

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

AR 515

In the Matter of)
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)
PUBLIC UTILITY COMMISSION OF) ORDER
OREGON)
)
Rulemaking to Adopt Rules Related to Net)
Metering.)

DISPOSITION: NEW RULES ADOPTED

A. BACKGROUND

In 2005, the Oregon Legislature enacted Senate Bill (SB) 84 authorizing the Public Utility Commission of Oregon (Commission) to adopt rules increasing the size of net metering facilities, from the minimum of 25 kilowatts (kW) that are eligible to interconnect to electric utilities. *See ORS 757.300(8).* In this order, we adopt rules that facilitate the interconnection of non-residential net metering facilities up to two megawatts (MW) and residential net metering facilities up to 25 kW to the utility systems of Portland General Electric Company (PGE) and Pacific Power & Light Company (dba PacifiCorp) by addressing operational, measuring, billing and safety issues.

Multiple workshops were held to allow interested parties to provide input regarding rules needed to facilitate the interconnection of net metering facilities up to two MW. On March 20, 2007, a notice of proposed rules and a proposed hearing was served on interested parties. This notice was also published in the April 1, 2007, edition of the Oregon Bulletin. On April 25, 2007, a comment hearing was held. Written comments were also received until May 9, 2007. Comments were heard or received from the following participants: Commission Staff; the Oregon Department of Energy (ODOE); Portland General Electric Company (PGE); Renewable Northwest Project (RNP); Steven McGrath on behalf of Sustainable Solutions Unlimited, LLC (Sustainable Solutions) and Commercial Solar Ventures; Oregon Solar Energy Industries Association (SEIA); Ernest Munch on behalf of himself, the Portland Habilitation Center (HBC) and Stoller Wine Farm; and PacifiCorp.

B. OVERVIEW OF RULES

Staff's opening comments explain the historical background regarding the development of the proposed net metering rules. Staff indicated that the proposed rules were developed with input heard in workshops held since March 2006. Staff states that interested persons agreed to use the net metering interconnection rules adopted by the New Jersey Board of Public Utilities as a basis for the development of Oregon's rules.¹ Staff indicates that there was generally agreement among interested persons that these standards were appropriate and should be adopted with some changes, additions and reorganization. Staff notes, however, that three issues remain in dispute regarding the treatment of excess energy credits, disconnect switch requirements and aggregation of meters. Staff recommends that the Commission adopt the proposed rules, as modified by Staff's comments, and direct PGE and PacifiCorp to file standard forms for:

- 1) interconnection applications for each level of review (levels 1, 2 and 3);
 - 2) interconnection agreements for each level of review; and 3) net metering agreements.
- Staff comments also summarize each proposed rule, highlighting issues the working group did not reach full consensus on.

All comments by interested persons were generally positive regarding the proposed rules, and the process used to adopt the rules. All agree that the proposed rules significantly improve on the procedures currently in utilities' tariffs.

PGE generally supports the proposed rules, praising the collaborative process used to draft them and calling the rules integrative and innovative. PGE does not propose any modifications at this time.

RNP strongly supports the proposed net metering rules, finding that the rules "provide an appropriate balance between encouraging investment in renewable generation and protecting utility system safety and reliability." (RNP Comments, April 13, 2007, p.1) RNP finds much to like about the proposed rules. RNP observes that the proposed rules would make Oregon a leader in the nation with regard to size eligibility standards for net metering facilities. RNP praises the proposed rules for providing clarity on interconnection process timelines and costs, for making it clear that utilities may not limit the cumulative generating capacity of net metered facilities, and for not imposing certain financially burdensome requirements.

Sustainable Solutions generally supports the proposed rules, concluding that they will make onsite renewable generation more attractive for homeowners and businesses. In particular, Sustainable Solution applauds proposed OAR 860-039-0065, which allows meter aggregation. Sustainable Solutions explains that the rule permits a commercial site to interconnect at the most practical meter, rather than at the meter measuring the greatest load.

¹ Staff's Opening Comments, p. 1, citing N.J.A.C. 14:4-9, Net Metering and Interconnection Standards for Class I Renewable Energy Systems.

ODOE supports the proposed rules, and recommends that the Commission adopt them. ODOE recommends, however, that the Commission review the rules and how they are working within twenty-four months after adoption.

Mr. Munch, on behalf of himself, HBC and Stoller Wine Farm, also generally supports the rules, but foresees a need to potentially revisit certain rules in the future.

Some specific suggestions for improving the proposed rules were offered by interested persons. These suggestions are discussed further.

C. SCOPE, DEFINITIONS AND APPLICABILITY OF RULES (OAR 860-039-0005)

Proposed Rules and Comments

Staff explains that the proposed rules apply to PGE and PacifiCorp only, and not to Idaho Power Company, which provides net metering to Oregon customers pursuant to rules adopted by the Idaho Public Utilities Commission. *See* ORS 757.300(9).

