show the distributions of volumetric payback rates for projects with system capacity less than or equal to 10 kW by rate class.

## ADDENDUM B. Volumetric Incentive Rate Calculations

Figure 3. Histogram of Volumetric Payback Rate of Smaller Size Projects in Rate Class 1.

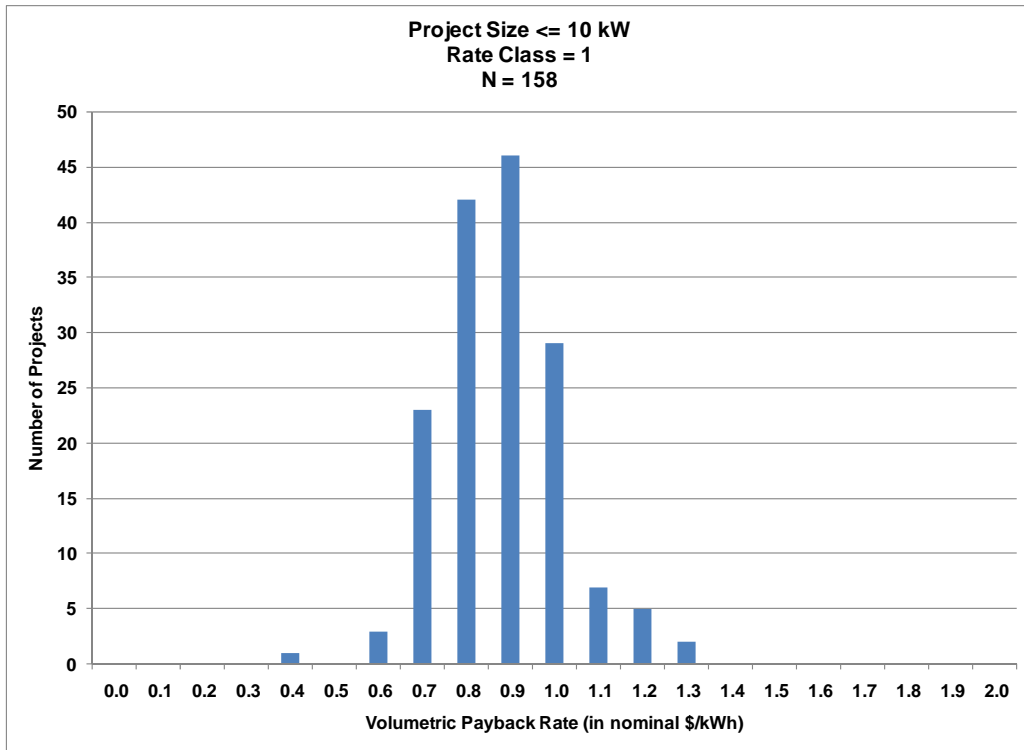
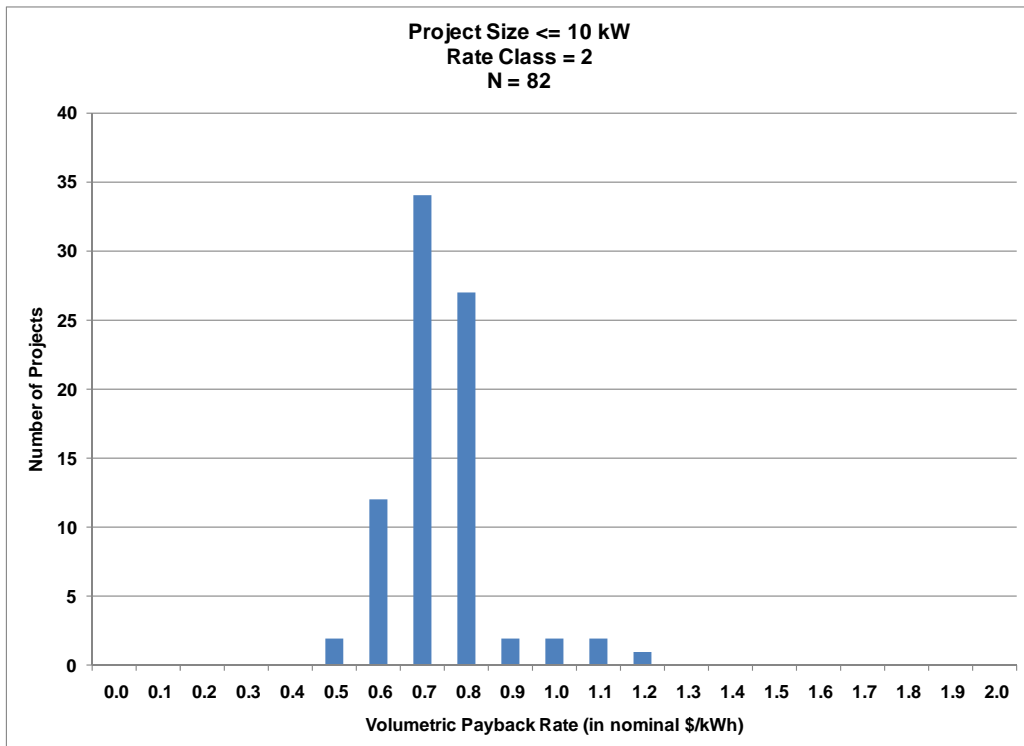


