

**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 3039¹ (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 Rules² (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.³

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

² 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 23rd. 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.”

³ 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.

Staff Opening Comments, UM 1452, January 14, 2010

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.⁴
- b) References to non-inverter based systems should be deleted.⁵
- 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 equivalent⁶ 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.⁷

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 energy⁸ 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.⁹

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

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

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

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

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

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

Staff Opening Comments, UM 1452, January 14, 2010

Proposed rules define the capacity that each electric company must own or contract to purchase on or before January 1, 2020.¹⁰ 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.¹¹

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.¹²

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.¹³

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.¹⁴ 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.

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

¹¹ 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>

¹² 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.

¹³ Proposed Rules, revs 1 and 2, OAR 860-084-0080.

¹⁴ Proposed Rules, revs 1 and 2, OAR 860-084-0050.

Staff Opening Comments, UM 1452, January 14, 2010

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.¹⁵

¹⁵ HB 3039, Section 7.

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

Pilot Program Year:	4/2010 thru 3/2011	4/2011 thru 3/2012	4/2012 thru 3/2013	4/2013 thru 3/2014	4/2014 thru 3/2015
Capacity Distribution & No. of Projects					
Smaller Systems*	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	
Medium**	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	
Large**	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	
Pilot Program Checkpoints:					
Reports to the Legislature	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)
Executing the Pilots					
		**	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 rd 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 nd review of rate impact and resource value (July)		3rd review of rate impact and resource value (July)
	2 nd 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,”¹⁶ Staff also proposes elimination of most of the “Qualifying Systems” section.¹⁷

*Staff recommends amending the proposed rules and Straw Proposal to provide two options under the VIR Pilot Programs:¹⁸ (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 size¹⁹, 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

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

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

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

¹⁹ 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.

Staff Opening Comments, UM 1452, January 14, 2010

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.²⁰ Eligible systems under the VIR Pilot Programs must be installed in the service territory of the electric company,²¹ and on the property where the consumer receives service from the electric company.²² 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.²³ 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.²⁴ 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.

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

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

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

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

²⁴ 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 469.225.²⁵ 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,²⁶ 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.^{27 28}

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.*²⁹ See Section C, “Standard Contracts.”

Section B. Quality and Reliability

Systems eligible for enrollment in the pilots must be constructed from new components.³⁰

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

²⁵ HB 3039, July 2009,

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

²⁷ 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.

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

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

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

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

Staff Opening Comments, UM 1452, January 14, 2010

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

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.³² 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,³³ 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.

³² Proposed rules, November 19, 2009; OAR 860-084-0240

³³ 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 rule³⁴ 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”.

³⁴ Proposed Revised Rules, January 14, 2010, OAR 860-084-0240 and 0250.
Staff Opening Comments, UM 1452, January 14, 2010

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 1.³⁵

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 rule³⁶ 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.

³⁵ 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.

³⁶ 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 financer 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.³⁷

³⁷ 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.³⁸ This language is represented in formula, below:

Net volumetric incentive rate = (volumetric incentive rate_e – retail rate_p)

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>

³⁸ 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 ³⁹
			\$/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).

³⁹ Greater than 10 kilowatts and Less than or Equal to 500 kilowatts
Staff Opening Comments, UM 1452, January 14, 2010

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 systems⁴⁰ or who may suffer interconnection approval delays.⁴¹

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.⁴²

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

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

⁴¹ This provision will minimize any motivation to delay interconnection approval ;

⁴² Revised Proposed Rules, January 14, 2010; OAR 860-084-0365.

⁴³ Revised Proposed Rules, January 14, 2010; OAR 860-084-0360.

Staff Opening Comments, UM 1452, January 14, 2010

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 31st 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_m

e = at time of enrollment

p = at time of payment

Payable generation for month_m =

Min ((Actual generation_m + Accrued generation), Actual monthly usage_m)

Accrued generation = $\sum_1^m (\text{actual generation}_i - \text{actual monthly usage}_i)$

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.⁴⁴ 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.⁴⁵ 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.

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

⁴⁵ 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 ⁴⁶		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

⁴⁶ Allocation given is for each of the first four years of the five year pilot term.
Staff Opening Comments, UM 1452, January 14, 2010

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 3039.⁴⁷

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.⁴⁸

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 value⁴⁹ 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.⁵⁰ 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.

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

⁴⁸ Staff Proposal, January 14, 2010, Rate Impact and Cost Recovery.

⁴⁹ HB 3039, July 2009, Section 1(4).

⁵⁰ 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.⁵¹

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.⁵² 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.

⁵¹ HB 3039, July 2009, Section 7.

⁵² 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.⁵³ 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.

⁵³ HB 3039, July 2009, Section 2 (12).

Staff Opening Comments, UM 1452, January 14, 2010

This concludes Staff Opening Comments

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

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 Size⁵⁴

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
First Year allocation									
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						
Second year allocation									
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						
Third year allocation									
PGE	1110	445	225	30	15	7	6	3	1
Pacific Power	730	300	150	20	10	10	4	2	1
Fourth year allocation									
PGE	1480	600	300	30	15	7	6	3	1
Pacific Power	970	400	200	20	10	10	4	2	1
Total allocation (4 yrs)									
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						

⁵⁴ 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 Size⁵⁵

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 ⁵⁶									
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.

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

⁵⁶ 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 Rules¹ (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.² 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 6th 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, 2010.³ This revised Straw Proposal (also referred to as “Staff Proposal”), along with changes in the Proposed Rules,⁴ 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.

¹ 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 23rd.

² 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.

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

⁴ 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.*⁵

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:*⁶ (1) **a net metered option** (with the qualifying system installed on the customer side of the service meter⁷ 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 size⁸, 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

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

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

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

⁸ 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.”*⁹

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.*¹⁰ *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.

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

¹⁰ 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.¹¹ Staff proposes a methodology historically utilized by the California Public Utilities Commission, an AC-PTC rating which is roughly 85% of DC-STC capacity.¹²

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).

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

¹² 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,¹³ 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.¹⁴

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_e – retail rate_p)

Where e = rate at time of enrollment

And p = time of payment

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

¹⁴ 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 ¹⁵
			\$/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.*

¹⁵ 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 31st 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_m*

e = at time of enrollment

p = at time of payment

Payable generation for month_m =

Min ((Actual generation_m + Accrued generation), Actual monthly usage_m)

Accrued generation = $\sum_1^m (\text{actual generation}_i - \text{actual monthly usage}_i)$

Accrued generation_{April 1} = 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 st 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 nd 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 rd 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 th 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% ¹⁶	30% ¹⁷	20%
	Portland General Electric	7.44	4.5	3.0
	Pacific Power	4.9	2.9	2.0
	Idaho Power	0.4	0	0

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

¹⁷ 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.

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 Size¹⁸

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
First Year allocation									
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						
Second year allocation									
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						
Third year allocation									
PGE	1110	445	225	30	15	7	6	3	1
Pacific Power	730	300	150	20	10	10	4	2	1
Fourth year allocation									
PGE	1480	600	300	30	15	7	6	3	1
Pacific Power	970	400	200	20	10	10	4	2	1
Total allocation (4 yrs)									
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						

¹⁸ 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.

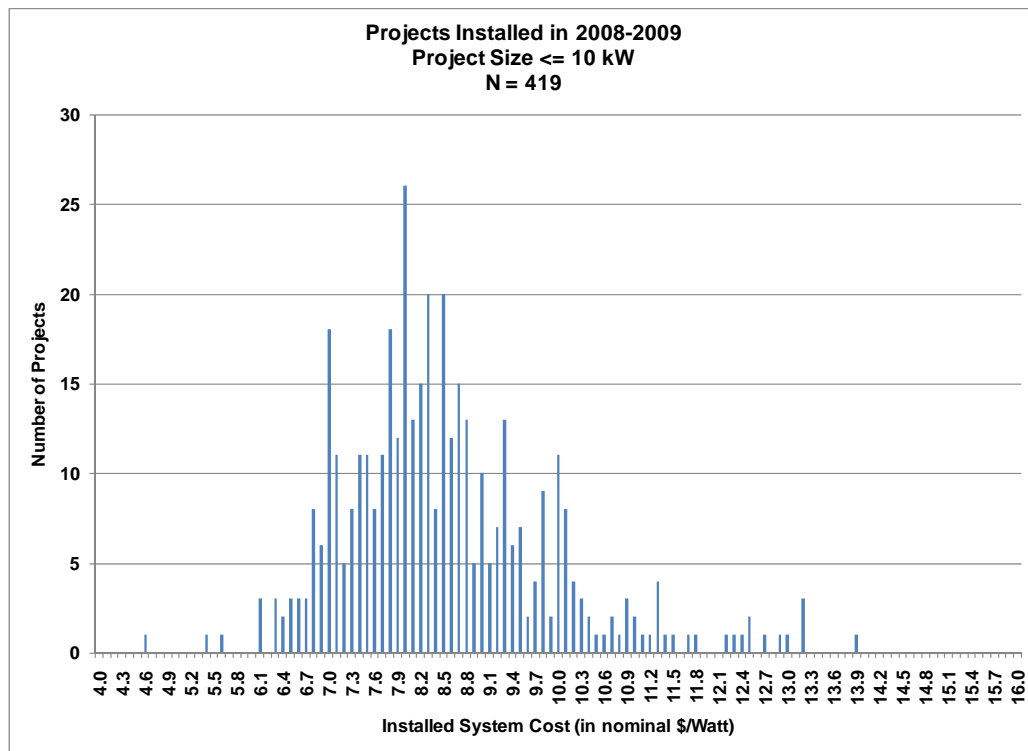
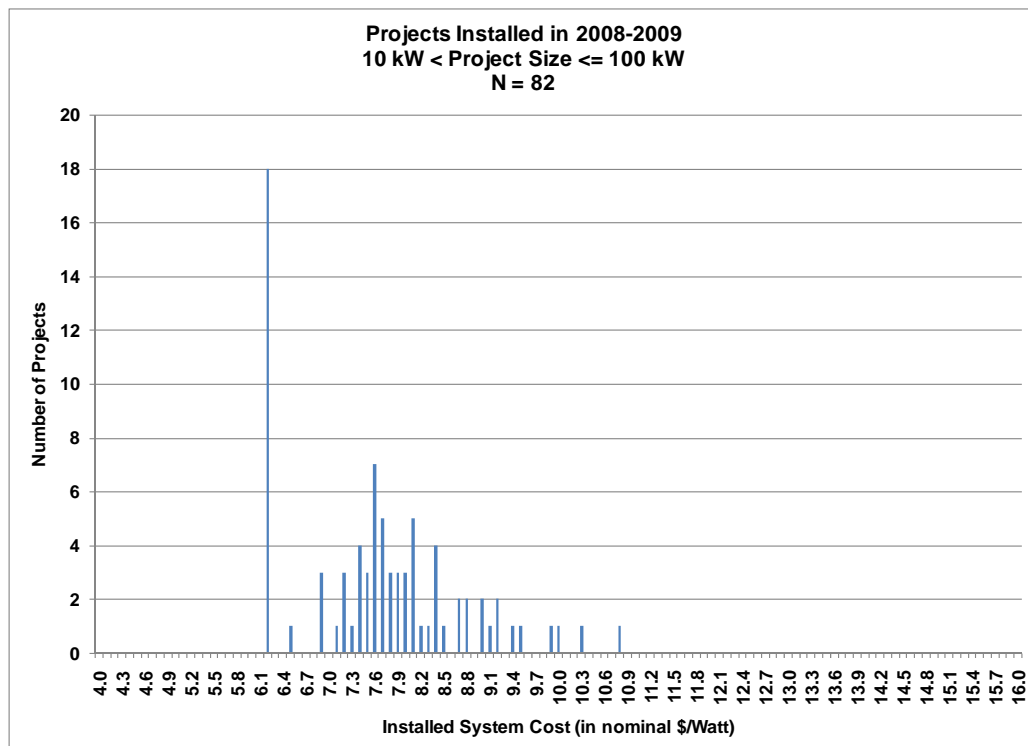


Figure 2. Histogram of Installed System Cost per Watt for Medium Size Projects.



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.