Staff indicates that the proposed rules include waiver provisions, including a paragraph allowing a utility and a net metering applicant to mutually agree to extend process timelines.

Staff also explains that the definitions used in the proposed rules rely on the usage of such terms in the Oregon Revised Statutes, as well as common industry usage. For example, Staff states that PacifiCorp raised questions regarding whether the term “customer-generator” could be clarified, but Staff indicates that it must rely on the statutory definition pursuant to ORS 757.300(1)(a).

PacifiCorp offered comments regarding OAR 860-039-0005, raising three specific issues:

1. User v. Owner: PacifiCorp interprets the proposed rules to permit the owner of a net metering facility and the customer-generator or user to be different entities. PacifiCorp states that, in its experience, complexities arise in such situations. PacifiCorp recommends that rules be developed to address such complexities. If rules are not developed, PacifiCorp indicates that it intends to rely on the waiver contained in proposed OAR 860-039-0005(2) to seek extension of required timelines, when necessary, to address any complexities arising when the owner and user of net metering facilities are different.

2. Definition of “Annual peak load for the circuit”: PacifiCorp recommends that proposed OAR 860-039-0005(3) be modified to add a definition for “annual peak load of the circuit.” PacifiCorp suggests that the term be used to more

precisely address the concept of “maximum load.” PacifiCorp proposes the following definition:

“Annual peak load for the circuit” means the maximum kW load in any 15 minute interval measured at the circuit during the previous 12 month period.

3. Definition of “point of common coupling”: PacifiCorp recommends that proposed OAR 860-039-0005(3)(p) be clarified, as follows:

OAR 860-039-0005(3)(p) – “Point of common coupling” means the point beyond the customer-generator’s meter where the customer-generator facility connects with the electric distribution system.

Sustainable Solutions also raises an issue regarding OAR 860-039-0005(3)(h). Sustainable Solutions asserts that the definition of generation capacity in OAR 860-039-0005(3)(h) does not allow for the consideration of the whole system being connected when that system consists of more than one component. Sustainable Solutions states that the generating capacity should be defined as the maximum AC output to be expected under ordinary operating conditions, as delivered to the point of interconnection, to avoid creating a disadvantage for technologies, such as solar, that are composed of multiple components.

PacifiCorp also recommends the addition of one rule, to be numbered as OAR 860-039-0085 and identified as “Notice.” PacifiCorp asserts that the purpose of the rule would be to clarify how and when a party satisfies the notice requirements imposed throughout the proposed rules. PacifiCorp proposes that the rule be worded, as follows:

Whenever the utility is required to give written notice to the customer-generator under these net metering rules, the utility may send notice via electronic mail if the customer-generator has provided an electronic mail address. If the customer-generator has not provided an electronic mail address, or has requested in writing to be notified by United [S]tates mail, or if the utility elects to provide notice by United States mail, then written notices from the utility shall be sent via First Class United States mail. The utility shall be deemed to have fulfilled its duty to respond under these rules on the day it sends the customer-generator notice via electronic mail or deposits such notice in First Class mail. The customer-generator shall be responsible for informing the utility of any changes to its notification address.

Resolution

We adopt proposed OAR 860-039-0005, with two modifications suggested by PacifiCorp. We agree with PacifiCorp's recommendation to clarify the definition of "point of common coupling." We do not adopt PacifiCorp's proposed definition for "annual peak load for the circuit" nor Sustainable Solutions' proposed definition for "generation capacity," finding that neither definition has been vetted enough. The proposed rules were developed collaboratively, but neither PacifiCorp nor Sustainable Solutions indicates whether its proposed definition has been presented to others, and if so what response it garnered. For this reason, we find it inappropriate to adopt the definitions at this time. We remind interested persons, however, that these rules can be further modified at any time.

We do not adopt additional rules, as recommended by PacifiCorp, to address the complexities that can develop when the owner of a net metering facility is not the same entity as the user or customer-generator. Additional rule language has not been vetted, and as PacifiCorp indicates, in such situations, persons can request a waiver pursuant to OAR 860-039-0005(2).

We find it appropriate to clarify the terms for the provision of notice; however, we believe that this is best accomplished by defining "written notice" in proposed rule 860-039-0005. We add PacifiCorp's proposed language to OAR 860-039-0005(3)(t) to define the term, "written notice."

D. NET METERING KILOWATT LIMIT (OAR 860-039-0010)***Proposed Rules and Comments***

The proposed rules raise the limit for nonresidential net metering customers to 2 MW, based on nameplate capacity. This limit applies to contiguous property only. Staff asserts that the proposed limit promotes customer generation, but encourages appropriately-sized systems. To the extent that any party argues that the 2 MW limit is higher than needed, because a generation system of that size qualifies under the Public Utility Regulatory Policies Act (PURPA), Staff responds that the intent of the net metering law is to encourage the development of customer generation for self use, whereas PURPA seeks to develop and diversify energy markets.