Figure 4. Histogram of Volumetric Payback Rate of Smaller Size Projects in Rate Class 2.





## ADDENDUM B. Volumetric Incentive Rate Calculations

Figure 5. Histogram of Volumetric Payback Rate of Smaller Size Projects in Rate Class 3.

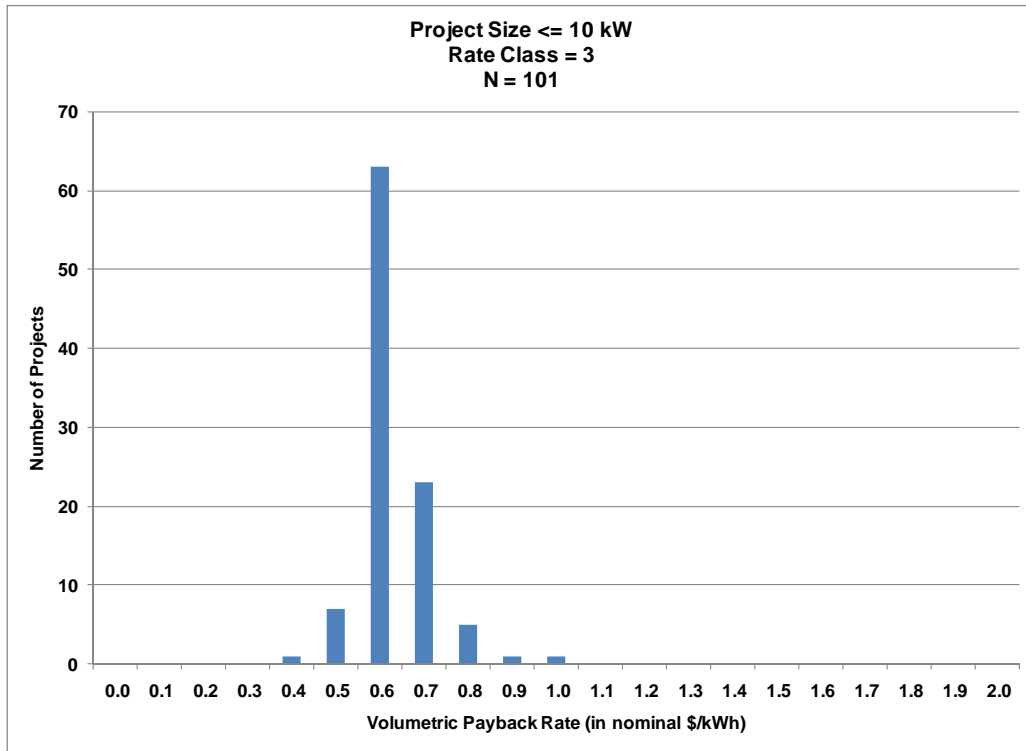
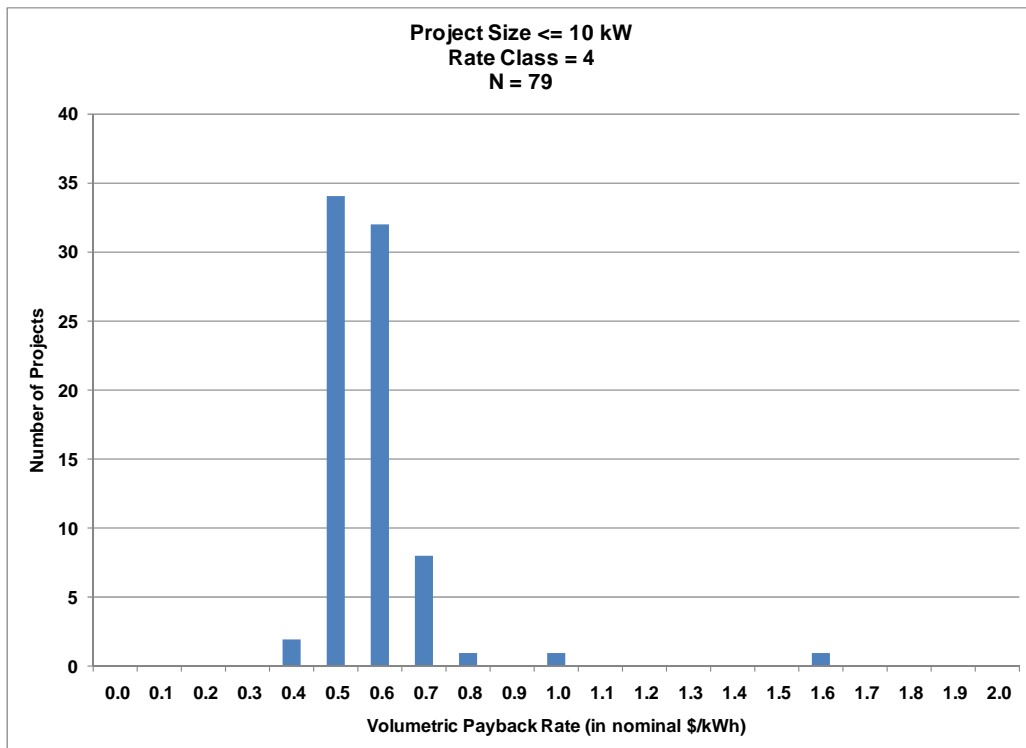