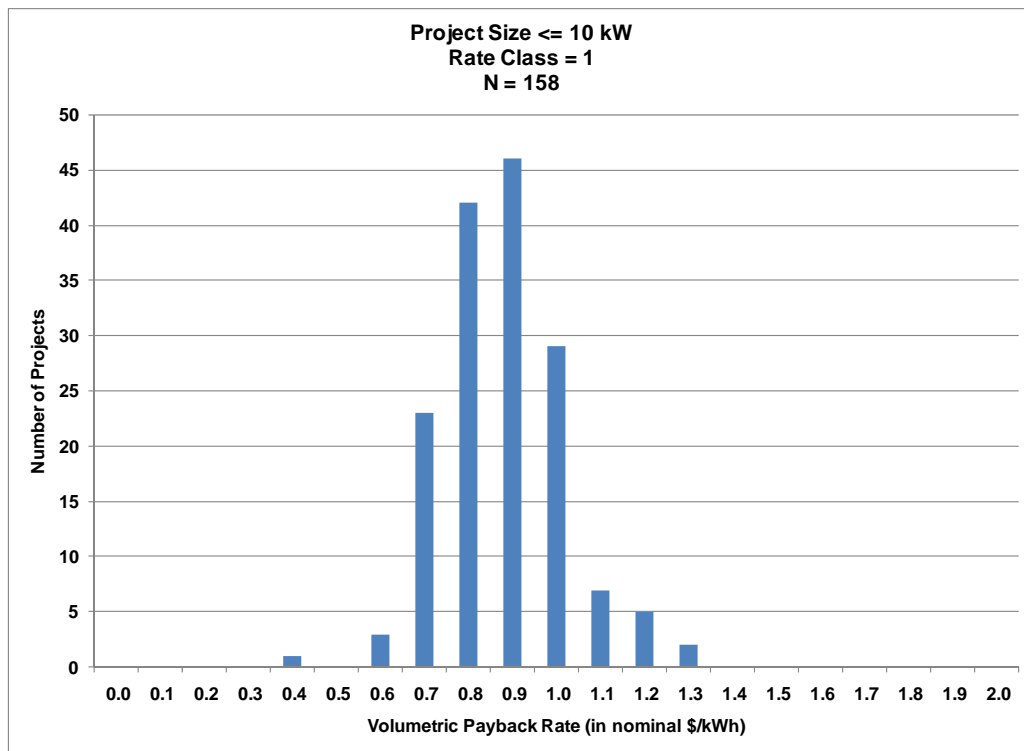
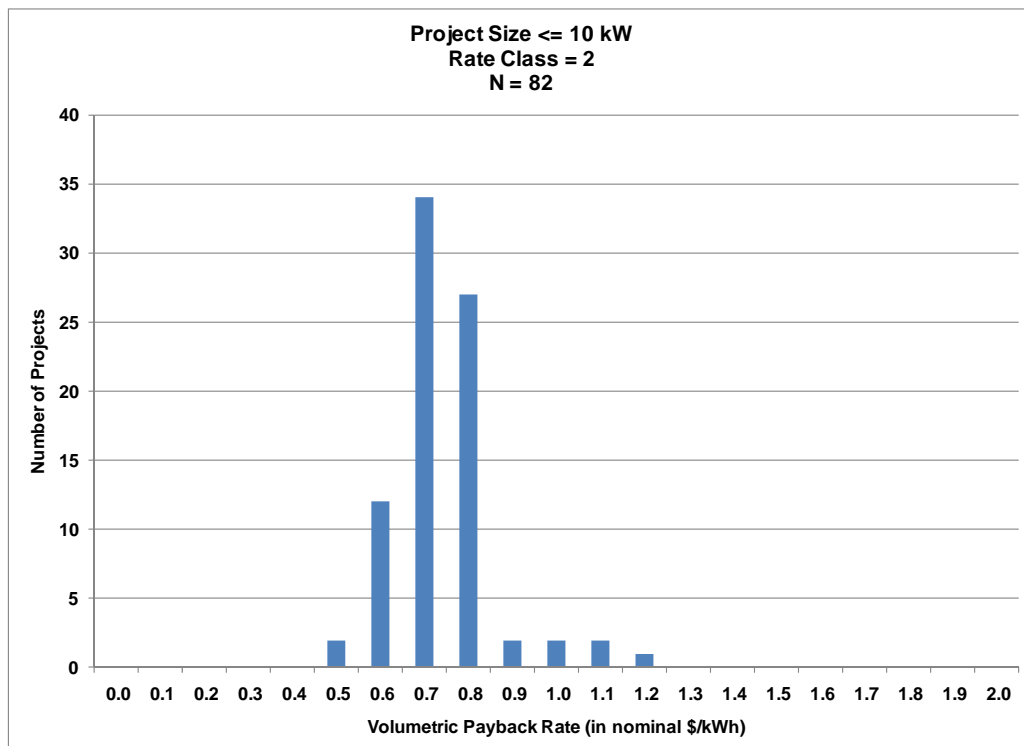


Figure 4. Histogram of Volumetric Payback Rate of Smaller Size Projects in Rate Class 2.



ADDENDUM B. Volumetric Incentive Rate Calculations

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

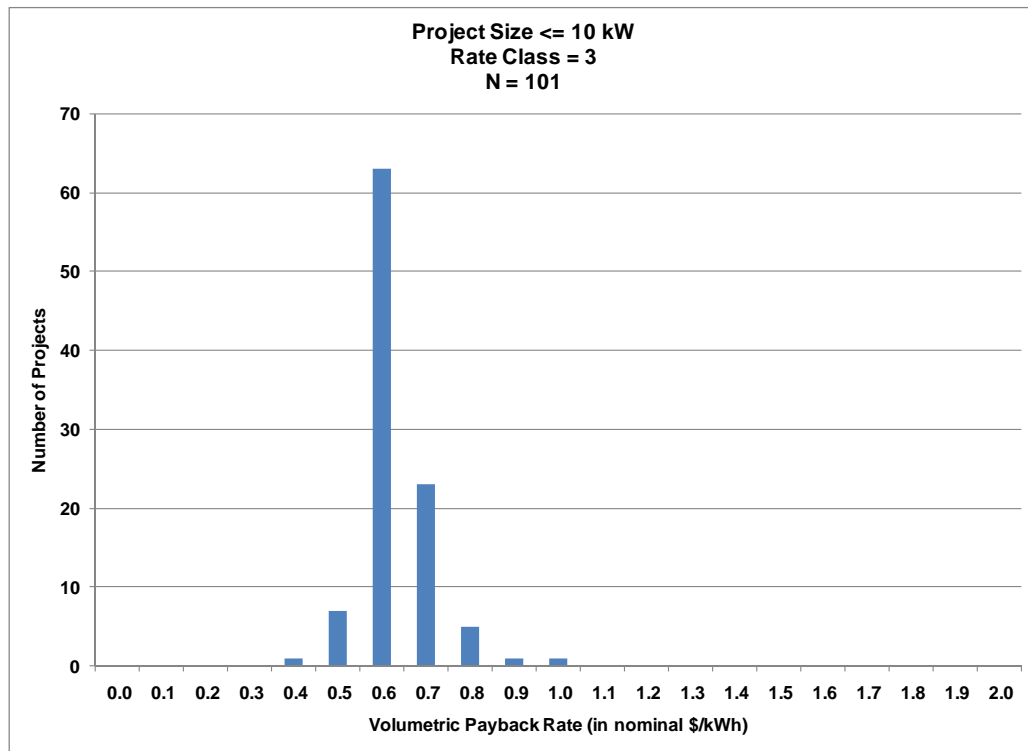
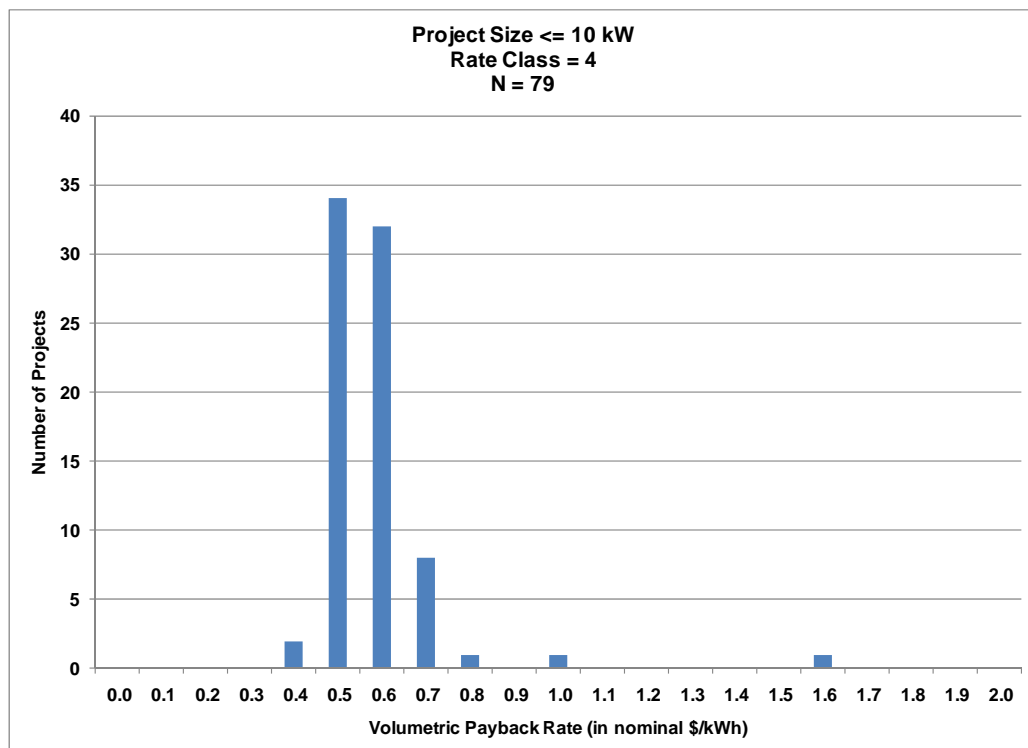


Figure 6. Histogram of Volumetric Payback Rate of Smaller Size Projects in Rate Class 4.



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

OREGON ADMINISTRATIVE RULES
CHAPTER 860, DIVISION 084 – PUBLIC UTILITY COMMISSION

DIVISION 084¹
SOLAR PHOTOVOLTAIC PROGRAMS

860-084-0000

Scope and Applicability of Solar Photovoltaic Programs

(1) OAR 860-084-0020 through 860-084-0080 (“the Solar Photovoltaic Capacity Standard”) govern implementation of programs requiring electric company installation of solar photovoltaic capacity.

(2) OAR 860-084-0100 through 860-084-0450 (the “Solar Photovoltaic Pilot Programs”) govern implementation of pilot programs to demonstrate the use and effectiveness of volumetric incentive rates and payments for electricity delivered from solar photovoltaic energy systems.

(3) For good cause shown, a person may request the Commission waive any of the rules contained in Division 084.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0010

Definitions for Solar Photovoltaic Capacity Standard and Pilot Programs

(1) “Annual resource value” means the resource value of the energy delivered in the year that it is generated.

(2) “Contracted system” means an eligible system under contract in the solar photovoltaic pilot program.

(3) “Date of Enrollment” means the date a retail electricity customer has an executed a contract with an electric company for the delivery of energy under a volumetric incentive rate pilot program and the ~~when a solar photovoltaic system is on-line (begins providing energy to the electric company’s electrical system).~~

(4) “Electric company” has the meaning given that term in ORS 757.600.

(5) “Eligible system” means a qualifying system that meets the requirements of OAR 860-084-0120.

(6) “Eligible energy” means the kilowatt hours that may be paid at the volumetric incentive rate under the net metering option of the volumetric incentive rate pilot program. Eligible energy is equal to the actual annual usage of the retail electricity consumer in the year that the energy is generated by the eligible system.

(7) “Equipment package” means a group of components connecting an electric generator with an electric distribution system, and includes all interface equipment including switchgear, inverters, or other interface devices. An equipment package may include an integrated generator or electric production source.

¹ Proposed Rules, revision 1/13/2010

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(8) (8) "Excess energy" means the kilowatt hours generated in excess of actual annual usage under the net metering option of the volumetric incentive rate pilot program.

(9) "Nameplate capacity" means the maximum rated output of a solar photovoltaic system under specific conditions designated by the manufacturer.

(10) "Eligible participant" or "participant" means a retail electricity consumer receiving service at the property where the solar photovoltaic energy system will be installed. A regulated utility is not an eligible participant in pilot programs.

(11) "IEEE standards" means the standards published in the 2003 edition of the Institute of Electrical and Electronics Engineers (IEEE) Standard 1547, entitled "Interconnecting Distributed Resources with Electric Power Systems," approved by the IEEE SA Standards Board on June 12, 2003, and in the 2005 edition of the IEEE Standard 1547.1, entitled "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems," approved by the IEEE SA Standards Board on June 9, 2005.

(12) "On-line" means that the photovoltaic system is installed and providing power to the electric company's electrical system or to serve the load of the retail electricity consumer.

(13) "Pilot year" means each twelve-month period of the solar photovoltaic pilot program beginning on April 1. Year one of the pilot program is April 1, 2010 to March 31, 2011; year two of the pilot is April 1, 2011 to March 31, 2012, etc.

(14) (11) "Qualifying ~~third party assignee~~" or "~~third party assignee~~" means third party to whom authorized, by the a retail electricity consumer, to be assigned may assign volumetric incentive rate payments by the electric company under the standard contract. An electric company or its affiliate or any other regulated utility is not a qualifying ~~third party assignee~~. Qualifying ~~third parties assignees~~ include, but are not limited to:

(a) A lender providing up front financing to a retail electricity consumer,

(b) A company or individual who enters into a financial agreement with a retail electricity consumer to own and operate a solar photovoltaic energy system on behalf of the retail electricity consumer in return for compensation,

(c) A company or individual who contracts with the retail electricity consumer to locate a solar photovoltaic system on property owned by the retail electricity consumer, or

(d) Any party identified by the retail electricity consumer to receive payments that the electric company is obligated to pay to the retail electricity consumer.

(15) "Reservation expiration date" means the date that a capacity reservation expires. A retail electricity consumer must newly apply for a capacity reservation, once the reservation expires.

(16) (13) "Reservation start date" means

(a) For ~~smaller size systems consumers that will be served under the net metering option, and who may apply for capacity at any time during the year,~~ the date the electric company receives both a capacity reservation application and an application for interconnection, or

(b) For ~~medium and large systems, consumers that will be served under the net metering option, and who may apply for capacity at a fixed time of year,~~ the date the consumer is allocated capacity through an annual capacity reservation process.

(c) For consumers served under the volumetric incentive rate bidding option, the date the consumer is notified of a successful bid and acknowledges receipt of this notification.

The reservation start date starts the clock for the time to interconnection agreement.

(17) "Reserved system" means an eligible system that has been granted a capacity reservation in the solar photovoltaic pilot program.

(18) "Retail electricity consumer" means a consumer who is a direct customer of the electric company and is the end user of electricity for specific purposes, such as heating, lighting or operating equipment. [A regulated utility is not a retail electricity consumer.](#)

(19) "Resource value" means the portion of the volumetric incentive rate that represents the fully loaded avoided cost of the energy provided to the electric company. This value comprises the avoided cost of comparable generation (including avoided fuel volatility, minus the costs of firming and shaping the electricity generated from solar photovoltaic energy systems), the avoided cost of transmission and distribution in delivering energy from other generation sources, and a value equivalent to the renewable energy value of the solar photovoltaic energy.

(20) "Solar pilot capacity limit" means the maximum installed capacity that each electric company may contract during the pilot program.

(21) "System requirements" means the input electricity required to allow the solar photovoltaic energy system to operate, sometimes referred to as the parasitic load. System requirements do not include energy used on site by the customer for other purposes.

(22) "Volumetric incentive payments" or "payments" means the monthly amount that an electric company pays to an eligible participant in the solar photovoltaic pilot program for energy generated by a contracted system.

(23) "Volumetric incentive rate" means the rate per kilowatt-hour paid by an electric company to a retail electricity consumer for energy generated by a contracted system.

(24) "Time to interconnection agreement" means the time between the reservation start date and the date an eligible participant signs an interconnection agreement.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

Solar Photovoltaic Capacity Standard

860-084-0020

Solar Photovoltaic Capacity Standard

On or before January 1, 2020, each electric company must own, or contract to purchase the capacity and output of, qualifying solar photovoltaic energy systems to achieve, or exceed, the following minimum solar photovoltaic capacity standards:

- (1) Portland General Electric: 11.8 megawatts
- (2) Pacific Power: 7.9 megawatts
- (3) Idaho Power Company: 0.3 megawatts

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0030

Qualifying Systems under the Solar Photovoltaic Capacity Standard

Individual solar photovoltaic energy systems used to comply with the solar photovoltaic capacity standards specified in OAR 860-084-0020 must:

- ~~(1) Meet the electric company's customer load service obligation;~~
- ~~(2) Directly connect to an electric company's electrical system within Oregon, or indirectly connect to a third party electrical system within Oregon;~~
- ~~(3) Have meters or other devices in place to monitor and measure the quantity of energy generated;~~
- ~~(4) Meet the siting, design, interconnection, installation, and electric output standards and codes required by the laws of Oregon; and~~
- (5) Have a nameplate generating capacity greater than or equal to 500 kilowatts and less than or equal to 5 megawatts.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0040

Measurement of Capacity under Solar Capacity Standard

(1) Except as provided in section (3) of this rule, the capacity of solar photovoltaic energy systems used to satisfy the requirements of OAR 860-084-0020 must be measured on the alternating current side of the system's inverter.

- (2) Each electric company ~~must follow Commission established guidelines when must~~ converting nameplate capacity ratings reported by manufacturers in terms 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 temperature on solar module output. This conversion will be calculated as 85% of the manufacturer's nameplate rating.
- ~~(3) For solar photovoltaic energy systems that do not use an inverter, the capacity must be measured in terms of the nameplate capacity rating reported by the manufacturer in direct current watts, under standard test conditions.~~

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0050

Compliance Report

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(1) On or before February 1, 2020, each electric company must file a report with the Commission demonstrating compliance, or explaining in detail its failure to comply, with the solar photovoltaic capacity standards specified in OAR 860-084-0020.

(2) The report in section (1) of this rule must include the following information associated with each solar photovoltaic energy system:

- (a) The name of the facility;
- (b) The location of the facility;
- (c) The in-service date of the facility;
- (d) The manufacturer's nameplate capacity rating;
- (e) The electric company's capacity rating on the alternating current side of the system's inverter;
- (f) The ~~signing-execution~~ date of any associated power purchase agreement; and
- (g) The contracted capacity and output delivery period of any associated power purchase agreement

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0060

Cost Recovery

An electric company may request recovery of its prudently incurred costs to comply with the solar photovoltaic capacity standard specified in OAR 860-084-0020 in an automatic adjustment clause proceeding filed at the Commission pursuant to ORS 469A.120.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0070**Renewable Energy Certificates and Compliance with the Renewable Portfolio Standards**

(1) Except as provided in section (2) of this rule, each renewable energy certificate associated with the electricity produced by solar photovoltaic energy systems used to achieve, or exceed, the minimum solar photovoltaic capacity standards specified in OAR 860-084-0020 may be used to comply with the renewable portfolio standards established under ORS 469A.005 to ORS 469A.120.

(2) Each renewable energy certificate associated with the electricity produced by solar photovoltaic energy systems may be used, or counted, twice to comply with the renewable portfolio standards established under ORS 469A.005 to ORS 469A.120, if solar photovoltaic energy systems:

- (a) First become operational before January 1, 2016,
- (b) Are installed in Oregon, and
- (c) Are within the solar photovoltaic capacity standards specified in OAR 860-084-0020.

(3) Renewable energy certificates used pursuant to sections (1) and (2) of this rule must comply with the standards of OAR 860-083-0050.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0080**Implementation Plans**

Each electric company must incorporate its plan to achieve, or exceed, the minimum solar photovoltaic capacity standards specified in OAR 860-084-0020 into its renewable portfolio standard implementation plans filed pursuant to OAR ~~860~~-083-0400.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

Solar Photovoltaic Pilot Programs

860-084-0100

Solar Photovoltaic Pilot Programs

- (1) Prior to April 1, 2010, each electric company must establish pilot programs to demonstrate the use and effectiveness of volumetric incentive rates and payments for electricity delivered from qualifying solar photovoltaic energy systems.
- (2) Each electric company must offer a net metering option under the pilot program. This option has the following characteristics:
 - a) Qualifying systems installed on the customer side of the service meter;
 - b) Volumetric incentive rates established by Commission Order;
 - c) Volumetric incentive rate payments for generation up to the actual annual usage of the retail electricity consumer; and
 - d) Generation in excess of net metered annual usage (excess generation) donated to the electric company's low income bill assistance program or sold by consumers eligible to sell electricity at wholesale at market-based rates.
- (3) Each electric company must offer a volumetric incentive rate bid option under the pilot program. This option has the following characteristics:
 - a) Volumetric incentive rate paid to each retail electricity consumer is established by a successful bid for capacity in the volumetric incentive rate pilot program; and
 - b) Volumetric incentive rate payments for 100% of energy generated, net of system requirements.
- (4) Retail electricity consumers eligible for each pilot program option will be defined by Commission Order.

(5) Capacity reservations in the solar photovoltaic pilot programs will be accepted from April 1, 2010, through March 31, 2015, or until a total installed solar photovoltaic pilot program capacity limit of 25 megawatts is reached, whichever comes first, and subject to any limitations on participation approved by the Commission, including customer class rate impacts.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0110

Qualifying Systems for the Solar Photovoltaic Pilot Programs

Individual solar photovoltaic energy systems qualifying for the Solar Photovoltaic Pilot Programs in OAR 860-084-0100 must:

- ~~(1) Meet the electric company's customer load service obligation;~~
- ~~(2) Directly connect to an electric company's electrical system within Oregon, or indirectly connect to a third party electrical system within Oregon;~~
- ~~(3) Have meters or other devices in place to monitor and measure the quantity of energy generated;~~

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

- ~~(4) Meet the design, interconnection, installation, and electric output standards and codes required by OAR 860-084-0260;~~
- ~~(5) Meet the siting requirements defined in OAR 860-084-0120 and OAR 860-084-0130(3);~~
- ~~(6) Meet Commission established requirements for quality and reliability; and~~
- ~~(7) Have a nameplate generating capacity less than or equal to 500 kilowatts.~~

Formatted: Space After: 0 pt

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0120

Systems Eligible for Enrollment in Pilot Programs

(1) Individual solar photovoltaic energy systems eligible for the Solar Photovoltaic Pilot Programs in OAR 860-084-0100 (2) must be:

- (a) A qualifying system, as established in OAR 860-084-0110;
- (b) ~~Meet~~In compliance with the siting, design, interconnection, installation, and electric output standards and codes required by the laws of Oregon;
- (c) ~~Installed with Have meters or other devices in place to monitor and measure the quantity of energy generated;~~
- (d) Permanently installed in the State of Oregon by a retail electricity consumer of the electric company;
- (e) Installed in the service territory of the electric company;
- (f) ~~Installed On-line~~ after April 1, 2010;
- (g) Financed without expenditures under ORS 757.612 (3)(b)(B) or tax credits under ORS 469.160 or ORS 469.185 to 469.225;
- (h) Certified by the residential electric consumer as constructed from new components (modules, inverter, batteries, mounting hardware, etc.); and
- (i) Compliant with Commission quality and reliability requirements for photovoltaic systems.

Formatted: Indent: First line: 0.25"

(2) Systems that are located outside of the service territory of the electric company are not eligible for enrollment in the electric company's pilot programs.

(3) ~~Contracted-s~~Systems that are uninstalled before the end of the contract term are not eligible for subsequent volumetric incentive rates, other feed-in tariffs, or pilot programs during the remainder of the contract term; and these systems cannot be reinstalled for the purposes of entering a new contract under any solar photovoltaic pilot program, volumetric incentive or other feed-in tariff program in the service territory of any electric company in the State of Oregon during the contract term of the ~~contracted~~-system, except that a ~~contracted~~-system may be uninstalled and reinstalled at another location under the same contract under the conditions set forth in OAR 860-084-0280.

(4) Retail electricity consumers submitting applications for a 500 kilowatt project are not eligible to reserve capacity in the solar photovoltaic pilot program if this project is also competing for a purchased power agreement under the Solar Capacity Standard.

Stat Auth: 2009 OR Laws Ch. 748
Stats. Implemented: 2009 OR Laws Ch. 748
Hist: NEW

860-084-0130

Ownership and Installation

- (1) An electric company must contract for solar photovoltaic energy generated from eligible reserved systems installed by retail electricity consumers of the electric company.
- (2) Eligible systems must be installed on the same property as the property where the retail electricity consumer buys electricity from the electric company, with the eligible system directly connected into the distribution feeder that services the consumer at the property or indirectly connected through the system of an electric company's retail customer or the electric system of a third party that is not an electric company's retail electricity consumer but whose system is located within this state. Eligible systems required to choose the net metering option of the volumetric pilot programs must be connected to the customer load side of a retail electricity consumer's meter. Systems required to choose the volumetric incentive rate bidding option of the pilot program must connect into the distribution feeder that services the consumer at the property.
- (3) A retail electricity consumer must be allowed to transfer their existing contract to another retail electricity consumer eligible to contract with the electric company under the pilot program.
- (4) Eligible systems may be owned, operated, or owned and operated by qualifying third parties, as given below:
 - (a) Owned by a qualifying third party as part of a loan agreement, or
 - (b) Owned and operated by a qualifying third party on behalf of the retail electricity consumer, or
 - (c) Owned and operated by qualifying third parties, or
 - (d) Operated by third parties on behalf of the retail electricity consumer.
- (5) Ownership of Renewable Energy Certificates:
 - (a) For both options of the pilot programs, the electric company receiving energy from ~~solar~~ photovoltaic energy systems meeting the requirements of OAR 860-084-0120, must receive will own 100 percent of the renewable energy certificates created through the generation of energy ~~contracted to the electric company~~ by these systems.
 - ~~-(b) Retail electricity consumers may retain renewable energy certificates created through the generation of energy used to supply system requirements-~~

Stat Auth: 2009 OR Laws Ch. 748
Stats. Implemented: 2009 OR Laws Ch. 748
Hist: NEW

860-084-0140

Assignment of Payments

- (1) Electric companies must enable retail electricity consumers to assign payments to a qualifying ~~third party assignee~~ under standard contracts approved by the Commission and must allow changes to assignment over the contract term.