Figure 6. Histogram of Volumetric Payback Rate of Smaller Size Projects in Rate Class 4.



## ADDENDUM B. Volumetric Incentive Rate Calculations

Staff recommends that the Commission use the median value of each volumetric payback distribution to set the initial pilot program volumetric incentive rates by rate class. The median value is the midpoint of each distribution; with half of the projects having volumetric payback rates lower than the median value and half of the projects having rates higher than the median value. Using the median value, rather than the mean value, assigns less importance to outliers. An adjustment to account for the payback of system costs provided by federal tax credits is also appropriate. Table 3 shows the recommended volumetric incentive rates by rate class.

**Table 3. Staff's Proposed Volumetric Incentive Rates by Rate Class and Project Size.**

Rate Class	IOU Service Counties	IOUs	Project Size Less Than or Equal to 10 kW	Project Size Greater Than 10 kW and Less Than or Equal to 100 kW
			\$/KWH	\$/KWH
1	Clackamas, Columbia, Multnomah*, Washington, Yamhill*, Clatsop	Pacific Power & PGE*	0.600	0.500
2	Benton, Lincoln, Linn, Marion*, Polk*, Tillamook, Lane	Pacific Power & PGE*	0.500	0.500
3	Jackson, Josephine, Klamath, Lake, Douglas, Coos	Pacific Power	0.450	0.400
4	Crook, Deschutes, Jefferson, Wasco, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wallowa, Baker*, Malheur*	Pacific Power & Idaho Power*	0.400	0.400

**CERTIFICATE OF SERVICE**

**UM 1452**  
**(Opening Comments)**

I certify that I have this day served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-13-0070, to the following parties or attorneys of parties.

Dated at Salem, Oregon, this 14th day of January, 2010.

*Kay Barnes*

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UM 1452  
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