(2) Electric companies may charge a reasonable fee for the assignment of payments, at the time that the standard contract is assigned. Electric companies may charge for changes to assignment of payments over the contract term.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0150

Solar Photovoltaic Pilot Capacity Limit

(1) Pilot programs close to new capacity reservations after March 31, 2015, or when the cumulative capacity of contracted systems in pilot programs reaches 25 megawatts of nameplate capacity, whichever is earlier.

(2) Power that qualifies against this capacity limit is measured as the sum of power generated on the alternating current side of system inverters across all contracted systems.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0160

Measurement of Capacity under the Solar Photovoltaic Pilot Program

(1) Except as provided in section (3) of this rule, the capacity of solar photovoltaic energy systems used to satisfy the requirements of OAR 860-084-0150 must be measured on the alternating current side of the system's inverter.

(2) ~~The Commission will establish guidelines for Each~~ electric company ~~ies to follow when must~~ converting nameplate capacity ratings reported by manufacturers in terms 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 temperature on solar module output. This conversion will be calculated as 85% of the manufacturer's nameplate rating.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0170

Distributing Solar Photovoltaic Pilot Capacity by Electric Company

(1) Each electric company will receive a share of the total solar photovoltaic pilot program capacity, given in OAR 860-084-0100(2), as established by Commission Order.

(2) An electric company's ~~solar photovoltaic pilot program ends~~ will not solicit or accept additional capacity reservations for a solar photovoltaic pilot program once the company reaches 100 percent of its solar photovoltaic pilot capacity limit.

(3) The Commission may consider requests to adjust each electric company's solar photovoltaic pilot capacity limit by changing the allocation of the total solar photovoltaic pilot program capacity from those established at pilot program initiation.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

860-084-0180

Distributing Electric Company Capacity Limit by Pilot Year

(1) Each electric company must allocate a percentage of its total pilot capacity limit, as established in OAR 860-084-0170 for reservation in each of the pilot years; this annual allocation percentage will be established by Commission Order.

(2) The Commission may consider requests to adjust the annual allocation percentage for any electric company.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0190

Distributing Annual Capacity by System Size

(1) A solar photovoltaic system capacity is the total capacity contracted by a single retail electricity consumer within a Commission defined area.

(2) Three size classes of qualifying systems are established and defined by a range of nameplate capacity; the Commission may modify these capacity ranges, ~~as required.~~

(a) Smaller systems have a nameplate capacity of 10 kilowatts or less;

(b) Medium systems have nameplate capacities larger than 10 kilowatts and up to 100 kilowatts; and

(c) Large systems have a nameplate capacity greater than 100 kilowatts and up to 500 kilowatts.

(3) Smaller systems must be targeted to generate up to 75 percent of the energy delivered to the electric companies under the solar ~~PV-photovoltaic~~ pilot program, unless otherwise directed by the Commission.

(4) Distributing Capacity to Smaller Systems: Each year, beginning April 1, 2010, an electric company must allocate ~~certain~~ percentages of its annual pilot capacity allocation, established ~~as~~ in OAR 860-084-0180, for ~~reservation to retail electricity consumers installing smaller systems, medium capacity systems, and larger capacity systems. These percentages will be established by The~~ Commission ~~will establish these percentages and Order. The Commission~~ may change ~~these~~ percentages ~~over during~~ the pilot program.

~~a) Retail electricity consumers may reserve pilot program capacity at any time during the pilot year until the annual capacity limit is fully deployed.~~

~~b(5)~~ An electric company with less than one megawatt of total allocation must allocate 100 percent of its solar photovoltaic capacity limit to retail electricity consumers installing smaller systems.

~~(5) Distributing Capacity to Medium and Large Systems: Each year, beginning April 1, 2010, an electric company must offer a percentage of its annual pilot capacity allocation, established as in OAR 860-084-0180, for reservation by retail electricity consumers installing medium or large size systems; the percentage allocated to medium capacity systems and the percentage allocated to large capacity systems will be established by Commission Order. The Commission may change these percentages over the pilot program.~~

~~a) Each electric company must receive applications for medium and large systems during the month of April of each year.~~

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

b) If capacity remains available in either size class, after reservations are made for all consumers whose applications meet established criteria, the electric company must continue to solicit applications and make capacity reservations, on a first-come, first-served basis over the pilot year, until all capacity is reserved.

c) If applications received during the month of April over-subscribe available capacity, capacity must be awarded to retail electricity consumers whose applications meet established criteria, by random drawing, until the annual capacity is fully allocated. Drawings must be carried out according to processes that comply with Commission guidelines.

(6) A retail electricity consumer may reserve capacity in the pilot program for up to five eligible systems.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0195

Mechanisms for Distributing Annual Capacity

(1) The mechanism for distributing capacity to retail electricity consumers will vary by system capacity size class; The Commission will decide which mechanism applies to which capacity class size by Commission Order.

(2) The mechanisms to distribute capacity and establish capacity reservations include the following:

(a) a) Applications for capacity are placed with the electric company at any time during the pilot year. Capacity is reserved for retail electricity consumers, on a first-come, first-served basis, until the annual capacity limit for this system size is reached. A capacity reservation starts when an application package meeting established criteria is received by the electric company.

(b) Applications for capacity are solicited and received by the electric companies during April of each pilot year. If capacity remains available after reservations are made for all consumers whose applications meet established criteria the electric company continues to solicit applications and make capacity reservations, on a first-come, first-served basis over the pilot year, until the annual capacity limit for the size class is reached. If applications received during the month of April over-subscribe available capacity, capacity must be awarded to retail electricity consumers whose applications meet established criteria, by random drawing, on the first business day in May until the annual capacity limit for the system size is reached. Drawings must be carried out according to processes that comply with Commission guidelines. A capacity reservation starts when capacity is awarded by the electric company at the completion of the capacity distribution process.

(c) Applications for capacity are solicited and received by the electric companies during May of each pilot year with capacity awarded by the first business day of July. The applications respond to a bidding process structured as a Request for Proposal that is approved by the Commission. If capacity remains available after all bids that meet established criteria are awarded, this capacity will roll over into the next pilot year. Otherwise, 100% of the capacity offered will be awarded in the bidding process. A capacity reservation begins when the retail electricity consumer acknowledges notification of a successful bid for the capacity proposed by the retail electricity consumer in the bidding process. Consumers must acknowledge notification within ten business days of receiving notification of a successful bid.

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(3) The total number of capacity reservations that can be made by a retail electricity consumer in the pilot program is limited, as follows:

(a) A retail electricity consumer eligible for the net metered option of the volumetric incentive rate pilots may reserve capacity in the pilot program for up to five eligible systems between April 1, 2010 and March 31, 2015.

(b) A retail electricity consumer eligible for the volumetric incentive rate bid option of the volumetric incentive pilots may win up to 5 bids, totaling less than or equal to 15% of the total capacity allocated to systems eligible for the volumetric bid option over the course of the pilot program.

(c) No retail electricity consumer, developer or installer may reserve capacity, in total, between the net metered and volumetric incentive rate bidding options that exceeds 15% of the total capacity allocated to the volumetric incentive rate pilot programs.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0200

Capacity Reservation, Timing and Volumetric Incentive Rates

(1) A consumer that has made a capacity reservations under the net metered option may receive ~~are~~ eligible for the volumetric incentive rate in place at the time of the ~~consumer's~~ capacity reservation ~~for up to 100% of the eligible energy generated by the consumer's system~~. Capacity reservation applications ~~and~~ standard contracts provided to retail electricity consumers at the time of capacity reservation must communicate the volumetric incentive rate that the retail electricity consumer is eligible to receive, based on their capacity reservation date. ~~Standard contracts must also identify the market rate that will be paid to retail electricity consumers eligible to sell their excess energy at wholesale at market-based rates and that elect to do so.~~

(2) Reserved systems eligible for the volumetric bidding option are eligible for the volumetric incentive rate bid by the retail electricity consumer, to be paid on 100% of the energy generated by the contracted system. Capacity reservation applications or standard contracts provided to these retail electricity consumers must communicate the successful volumetric incentive rate bid given by retail electricity consumer.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0210

Capacity Reservation, Timing and Duration

(1) The capacity reservation for a reserved system expires as follows:

(a) ~~For smaller systems~~ For consumers that may reserve capacity at any time during the year, a reservation expires twelve months from the reservation start date.

(b) ~~For medium and large systems~~ For other consumers awarded capacity, a reservation expires six months from the date that an interconnection agreement is signed or twelve months from the reservation start date, whichever is longer. A four month extension may be granted if the majority of

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

system components have been purchased and installation is underway, with work contracted for completion in the four-month window.

(2) Electric companies must collect data on the time to interconnection agreement and carry out pilot program satisfaction surveys so as to be able to improve capacity reservation and interconnection processes over the pilot program, as required. Data collection and surveys must particularly explain and recommend or implement changes to processes that result in:

(a) Interconnection agreements that have not been successfully negotiated between the electricity company and the retail electricity consumer within a six month window after an application for interconnection has been filed, or

(b) Retail electricity consumers that have reserved capacity under the pilot programs, whose capacity reservations expire before solar photovoltaic energy systems are installed.

(3) Electric companies may request that the Commission impose fees for capacity reservation applications, based on analysis of this data.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0220

Capacity Availability

(1) Each electric company must announce the available capacity for the upcoming pilot year and solicit applications for capacity reservation, no later than February 1 of each year. Each company must announce when the capacity allocation for the year is fully reserved.

(2) Capacity allocated to smaller systems that is not reserved in a pilot year must be added to the available capacity for smaller systems in the next pilot year and capacity allocated to medium and large systems that is not reserved in a pilot year must be added to the available capacity for medium and large systems in the next pilot year, unless otherwise directed by the Commission.

(3) In January 2013, or at a time otherwise determined by Commission Order, the remaining pilot capacity may be reallocated. Unless otherwise directed by the Commission, this reallocation may redistribute the remaining pilot program capacity so that 75 percent of the energy generated is from smaller systems at the time the pilot program reaches 25 megawatts of alternating current.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0230

Application for Capacity Reservation

(1) The electric company must establish, in compliance with Commission Order, a capacity application process for ~~smaller, medium and large capacity systems~~ for both the net metering and volumetric incentive rate bid option. The electric company must provide instruction to enable retail electricity consumers to generate capacity applications that meet the established criteria ~~referenced~~ in OAR 860-084-0280.

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(2) Retail electricity consumers must simultaneously file an application for capacity reservation, an application for interconnection, and pay any required application fees.

(3) The capacity reservation application must ~~require-certify~~ that ~~the~~ retail electricity consumers ~~certify that they have~~ read and understand~~s~~ the standard contract established under the pilot program. Standard contract forms must be provided to retail electricity consumers as part of the application process.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0240

Standard Contracts

(1) Each electric company must file, for Commission approval, a standard, 15-year contract as part of its volumetric incentive rate tariff filing. All transactions under the volumetric incentive rate pilot programs must be governed by a single contract.

(a) ~~The is standard~~ contract ~~will~~ establishes a purchase agreement ~~between;~~ the electric company ~~contracts with and a~~ retail electricity consumers under which the electric company will ~~to~~ purchase energy ~~from generated by~~ eligible solar photovoltaic systems installed in the service territory of the purchasing electric company, at the applicable volumetric incentive rates approved by the Commission.

(b) Contracts, under the solar photovoltaic pilot programs, may only be issued to retail electricity consumers of the electric company; these consumers must be eligible to participate in the pilots.

~~(2) The standard contract must allow for three options at normal termination of the 15-year contract:~~

~~(a) Retail electricity consumers may continue generation in return for payments that are based on the annual resource value, or~~

~~(b) Retail electricity consumers may uninstall their contracted system, or~~

~~(c) Retail electricity consumers may discontinue generation under the pilot program and apply to continue generation under volumetric incentive rate or net metering programs then in place, as allowed by Commission Order and by Rule at the time of contract termination.~~

(3) Standard Contracts must include at least the following elements:

(a) Name and address of the retail electricity consumer and the installation address of the eligible system.

(b) Volumetric incentive rate. Each standard contract must be based on the volumetric incentive rate (bid option) or volumetric incentive rate formula (net metering option) in place at the time of the capacity reservation for the retail electricity consumer;

(c) Excess Energy Option. Each standard contract must allow a retail electricity consumer installing capacity under the net metered option to donate excess generation to the low income bill assistance program of the electric company or to sell this excess generation to the electric company at a market-based rate. Standard contracts must provide for certification by the retail electricity consumer that they are eligible to make wholesale sales of energy at market-based rates;

(d) Contract term and termination option. Each standard contract must include a date of initiation and a date of contract expiration. ~~The default termination option must be continuation of generation in return for payments that are based on the resource value of power generated, unless otherwise selected~~

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

Formatted: Indent: First line: 0", Space After: 10 pt

~~by the customer.~~

(e) Certification of compliance. Each standard contract must include a section to record retail electricity consumer certifications that:

(A) No investor in the qualifying system has accepted or will accept incentives from the Energy Trust of Oregon or Oregon state residential or business tax credits for the qualifying system covered by the contract, and

(B) The system is a new system and meets Commission quality and reliability requirements.

(f) Agreement to release information about participation. Each standard contract must include a provision under which the retail electricity consumer ~~must sign a release that allows~~ agrees that the electric company ~~can~~ 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 descriptions of the confidentiality requirements that those receiving this information must follow.

(g) Agreement to participate. Each standard contract must require ~~the~~ retail electricity consumer ~~agreement that continued eligibility for the volumetric incentive rate pilot program requires the pilot participant to agree~~ to complete up to three surveys on the effectiveness of the pilot programs in order to remain eligible for participation in the pilot program. Each standard contract must also include, the retail electricity consumer's ~~agreement that~~ must also sign a release allowing the electric company ~~to~~ may release ~~this~~ information obtained from the surveys to the Public Utility Commission and the Energy Trust of Oregon.

(h) Preferred payment option. Each standard contract must specify whether the retail electricity consumer elects to have the payment and billing be aggregated on a single bill or elects to be paid monthly through direct payment. The default payment method must be aggregation on a single bill with 100% of bill credit payable at the end of each month.

(i) Assignment of payment. Each standard contract must allow a retail electricity consumer to assign payments to a qualifying ~~third party~~ assignee. Contracts must allow changes of assignee over the contract term.

(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.

(k) Disclosure that payments under the volumetric incentive rate bid option ~~may be~~ taxable as income, under Oregon and Federal Tax law, and that an eligible system ~~may be is not~~ subject to property tax in the State of Oregon.

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

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0250

Billing and Payment Requirements

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(1) Payments for energy generated from the qualifying system must be paid monthly. Retail electricity consumers may request that:

(a) Payments be paid directly to the consumer each month; the consumer will continue to receive a standard monthly bill for electricity purchased under a scheduled tariff; or

(b) Payments for energy generated be netted against the retail electricity consumer's standard monthly bill and the retail electricity consumer receive or pay the resulting amount; or

(c) The qualified assignee given on the standard contract be paid 100% of the volumetric incentive rate payment and the retail electricity consumer be billed separately for the retail electricity consumer's monthly bill.

~~(4) (3) The electric company must allow the assignment of payments to a qualifying assignee. An electric company may impose a fee, for account setup, for this alternative.~~

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

INTERCONNECTION: APPLICATION AND AGREEMENTS

860-084-0260

Interconnection Requirements for Solar Photovoltaic Pilot Program

(1) As established in OAR 860-084-0110(d), a qualifying system must be certified as complying with the requirements of section (2) of this rule.

(2) To be qualified for interconnected operation, a system must be certified as complying with the following standards as applicable:

(a) IEEE standards; and

(b) UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems (January 2001).

(3) A system is considered as certified to the standards of section (2) of this rule, and the electric company may not require further design review, testing or additional equipment, if:

(a) The system is a complete equipment package that has been submitted by a manufacturer to a nationally recognized testing and certification laboratory, and has been tested and listed by the laboratory for continuous interactive operation with an electric distribution system in compliance with the applicable codes and standards listed in section (2) of this rule; or

(b) The system is an equipment package which includes a generator or other electric source and the equipment package has been tested and listed as an integrated package in compliance with the applicable codes and standards listed in section (2) of this rule, or

(c) The certified equipment package comprises only the interface components (switchgear, inverters, or other interface devices) and the interconnection applicant has shown that

(A) The solar photovoltaic energy system being utilized is compatible with the equipment package,

(B) Testing and listing of the solar photovoltaic generator being utilized, as performed by the nationally recognized testing and certification laboratory, is consistent with the testing and listing of the interface component equipment package, and

(C) The testing and listing specified for the package is consistent with the applicable codes and standards listed in section (2) of this rule.

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(4) A qualifying system may not interconnect to a transmission line.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0270

Authorization to Interconnect

(1) A person may not interconnect an eligible system to an electric company's distribution system without authorization from the electric company.

(2) A person proposing to interconnect an eligible system to an electric company's distribution system must submit an application for interconnection to the electric company.

(3) A person with contracted system who proposes to make any change to the facility, other than a minor equipment modification, must submit an application to the electric company. Changes affecting the nameplate capacity or the output capacity of the system authorized in the agreement governing the contract require that the applicant apply for an additional capacity reservation and for a new interconnection review.

(4) An application for interconnection must be submitted on a standard form, available from the electric company and posted on the electric company's website. The submission of a completed application launches the process of interconnection review. The application form must require the following types of information:

(a) The name of the applicant and the electric company involved;

(b) The type and specifications of the complete equipment package of the solar photovoltaic energy system, including the solar photovoltaic generator;

(c) The Level of interconnection review sought; e.g. Level 1, Level 2 or Level 3;

(d) The contractor who will install the solar photovoltaic energy system;

(e) Equipment certifications;

(f) The anticipated date the solar photovoltaic energy system will be operational; and

(g) Other information that the utility deems is necessary to determine compliance with these solar photovoltaic pilot program interconnection rules.

(5) Within three business days after receiving an application for Level 1, Level 2 or Level 3 interconnection review, the electric company must provide written or electronic mail notice to the applicant that it received the application and whether the application meets established criteria.

(a) If the application does not meet established criteria, the written notice must include a list of all of the information needed to complete the application.

(b) If the number of applications received in a week exceeds 20, the electric company may notify customers by electronic mail that the company will respond within ten business days.

(6) Each electric company must designate an employee or office from which an applicant can obtain basic application forms and information through an informal process; this process must be outlined and posted on the electric company's website. On request, the electric company must provide all relevant forms, documents, and technical requirements for submittal of an application that meets established criteria for an interconnection application under these solar photovoltaic pilot program rules, as well as specific information necessary to contact the electric company representative assigned to review the application.

(7) A person may also request information about the feasibility of interconnecting a qualifying system, in advance of filing an application for capacity reservation or interconnection. The information provided by the electric company in response to this request must include relevant existing studies and other materials that may be used to understand the feasibility of interconnecting a solar photovoltaic

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

facility at a particular point on the electric company's distribution system. The electric company must comply with reasonable requests for access to or copies of such information, except to the extent that providing such materials would violate security requirements, confidentiality obligations to third parties, or be contrary to federal or state regulations. The electric company may require a person to sign a confidentiality agreement if required to protect confidential or proprietary information. A person requesting information under this section must reimburse the electric company for the reasonable costs of gathering and copying the requested information.

(8) The electric company is not responsible for the cost of determining the rating of equipment on the customer side of the meter.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0280

Interconnection Cost Responsibility

(1) For a Level 1 interconnection review, the electric company may not charge any fees, unless otherwise directed by the Commission.

(2) For a Level 2 or Level 3 interconnection review, the electric company may charge an application fee, as established by Commission order. If an interconnection request is denied by the electric company, this fee must be refunded to the applicant.

(3) The Commission will establish a standard interconnection facility installation cost allowance, or other method similar to an allowance, level 2 and level 3 applicants. The electric company will bear the cost of required additions or modifications to the electric company's interconnection facilities (except the meter), modifications to the electric distribution system, interconnection reviews, or system upgrades up to the standard interconnection cost allowance. All costs above this allowance will be the responsibility of the retail electricity consumer. The electric company will recover the used portion of the allowance in rates.

(a) Interconnected systems must be equipped with metering equipment that can measure the flow of electricity in both directions and comply with ANSI C12.1 standards and OAR 860-023-0015. The customer may determine the location of the meter.

(b) The electric company constructs, owns, operates, and maintains the meter and applicable interconnection facilities on the company side of the meter.

(c) The retail electricity consumer chooses the location of the meter and is responsible for the costs of connection between the eligible system and the meter.

(4) A retail electricity consumer who is reinstalling a contracted system, and is eligible to continue in the solar photovoltaic pilot program under an existing standard contract, must pay the expense of the meter, interconnection equipment, modifications to the electric distribution system, interconnection review, or system upgrades in the new location as applicable.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0300

Insurance

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

An electric company may not require a contracted system to obtain liability insurance in order to interconnect with the electric company's distribution system.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0310

Level 1 System Interconnection Review

(1) An eligible system meeting the following criteria is eligible for Level 1 interconnection review:

- (a) The facility is inverter-based; and
- (b) The facility has a capacity of 25 kilowatts or less.

(2) The electric company must approve interconnection under the Level 1 interconnection review procedure if:

(a) The aggregate generation capacity on the distribution circuit to which the eligible system will interconnect, including the capacity of the eligible system, may not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the high voltage (primary) level that is nearest the proposed point of common coupling.

(b) An eligible system's point of common coupling may not be on a transmission line, a spot network, or an area network.

(c) If an eligible system is to be connected to a radial distribution circuit, the aggregate generation capacity connected to the circuit, including that of the eligible system, may not exceed 15 percent of the circuit's total annual peak load, as most recently measured at the substation.

(d) If an eligible system is to be connected to a single-phase shared secondary, the aggregate generation capacity connected to the shared secondary, including the eligible system, may not exceed 20 kilovolt-amperes.

(e) If a single-phase eligible system is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the eligible system may not create a current imbalance between the two sides of the 240 volt service of more than 20 percent of nameplate rating of the service transformer.

(3) Within 10 business days after the electric company notifies a Level 1 applicant that the application is complete, the electric company must notify the applicant that:

(a) The eligible system meets all applicable criteria and the interconnection is approved upon installation of any required meter upgrade, completion of any required inspection of the facility, and execution of an interconnection agreement; or

(b) The eligible system has failed to meet one or more of the applicable criteria and the interconnection application is denied.

(4) If an electric company does not notify a Level 1 applicant in writing or by electronic mail whether the interconnection is approved or denied within 20 business days after the receipt of an application, the interconnection will be deemed approved. Interconnections approved under this section remain subject to section 7 below.

(5) Within three business days after sending the notice to an applicant that the proposed interconnection meets the Level 1 requirements, an electric company must notify the applicant:

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(a) Whether an inspection of the eligible system for compliance with these interconnection rules is required prior to the operation of the system; and

(b) That an interconnection agreement is required for the eligible system. The electric company must also execute and send to the applicant a Level 1 interconnection agreement, unless the applicant has already submitted such an agreement with its application for interconnection.

(6) On receipt of an executed interconnection agreement from the applicant and satisfactory completion of any required inspection, the electric company must approve the interconnection, conditioned on compliance with all applicable building codes.

(7) The retail electric customer must notify the electric company of the anticipated start date for operation of the eligible system at least five business days prior to starting operation, either through the submittal of the interconnection agreement or in a separate notice. If the electric company requires an inspection of the eligible system, the applicant may not begin operating the facility until satisfactory completion of the inspection.

(8) If an application for Level 1 interconnection review is denied because it does not meet one or more of the applicable requirements in this rule, an applicant may resubmit the application under the Level 2 or Level 3 interconnection review procedure, as appropriate.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0320

Level 2 System Interconnection Review

(1) An electric company must apply the following Level 2 interconnection review procedure for an application to interconnect an eligible system that meets the following criteria:

(a) The facility has a capacity of 500 kilowatts or less; and

(b) The facility does not qualify for or failed to meet applicable Level 1 interconnection review procedures.

(2) The electric company must approve interconnection under the Level 2 interconnection review procedure if:

(a) The aggregate generation capacity on the distribution circuit to which the eligible system will interconnect, including the capacity of the eligible system, will not cause any distribution protective equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or customer equipment on the electric distribution system, to exceed 90 percent of the short circuit interrupting capability of the equipment. In addition, an eligible system may not be connected to a circuit that already exceeds 90 percent of the short circuit interrupting capability, prior to interconnection of the facility.

(b) If there are posted transient stability limits to generating units located in the general electrical vicinity of the proposed point of common coupling, including, but not limited to within three or four transmission voltage level busses, the aggregate generation capacity, including the eligible system, connected to the distribution low voltage side of the substation transformer feeding the distribution circuit containing the point of common coupling may not exceed 10 megawatts.

(c) The aggregate generation capacity connected to the distribution circuit, including the eligible

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

system, may not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.

(d) If an eligible system is to be connected to a radial distribution circuit, the aggregate generation capacity connected to the electric distribution system by non-electric company sources, including the eligible system, may not exceed 15 percent of the total circuit annual peak load. For the purposes of this subsection, annual peak load will be based on measurements taken over the 12 months previous to the submittal of the application, measured for the circuit at the substation nearest to the eligible system.

(e) If an eligible system is to be connected to three-phase, three wire primary electric company distribution lines, a three-phase or single-phase generator must be connected phase-to-phase.

(f) If an eligible system is to be connected to three-phase, four wire primary electric company distribution lines, a three-phase or single-phase generator must be connected line-to-neutral and must be effectively grounded.

(g) If an eligible system is to be connected to a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the eligible system, may not exceed 20 kilovolt-amps.

(h) If an eligible system is single-phase and is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the eligible system may not create a current imbalance between the two sides of the 240 volt service that is greater than 20 percent of the nameplate rating of the service transformer.

(i) An eligible system's point of common coupling may not be on a transmission line.

(j) If an eligible system's proposed point of common coupling is on a spot or area network, the interconnection must meet the following additional requirements:

(A) For an eligible system that will be connected to a spot network circuit, the aggregate generation capacity connected to that spot network from the eligible system, and any generating facilities, may not exceed five percent of the spot network's maximum load;

(B) For an eligible system that utilizes inverter-based protective functions, which will be connected to an area network, the eligible system, combined with any other generating facilities on the load side of network protective devices, may not exceed 10 percent of the minimum annual load on the network, or 500 kilowatts, whichever is less. The percent of minimum load must be calculated based on the minimum load occurring during an off-peak daylight period; and

(C) For an eligible system that will be connected to a spot or an area network that does not utilize inverter-based protective functions, or for an inverter-based eligible system that does not meet the requirements of paragraphs (A) or (B) of this subsection, the eligible system must utilize low forward power relays or other protection devices that ensure no export of power from the eligible system, including inadvertent export (under fault conditions) that could adversely affect protective devices on the network.

(3) Within 15 business days after notifying a Level 2 applicant that the application is complete, the electric company must perform an initial review of the proposed interconnection to determine whether the interconnection meets the applicable criteria. During this initial review, the electric company may, at its own expense, conduct any studies or tests it deems necessary to evaluate the proposed interconnection and provide notice to the applicant of one of the following determinations:

(a) The eligible system meets the applicable requirements and that interconnection will be approved following any required inspection of the facility and fully executed interconnection agreement. Within

three business days after this notice, the electric company must provide the applicant with an executable interconnection agreement;

(b) The eligible system failed to meet one or more of the applicable requirements, but the electric company determined that the eligible system may be interconnected consistent with safety, reliability, and power quality. In this case, the electric company must notify the applicant that the interconnection will be approved following any required inspection of the facility and fully executed interconnection agreement. Within five business days after this notice, the electric company must provide the applicant with an executable interconnection agreement; or

(c) The eligible system failed to meet one or more of the applicable requirements, and that additional review would not enable the electric company to determine that the eligible system could be interconnected consistent with safety, reliability, and power quality. In such a case, the electric company must notify the applicant that the interconnection application has been denied and must provide an explanation of the reason(s) for the denial, including a list of additional information, or modifications to the eligible system, or both, which would be required in order to obtain an approval under Level 2 interconnection procedures.

(4) An applicant that receives an interconnection agreement under subsection (3)(a) or (3)(b) of this rule must:

(a) Execute the agreement and return it to the electric company at least 10 business days prior to starting operation of the eligible system (unless the electric company does not so require); and

(b) Indicate to the electric company the anticipated start date for operation of the eligible system.

(5) The electric company may require an electric company inspection of an eligible system for compliance with these solar photovoltaic rules prior to operation, and may require and arrange for witness of commissioning tests as set forth in IEEE standards. The electric company must schedule any inspections or tests under this section promptly and within a reasonable time after submittal of the application. The applicant may not begin operating the eligible system until after the inspection and testing is completed.

(6) Approval of interconnected operation of any Level 2 eligible system must be conditioned on all of the following occurring:

(a) Approval of the interconnection by the electrical code official with jurisdiction over the interconnection;

(b) Successful completion of any electric company inspection or witnessing of commissioning tests, or both, requested by the electric company; and

(c) Passing of the planned start date provided by the applicant.

(7) If an application for Level 2 interconnection review is denied because it does not meet one or more of the requirements of this rule, the applicant may resubmit the application under the Level 3 interconnection review procedure.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0330

Level 3 System Interconnection Review

(1) The electric company must apply the Level 3 review procedure for an application to interconnect an eligible system that meets the following criteria:

- (a) The facility has a capacity of 500 kilowatts or less; and
- (b) The facility does not qualify or failed to meet Level 2 interconnection review procedures.

(2) Following receipt of a Level 3 application and within three business days of a request from the applicant, the electric company must provide pertinent information to the applicant, such as the available fault current at the proposed interconnection location, the existing peak loading on the lines in the general vicinity of the eligible system, and the configuration of the distribution lines at the proposed point of common coupling.

(3) Within seven business days after receiving a complete application for Level 3 interconnection review, the electric company must conduct an impact study which includes a good faith cost estimate for determination of whether the electric company costs comply with the Reasonable Cost standard, as defined in OAR 860-084-0290. The impact study must be conducted in accordance with good utility practice and must:

- (a) Detail the impacts to the electric distribution system that would result if the eligible system were interconnected without modifications to either the eligible system or to the electric distribution system;
- (b) Identify any modifications to the electric company's electric distribution system that would be necessary to accommodate the proposed interconnection; and
- (c) Focus on power flows and utility protective devices, including control requirements; and
- (d) Include the following elements, as applicable:
 - (A) A load flow study;
 - (B) A short-circuit study;
 - (C) A circuit protection and coordination study;
 - (D) The impact on the operation of the electric distribution system;
 - (E) A stability study, along with the conditions that would justify including this element in the impact study;
 - (F) A voltage collapse study, along with the conditions that would justify including this element in the impact study.

(4) The electric company must complete the impact study and must notify the applicant within 30 calendar days of one of the following results:

- (a) Only minor modifications to the electric company's electric distribution system are necessary to accommodate interconnection. In such a case, the electric company must approve the application and send the applicant an interconnection agreement; or
- (b) The eligible system may be safely interconnected, substantial modifications to the electric company's electric distribution system are necessary to accommodate the proposed interconnection, and the costs associated with the substantial modifications meet the criteria as defined in OAR 860-084-0290. In such a case, the electric company must approve the application and send the applicant an interconnection agreement; or

(c) The eligible system may be safely interconnected, substantial modification to the company's electric system are necessary to accommodate the proposed interconnection, and the interconnection costs exceed the standard interconnection cost allowance as defined in OAR 860-084-0280 (3). In such a case, the applicant may request a binding estimate of the cost of those facilities that are above the standard interconnection cost allowance and of the estimated time required to build and install those facilities. The applicant may choose to pay the cost of the facilities above the standard interconnection cost allowance and request the approval of the interconnection application.

(5) If the proposed interconnection may affect electric transmission or delivery systems other than those controlled by the electric company, operators of those other systems may require additional studies to determine the potential impact of the interconnection on those systems. If such additional studies are required, the electric company must coordinate the studies but is not responsible for their timing.

(6) If an applicant requests a facilities study under subsection (4)(b), the electric company must provide an interconnection facilities study agreement. The interconnection facilities study agreement must describe the work to be undertaken in the interconnection facilities study and must include a non-binding, good faith estimate of the cost to the applicant for completion of the study. Upon execution by the applicant of the interconnection facilities study agreement, the electric company must conduct an interconnection facilities study to identify the facilities necessary to safely interconnect the eligible system with the electric company's electric distribution system, and if the costs associated with this interconnection exceed the standard interconnection cost allowance, to propose a non-binding, good faith estimate of the cost of those facilities and the time required to build and install those facilities.

(7) Upon completion of an interconnection facilities study, the electric company must provide the applicant with the results of the study and an executable interconnection agreement. The agreement must list the conditions and facilities necessary for the eligible system to safely interconnect with the electric company's electric distribution system.

(8) If the applicant wishes to interconnect, it must execute the interconnection agreement and return it to the electric company at least 10 business days prior to starting operation of the eligible system, unless the electric company does not so require.

(9) If the applicant wishes to interconnect and costs are determined to be above the standard interconnection cost allowance, the applicant must pay a deposit of not more than 50 percent of the estimated cost of the facilities identified in the interconnection facilities study, complete installation of the eligible system, and agree to pay the electric company the actual installed cost of the facilities needed to interconnect as identified in the interconnection facilities study.

(10) Within 15 business days after notice from the applicant that the eligible system has been installed, the electric company must inspect the eligible system and must arrange to witness any commissioning tests required under IEEE standards. The electric company and the applicant must select a date by mutual agreement for the electric company to witness commissioning tests.

(11) If the eligible system satisfactorily passes required commissioning tests, if any, the electric company must notify the applicant in writing, within three business days after the tests, of one of the following:

(a) The interconnection is approved and the eligible system may begin operation; or
(b) The interconnection facilities study identified necessary construction that has not been completed, the date upon which the construction must be completed, and the date when the eligible system may begin operation.

(12) If the commissioning tests are not satisfactory, the applicant must repair or replace the unsatisfactory equipment to reschedule a commissioning test.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0340

Installation, Operation, Maintenance, and Testing of Contracted Systems

A contracted system must include and maintain a manual disconnect switch that will disconnect the solar photovoltaic energy system from the electric company's system.

(1) The disconnect switch must be a lockable, load-break switch that plainly indicates whether it is in the open or closed position.

(2) The disconnect switch must be readily accessible to the electric company at all times.

(3) The electric company must install the required disconnect switch at the electric company's expense.

(4) For customer services of 600 volts or less, an electric company may not require a disconnect switch for an eligible system that is inverter-based with a maximum rating as shown below.

(a) Service type: 240 Volts, Single-phase, 3 Wire—Maximum size 7.2 kilowatts

(b) Service type: 120/208 Volts, 3-Phase, 4 Wire—Maximum size 10.5 kilowatts

(c) Service type: 120/240 Volts, 3-Phase 4 Wire—Maximum size 12.5 kilowatts

(d) Service type: 277/480, 3-Phase, 4 Wire—Maximum size 25.0 kilowatts

(e) For other service types, the eligible system must not impact the retail electric consumers' service conductors by more than 30 amperes.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0350

Requirements after Approval of a Solar Photovoltaic Interconnection

(1) Once a contracted system has been approved under these solar photovoltaic interconnection rules, the electric company may not require a retail electric consumer to test or perform maintenance on its facility except for:

(a) An annual test in which the contracted system is disconnected from the electric company's equipment to ensure that the inverter stops delivering power to the grid;

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

- (b) Any manufacturer-recommended testing or maintenance;
 - (c) Any post-installation testing necessary to ensure compliance with IEEE standards or to ensure safety; and
 - (d) Testing required if the retail electric customer replaces a major equipment component that is different from the originally installed model.
- (2) When a contracted system undergoes maintenance or testing in accordance with the requirements of these solar photovoltaic interconnection rules, the retail electric consumer must retain written records for seven years documenting the maintenance and the results of testing.
- (3) An electric company has the right to inspect a retail electric consumer's facility after interconnection approval is granted, at reasonable hours and with reasonable prior notice to the retail electric consumer. If the electric company discovers that the contracted system is not in compliance with the requirements of these solar photovoltaic interconnection rules, the electric company may require the retail electric consumer to disconnect the contracted system until compliance is achieved.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

Rates and Cost Recovery

860-084-0360

Volumetric Incentive Rates and Payments – Net Metering Option

(1) A retail electricity consumer participating in the volumetric incentive rate formula option under a pilot program receives payments for the electricity generated from the consumer's contracted system to meet the retail electricity consumer's annual load, as follows:

(a) For 15 years from the date of the consumer's date of enrollment, the payment equals the product of ~~the kilowatt-hours of electricity delivered to the electric company payable generation~~ and the applicable volumetric incentive rate ~~per kilowatt-hour~~, with the applicable rate ~~per kilowatt-hour~~ determined from rates or through a rate formula 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.

(b) At the end of a generation year, established to end March 31st 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 payment thereafter equals the product of the kilowatt-hours of electricity delivered to meet the retail electricity consumer's annual load and a volumetric incentive rate equal to the difference between the annual resource value per kilowatt-hour and the retail rate for the class of service of the retail electricity customer in effect at the time the energy is generated.

Formatted: Indent: First line: 0", Space After: 10 pt

(2) Rates for payment under this rule are established by Commission Order. Electric companies must file compliance tariffs incorporating the rates established by the Commission.

Addendum C. Staff Proposed Revisions, Division 084 Rules, Revision 2, 1/14/2010.

(3) The Commission will establish initial volumetric incentive rates to enable participation in the pilot programs to begin April 1, 2010.

(4) The Commission will periodically consider adjusting rates to meet targeted levels of participation as follows:

(a) Commission staff must consult with interested parties and make a recommendation at a public meeting regarding the need to adjust volumetric incentive rates or make other changes in the pilot programs.

(b) Commission staff must make its recommendations in time to allow rate adjustments or program changes to occur on July 1, 2010, and every six months thereafter, and as otherwise directed by the Commission, for the term of the pilot programs.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0365

Volumetric Incentive Rate Bidding Option

(1) A retail electricity consumer installing a system under the volumetric incentive rate bidding option of the pilot program, receives payments for the 100% of the electricity delivered to the electric company from the customer's contracted system, as follows:

(a) For 15 years from the date of the consumer's date of enrollment, the payment equals the product of the kilowatt-hours of electricity delivered to the electric company² and the volumetric incentive rate per kilowatt-hour established through the consumer's successful bid in the volumetric incentive rate bidding process in effect at the date of capacity reservation.

(b) The payment thereafter equals the product of the kilowatt-hours of electricity delivered to meet retail electricity consumer's annual load and a volumetric incentive rate equal to the annual resource value per kilowatt-hour.

(3) Each company will execute a volumetric incentive rate bidding process in May of each year, through a Request for Proposal process approved by the Commission.

(4) The Commission will periodically consider adjusting requirements for the volumetric incentive rate bidding processes:

(a) Commission staff must consult with interested parties and make a recommendation at a public meeting regarding the need to modify the volumetric incentive rate bidding processes or make other changes in the pilot programs.

(b) Commission staff must make its recommendations in time to allow process or program changes to occur by February 1, 2011 and every year thereafter, and as otherwise directed by the Commission, for the term of the pilot programs.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

² 100% of generation, net of system requirements.

860-084-0370**Resource Value**

(1) On July 1 of 2010, 2012, and 2014, each electric company must file, for review in a Commission proceeding, its estimate of the 15-year levelized resource value for the company, along with supporting work papers.

(2) For the purpose of determining payments to retail electricity consumers at the end of the 15-year contract term, each electric utility must file, beginning January 1, 2025, and every January 1 thereafter, its estimates of the annual resource value for the company for each of the next five years.

(3) A resource value may be established for smaller, medium and larger systems and may be differentiated by remote location or location central to the system load.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0380**Cost Recovery and Rate Impacts**

(1) An electric company may recover in rates all costs prudently incurred to offer the pilot program established under these rules, including, but not limited to, costs not otherwise reflected in rates for electricity usage related to:

- (a) Payments for the output of contracted systems,
- (b) Interconnection studies and related system modifications and upgrades, and
- (c) Data collection and analysis for assessment of the company's pilot program.

(2) On July 1 of 2010, 2012, and 2014, and as otherwise directed by the Commission, each electric company must file for review, in a Commission proceeding, its estimates of the rate impact for each customer class of participation in its pilot program, along with supporting work papers.

(3) The Commission may establish total generator nameplate capacity limits for an electric company so that the rate impact of the pilot program for any customer class does not exceed 0.25 percent of the company's revenue requirement for the class in any year.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0390**Cost Recovery Mechanism**

An electric company may request recovery of prudently incurred costs associated with compliance with the solar photovoltaic pilot program requirements. Mechanisms for recovery of cost associated with compliance will be established by Commission Order.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

Data Collection and Reporting**860-084-0400****Data Collection**

Except as provided in OAR 860-084-0410, each electric company must collect from the retail electricity consumer participating in the pilot program data on the installed solar photovoltaic energy system. The collected data elements must include, but are not limited to:

- (1) Nameplate Capacity;
- (2) Total Installed Cost;
- (3) Photovoltaic module cost;
- (4) Non- photovoltaic module cost (including other hardware, labor, overhead, and regulatory compliance costs);
- (5) Total financing cost;
- (6) Financing terms (including interest rate)
- (7) System location;
- (8) Technology type (building-integrated versus rack-mounted; crystalline silicon versus thin-film; solar tracking versus rack-mounted; etc.)
- (9) Federal tax credit;
- (10) In-service date;
- (11) Expected annual energy output
- (12) Date of certification of compliance
- (13) Class of service of retail electricity consumer

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 Or Laws. Ch. 748

Hist: NEW

860-084-0410**Compliance with Pilot Program Requirements**

(1) Electric companies must require pilot program participants, as a condition of participation in the pilot program, to certify, at the time of enrollment and at contract signing, that no investor in the qualifying system has accepted or will accept incentives from the Energy Trust of Oregon or Oregon State residential or business tax credits for the system contracted in the solar photovoltaic pilot program.

(2) Each electric company must send a list of all reserved and contracted systems that have completed this certification to the Energy Trust of Oregon, the Oregon Department of Revenue, or the Oregon Department of Energy, upon request by each organization. Data included in this listing includes, but is not limited to:

- (a) Name and address of retail electricity consumer;
- (b) Name and address of individual receiving volumetric incentive rate payments;
- (c) Installation location of eligible or contracted system;
- (d) In-service date; and
- (e) Date of certification of Compliance.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0430**Data Availability**

(1) Each electric company must verify that the data collected pursuant to OAR 860-084-0400 and OAR 860-084-0410 has been recorded in an appropriate electronic database prior to making volumetric incentive rate payments to participating retail electricity consumers.

(2) Each electric company must provide the data collected pursuant to OAR 860-084-0400 and OAR 860-084-0410, in a format established by the Commission, upon request. Reports that include this raw data and a summary of this data for the pilot program to date, must be provided to the Oregon Department of Energy, the Energy Trust of Oregon, the Oregon Department of Revenue, and to the Commission, quarterly, on the 15th day of the first month of each calendar quarter.

(3) Each electric company must make graphically visible, on a publically accessible website, the general locations and sizes of reserved and contracted systems. This information must not include consumer names or installation addresses or total capacity deployed to date.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0440

Pilot Program Overhead

(1) Electric companies must contribute to Commission-led evaluations of solar photovoltaic pilot programs through efforts including, but not limited to:

(a) Proposals for the design and execution of surveys to measure participant satisfaction with and recommendations for improving the pilot program processes,

(b) Proposals for the design and execution of surveys to ~~solicit~~understand participant decision processes in choosing between the volumetric incentive rate program and the existing net-metering program (~~with combined~~ with tax credits and Energy Trust incentives), and

(c) Comment on Commission recommendations for regulatory policy changes that ~~can~~may lead to the increased use of solar photovoltaic energy systems, making solar photovoltaic systems more affordable, reducing the cost of incentives to utility customers, and promoting the development of the solar industry in Oregon.

(2) Each electric company may enter into a contract with the Energy Trust of Oregon to provide data collection and summary services required by OAR 860-084-0400 and OAR 860-084-0410. An electric company may also contract with the Energy Trust of Oregon to administer pilot programs, including capacity reservation services, survey execution or program evaluation. The Commission may direct the electric companies to contract with the Energy Trust of Oregon, if the Commission judges that the costs to administer individual pilot programs are unreasonable.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

Hist: NEW

860-084-0450

Reports to the Legislature

The Commission must open a docket on or before November 1 of each even-numbered calendar year to receive public comment and recommendations on the draft reports prepared by Commission staff regarding the pilot programs.

Stat Auth: 2009 OR Laws Ch. 748

Stats. Implemented: 2009 OR Laws Ch. 748

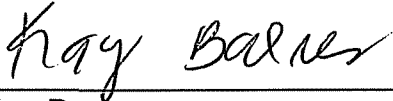
Hist: NEW

CERTIFICATE OF SERVICE

AR 538

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 19th day of January, 2010.

A handwritten signature in cursive script, reading "Kay Barnes", is written over a horizontal line.

Kay Barnes
Public Utility Commission
Regulatory Operations
550 Capitol St NE Ste 215
Salem, Oregon 97301-2551
Telephone: (503) 378-5763

AR 538
SERVICE LIST

ROBERT FRISBEE

rfrisbee@si-two.com

JOLENE GOODNIGHT

jolene.goodnight@gmail.com

RUSSELL HIRSCH

russell@dhgllc.com

RAINER HUMMEL

5041 SW ILLINOIS ST
PORTLAND OR 97221
rhummel@q.com

DAVID JOHNSON

sideoff.dave@gmail.com

TEDDY KEIZER

1615 SE 30TH AVE
PORTLAND OR 97214
teddy@goteddygo.com; teddy1a@aol.com

SEAN MICKEN

sean@resolveenergy.net

RAYMOND P NEFF

465-1/2 RIVER RD
EUGENE OR 97404
rpneff@efn.org

CLIFF TAYLOR

gentaylor@comcast.net

JOHN VARELDZIS

25 NW 23RD PL STE 6#397
PORTLAND OR 97210
john.vareldzis@gmail.com

DANIEL WELDON

19790 SOUTH FERGUSON TERRACE
OREGON CITY OR 97045
danweldon@bctonline.com

***OREGON DEPARTMENT OF ENERGY**

ROBERT DEL MAR
ENERGY ANALYST

625 MARION ST NE
SALEM OR 97301-3737
robert.delmar@state.or.us

KIP PHEIL
SENIOR POLICY ANALYST

625 MARION ST NE - STE 1
SALEM OR 97301-3737
kip.pheil@state.or.us

VIJAY A SATYAL
SENIOR POLICY ANALYST

625 MARION ST NE
SALEM OR 97301
vijay.a.satyal@state.or.us

ABUNDANT SOLAR

JAMES REISMILLER

james@abundantsolar.com

ADVANCED ENERGY SYSTEMS

ERIC NILL

65 CENTENNIAL LOOP
EUGENE OR 97401
eric@aesrenew.com

AF LEGAL & CONSULTING SERVICES

ANN L FISHER
ATTORNEY AT LAW

PO BOX 25302
PORTLAND OR 97298-0302
energlaw@aol.com

ALBINA COMMUNITY BANK

SCOTT BOSSOM
CREDIT ADMINISTRATOR

sbossom@albinabank.com

ATLAS MARKETS

STEVE SOULE

4203 MONTROSE BLVD STE 650
HOUSTON TX 77006
steve.soule@atlasmarkets.com

BACGEN SOLAR GROUP

MARTIN SHAIN

ONE WORLD TRADE CENTER
121 SW SALMON ST, 11TH FLR
PORTLAND OR 97204
martin@bacgensolar.com

BEF RENEWABLE INC

ALICE BRAY

240 SW FIRST AVE
PORTLAND OR 97204
abray@b-e-f.org

CITIZENS' UTILITY BOARD OF OREGON

JEFF BISSONNETTE

610 SW BROADWAY STE 308
PORTLAND OR 97205-3404
jeff@oregoncub.org

GORDON FEIGNER
ENERGY ANALYST

610 SW BROADWAY, SUITE 308
PORTLAND OR 97205
gordon@oregoncub.org

ROBERT JENKS

610 SW BROADWAY STE 308
PORTLAND OR 97205
bob@oregoncub.org

G. CATRIONA MCCracken
LEGAL COUNSEL/STAFF ATTY

610 SW BROADWAY - STE 308
PORTLAND OR 97205
catriona@oregoncub.org

CITY OF PORTLAND - PLANNING & SUSTAINABILITY

LEE RAHR

721 NW 9TH AVE STE 350
PORTLAND OR 97209
leerahr@ci.portland.or.us

DAVID TOOZE
SENIOR ENERGY SPECIALIST

1900 SW 4TH STE 7100
PORTLAND OR 97201
dtooze@ci.portland.or.us

COLUMBIA ENERGY PARTNERS LLC

PETER P BLOOD
VP-ORIGINATION & PORTFOLIO MGMT

317 COLUMBIA ST
VANCOUVER WA 98660
pblood@columbiaenergypartners.com

COMMERCIAL SOLAR VENTURES

SANDRA WALDEN
REAL ENERGY SOLUTIONS

621 SW ALDER ST #300
PORTLAND OR 97205
swalden@realcomassoc.com

DAVISON VAN CLEVE

JESSE E COWELL

333 SW TAYLOR ST., SUITE 400
PORTLAND OR 97204
jec@dvclaw.com

DEPARTMENT OF JUSTICE

STEPHANIE S ANDRUS
ASSISTANT ATTORNEY GENERAL

REGULATED UTILITY & BUSINESS SECTION
1162 COURT ST NE
SALEM OR 97301-4096
stephanie.andrus@state.or.us

PAUL GRAHAM
ASSISTANT ATTORNEY GENERAL

REGULATED UTILITY & BUSINESS SECTION
1162 COURT ST NE
SALEM OR 97301-4096
paul.graham@state.or.us

EC RENEWABLE SOLUTIONS

LAURIE HUTCHINSON

2121 NW THURMAN
PORTLAND OR 97210
laurieh@e-c-co.com

ECUMENICAL MINISTRIES OF OREGON

KATHLEEN NEWMAN
OREGON INTERFAITH POWER & LIGHT

1553 NE GREENSWORD DR
HILLSBORO OR 97214
knewman@emoregon.org;
k.a.newman@verizon.net

ENERGY TRUST OF OREGON

DOUG BOLEYN
COMMERCIAL SOLAR PROGRAM MANAGER

851 SW SIXTH AVE STE 1200
PORTLAND OR 97204
doug.boleyn@energytrust.org

KACIA BROCKMAN

851 SW SIXTH AVE - STE 1200
PORTLAND OR 97204
kacia@energytrust.org

JED JORGENSEN
RENEWABLE ENERGY PROJECT MANAGER

851 SW SIXTH AVE STE 1200
PORTLAND OR 97204
jed.jorgensen@energytrust.org

BETSY KAUFFMAN
SENIOR PROGRAM MANAGER

851 SW SIXTH AVE STE 1200
PORTLAND OR 97204
betsy.kauffman@energytrust.org

DAVE MCCLELLAND
SOLAR PROGRAM COORDINATOR

851 SW SIXTH AVE STE 1200
PORTLAND OR 97204
dave.mcclelland@energytrust.org

KEITH ROSSMAN
SOLAR PROGRAM INTERN

851 SW SIXTH AVE STE 1200
PORTLAND OR 97204
keith.rossman@energytrust.org

LIZZIE RUBADO
RESIDENTIAL SOLAR PROJECT MANAGER

851 SW SIXTH AVE STE 1200
PORTLAND OR 97204
lizzie.rubado@energytrust.org

PETER WEST
DIRECTOR OF RENEWABLE ENERGY
PROGRAMS

851 SW 6TH AVE - STE 1200
PORTLAND OR 97204
peter.west@energytrust.org

ENVIRONMENT OREGON

BROCK HOWELL
ADVOCATE

1536 SE 11TH AVE STE B
PORTLAND OR 97214
brock@environmentoregon.org

ENVIRONMENTAL LAW ALLIANCE WORLDWIDE

JENNIFER GLEASON

1877 GARDEN AVE
EUGENE OR 97403
jen@elaw.org

ENXCO

CHRISTOPHER DYMOND

1440 NEBRASKA AVE NE
SALEM OR 97301
christopherd@enxco.com

FIVE STARS INTERNATIONAL LTD

LYNN FRANK

2522 19TH ST SE
SALEM OR 97302
lynn.frank@fivestarsintl.com

IBEW

JOSEPH ESMONDE

15937 NE AIRPORT WAY
PORTLAND OR 97230-4958
joe@ibew48.com

IBEW LOCAL 659

RONALD W JONES

4480 ROGUE VALLEY HWY #3
CENTRAL POINT OR 97502-1695
ronjones@ibew659.org

IDAHO POWER COMPANY

RANDY ALLPHIN

rallphin@idahopower.com

DAVE ANGELL

PO BOX 70
BOISE ID 83707-0070
daveangell@idahopower.com

CHRISTA BEARRY

PO BOX 70
BOISE ID 83707-0070
cbearry@idahopower.com

KARL BOKENKAMP
GENERAL MANAGER-POWER SUPPLY
PLANNING

PO BOX 70
BOISE ID 83707-0070
kbokenkamp@idahopower.com

JEANNETTE C BOWMAN

PO BOX 70
BOISE ID 83707
jbowman@idahopower.com

JOHN GALE
VP - REGULATORY AFFAIRS

PO BOX 70
BOISE ID 83707
rgale@idahopower.com

BARTON L KLINE
SENIOR ATTORNEY

PO BOX 70
BOISE ID 83707-0070
bkline@idahopower.com

JEFF MALMEN

PO BOX 70
BOISE ID 83707-0070
jmalmen@idahopower.com

LISA D NORDSTROM
ATTORNEY

PO BOX 70
BOISE ID 83707-0070
lnordstrom@idahopower.com

GREGORY W SAID
DIRECTOR - REVENUE REQUIREMENT

PO BOX 70
BOISE ID 83707
gsaid@idahopower.com

MARK STOKES
MANAGER, POWER SUPPLY & PLANNING

PO BOX 70
BOISE ID 83707
mstokes@idahopower.com

LANE POWELL PC

CAROLYN VOGT

601 SW SECOND AVE STE 2100
PORTLAND OR 97204-3158
vogtc@lanepowell.com

LIUNA

BEN NELSON
LEAD ORGANIZER

nrocnelson@qwest.net

LIVELIGHT ENERGY

JEFF FRIEDMAN
ENERGY CONSULTANT

1750 SW 187TH AVE
BEAVERTON OR 97006
jeff@livelightenergy.com

KEITH KNOWLES
PRESIDENT

1750 SW 187TH AVE
BEAVERTON OR 97006
keith@livelightenergy.com

MCDOWELL & RACKNER PC

WENDY MCINDOO
OFFICE MANAGER

520 SW 6TH AVE STE 830
PORTLAND OR 97204
wendy@mcd-law.com

LISA F RACKNER
ATTORNEY

520 SW SIXTH AVENUE STE 830
PORTLAND OR 97204
lisa@mcd-law.com

MILLER NASH ET AL

BRIAN B DOHERTY

111 SW 5TH STE 3400
PORTLAND OR 97204-3699
brian.doherty@millernash.com

**NORTHWEST ENVIRONMENTAL BUSINESS
COUNCIL**

ROBERT GROT

620 SW FIFTH AVE STE 1008
PORTLAND OR 97204
robert@nebc.org

NORTHWEST NATURAL

BILL EDMONDS
DIRECTOR - ENVIRONMENTAL POLICY

220 NW 2ND AVE
PORTLAND OR 97209
wre@nwnatural.com

NORTHWEST STRATEGIES INC

LEN BERGSTEIN

lbergstein@aol.com

ANNIE LEINEWEBER

805 SW BROADWAY STE 400
PORTLAND OR 97205
noweststra@aol.com

OBSIDIAN FINANCE GROUP LLC

J FRANKLIN CABLE

10260 SW GREENBURG RD STE 1150
PORTLAND OR 97223
fcable@obsidianfinance.com

JEREMY W HULL

jhull@obsidianfinance.com

OREGON AFL-CIO

DUKE SHEPARD

2110 STATE ST
SALEM OR 97301
duke@orafcio.org

**OREGON MUNICIPAL ELECTRIC UTILITIES
ASSOC**

TOM O'CONNOR
EXECUTIVE DIRECTOR

PO BOX 928
SALEM OR 97308-0928
toconnor@teleport.com

**OREGON RURAL ELECTRIC COOPERATIVE
ASSN.**

SANDRA FLICKER

1750 LIBERTY ST SE
SALEM OR 97302-5159
sflicker@oreca.org

**OREGON SOLAR ENERGY INDUSTRIES
ASSOCIATION**

DESARI STRADER
EXECUTIVE DIRECTOR

3855 SW 153RD DR
BEAVERTON OR 97006
desari@oseia.org

**OREGONIANS FOR RENEWABLE ENERGY
PAYMENTS**

JUDY BARNES

1425 SE 37TH
PORTLAND OR 97214
jbarnes@hevanet.com

MARK PETE PENGILLY

PO BOX 10221
PORTLAND OR 97296
mpengilly@gmail.com

OSEIA

SETH PRICKETT
DIRECTOR, PUBLIC POLICY GOVT AFFAIRS

3548 NE SIXTH AVE
PORTLAND OR 97212
sethprickett@gmail.com

PACIFIC ENERGY VENTURES LLC

JUSTIN KLURE

jklure@peventuresllc.com

PACIFIC POWER & LIGHT

ERIK ANDERSON

825 NE MULTNOMAH ST STE 1800
PORTLAND OR 97232
erik.anderson@pacificcorp.com

JOELLE STEWARD
REGULATORY MANAGER

825 NE MULTNOMAH STE 2000
PORTLAND OR 97232
joelle.steward@pacificcorp.com

PACIFICORP

KYLE L DAVIS
MGR ENV POLICY & STRATEGY

825 NE MULTNOMAH STE 2000
PORTLAND OR 97232
kyle.l.davis@pacificcorp.com

RYAN FLYNN
LEGAL COUNSEL

825 NE MULTNOMAH, SUITE 1800
PORTLAND OR 97232
ryan.flynn@pacificcorp.com

PETER ROBERTS LLC

PETER ROBERTS

3731 PINE CANYON DR
EUGENE OR 97405
peterbroberts@comcast.net

PORTLAND GENERAL ELECTRIC

DOUG KUNS

121 SW SALMON ST
1WTC0702
PORTLAND OR 97204
doug.kuns@pgn.com

BRENDAN MCCARTHY
STATE AFFAIRS SPECIALIST

121 SW SALMON ST 1WTC0301
PORTLAND OR 97204
brendan.mccarthy@pgn.com

PORTLAND GENERAL ELECTRIC COMPANY

J RICHARD GEORGE
ASST GENERAL COUNSEL

121 SW SALMON ST 1WTC1301
PORTLAND OR 97204
richard.george@pgn.com

**PUBLIC UTILITY COMMISSION OF
OREGON**

THERESA GIBNEY

PO BOX 2148
SALEM OR 97308
theresa.gibney@state.or.us

**RATES & REGULATORY AFFAIRS - NW
NATURAL**

JENNIFER GROSS

220 NW 2ND AVENUE
PORTLAND OR 97209
jennifer.gross@nwnatural.com]

REC SOLAR

ANDREW NOEL

833 SE MAIN ST
PMB 134
PORTLAND OR 97214
anoel@recsolar.com

RENEWABLE NORTHWEST PROJECT

ANN ENGLISH GRAVATT
POLICY DIRECTOR

917 SW OAK - STE 303
PORTLAND OR 97205
ann@rnp.org

SUZANNE LETA LIOU
SENIOR POLICY ADVOCATE

917 SW OAK STE 303
PORTLAND OR 97205
suzanne@rnp.org

RESEARCH 13

BOB BEAULAUER

2597 KILHENNY CT
WEST LINN OR 97068
bob@research13.com

SOLAR CITY

COLIN MURCHIE

4007 29TH ST
MT. RAINIER MD 20712
cmurchie@solarcity.com

SOLAR ENERGY SOLUTIONS, INC.

ANDREW KOYAANISQATSI
PRESIDENT

3730 SE LAFAYETTE CT
PORTLAND OR 97202
andrew@solarenergyoregon.com

SOLARCITY

ROB LAVIGNE

6312 SW CAPTIOL HWY., NO. 180
PORTLAND OR 97239
rlavigne@solarcity.com

SOLARWORLD CALIFORNIA

JANET M GAGNON
GOVERNMENT RELATIONS MANAGER

4650 ADOHR LN
CAMARILLO CA 93012
janet.gagnon@solarworldusa.com

STATE CAPITOL

REPRESENTATIVE TOBIAS READ

PO BOX 2101
BEAVERTON OR 97075
rep.tobiasread@state.or.us

STOEL RIVES LLP

DINA M DUBSON

900 SW FIFTH AVE STE 2600
PORTLAND OR 97204-1268
dmdubson@stoel.com

STEPHEN C HALL

900 SW FIFTH AVE - STE 2600
PORTLAND OR 97204-1268
schall@stoel.com

SUNEDISON

JOE HENRI

12500 BALTIMORE AVE
BELTSVILLE MD 20705
jhenri@sunedison.com

RUSS WRIGHT

rwright@sunedison.com

SUNLIGHT SOLAR ENERGY INC

CHANCE CURRINGTON
PROJECT MANAGER

chance.currington@sunlightsolar.com

**SUSTAINABLE SOLUTIONS UNLIMITED
LLC**

STEVEN MCGRATH

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

TANGERINE SOLAR

STANLEY FLOREK

3518 FREMONT AVE N STE 267
SEATTLE WA 98103
stanley.florek@tangerinesolar.com

TANNER CREEK ENERGY

ALAN HICKENBOTTOM
PRESIDENT

4210 SW ALTADENA AVE
PORTLAND OR 97239
alan@tannercreekenergy.com

CRAIG STEWART

4210 SW ALTADENA AVE
PORTLAND OR 97239
craig@tannercreekenergy.com

THREE PHASE ELECTRIC

ROBERT LANE

rlane@threephaseelectric.com

TONKON TORP LLP

JACK ISSELMANN

888 SW FIFTH AVE STE 1600
PORTLAND OR 97204
jack.isselmann@tonkon.com

UNIVERSITY OF OREGON

FRANK E VIGNOLA

DEPARTMENT OF PHYSICS
1274 UNIVERSITY OF OREGON
EUGENE OR 97403-1274
fev@uoregon.edu

VOLTAIR WIND POWER INC

ROBERT MIGLIORI

24745 NE MOUNTAIN TOP RD
NEWBERG OR 97132
robert.migliori@gmail.com

VOTE SOLAR

CLAUDIA EYZAGUIRRE

400 BRANNAN ST STE 609
SAN FRANCISCO CA 94107
claudia@votesolar.org

WALMART

STEVE W CHRISS

2001 SE 10TH ST
BENTONVILLE AR 72716-0550
stephen.chriss@wal-mart.com