The proposed rules retain a 25 kW limit for residential net metering customers. Staff indicates that this limit corresponds to the peak demand of a typical residential customer.

In supplemental comments, Staff responded to concerns about the proposed size limits, with the observation that the proposed rules are not intended to encompass all possible net metering scenarios. Rather, Staff explained that three principles support the proposed size limits, as follows:

1. ORS 757.300(1)(d) requires that the net metering facility be (1) located on the customer-generator's premises and (2) intended primarily to offset part or all of the customer-generator's requirements for electricity. Staff explains that the net metering law does not allow aggregation of meters for multiple customers residing on different premises, or aggregation of meters on non-contiguous property for a single customer-generator.
2. A customer-generator must be a "user of a net metering facility" and generate electricity at the net metering facility. Staff explains that under this principle, a tenant in a building with a net metering facility may not qualify as a customer-generator.
3. Staff believes that the Legislative Assembly may have intended that ORS 757.300 be applied only to one customer-generator per net metering facility.

Most comments indicated support for raising the limit for nonresidential net metering customers to 2 MW. For example, PacifiCorp expressed support for the 2 MW limit, although it did so based on an understanding that interconnection rules in development will be the same as the proposed rules set forth for net metering. Mr. Munch also endorsed the 2 MW limit as reasonable for now, but suggested that the limit may need to be raised in the future.

Sustainable Solutions, however, raised concern that the 2 MW maximum may be too limiting. Sustainable Solutions gives as examples, State of Oregon facilities that are contiguously sited, or adjacent industrial properties under the same ownership. Sustainable Solutions suggests striking the phrase "so long as the net metering facilities in aggregate on the customer-generator's contiguous property do not exceed the applicable kilowatt/megawatt limit" from the proposed rule.

Staff responds that under this scenario, each office building would likely have its own 2 MW limit.

A few parties also argued that the residential limit should be raised. Mr. Munch, for example, explains that the limit will constrain net metering for both the Stoller Wine Farm and the HBC. He explains that four homes on the Stoller Wine Farm will exceed the 25 kW limit. He also explains that a 25 kW limit is too small to accommodate multi-family residential customer-generators. Mr. Munch proposes raising the residential net metering limit to 2 MW. Sustainable Solutions agrees that the 25 kW limit is inappropriate for multiple adjacent homes under the same ownership.

Staff responds that the customer-generator at an apartment building would be the building owner, who would typically be a nonresidential customer, already subject to the 2 MW net metering facility limit. If the apartment building at issue has individually metered residences, individual net metering facilities for each residence would likely not be practical, states Staff. However, Staff indicates that the building

owner, or a third party, would have the option of installing and operating a solar electric system or wind turbine at the building and selling electricity to the residents pursuant to ORS 757.005(1)(b), and excess energy to the utility pursuant to a PURPA contract. Staff also comments that a PURPA contract is an option for Mr. Munch's example, involving multiple homes on contiguous property.

ODOE and Mr. Munch commented that the rules would be improved by differentiating among power sources with regard to application of net metering facility sizes, to offer greater incentives to certain types of renewable net metering systems. In response, Staff observes that customers using solar net metering systems should consider time-of-use rates.

Resolution

Our intent in this rulemaking is to adopt rules implementing an increase to the eligible net metering facility size for customers of PGE and PacifiCorp, pursuant to SB 84. All interested persons agree that proposed OAR 860-039-0010 significantly raises the nonresidential limit, and as Staff points out, the residential limit remains consistent with typical residential demand. We adopt proposed OAR 860-039-0010. In so doing, we observe that, as the Commission's rules may be modified at any time, we can revisit the appropriateness of the size limits as necessary.

E. INSTALLATION, OPERATION, MAINTENANCE AND TESTING (OAR 860-039-0015)

Proposed Rules and Comments

Comments by Staff and interested persons regarding proposed OAR 860-039-0015 addressed three primary issues, as follows:

1. Disconnect Switch

The proposed rules recommend that a customer-generator be required to install a manual, lockable disconnect switch on all net metering facilities with one exception: under the proposed rules, a certified inverter-based system, such as a solar electric system, with up to 30 amps of connected generation behind the inverter, need not install a manual, lockable disconnect switch. Staff explains that an external disconnect switch is unnecessary for certified inverter systems because such systems already have an internal disconnect switch that meets pertinent standards. In developing this position, Staff relied on its own safety expertise, and consulted with the utilities, other interested persons, the State Fire Marshal and the chair of the Institute of Electrical and Electronics Engineers (IEEE) 1547.2 Standard Committee.

The proposed rules require the disconnect switch to be located within ten (10) feet of the utility's meter, but allow the utility to agree to a placement farther away if appropriate. Staff observes that rules in Idaho contain these same provisions.²

PacifiCorp takes the position, however, that *all* net metering interconnections should include a lockable disconnect switch within three (3) feet of the utility's meter, without exception.

ODOE indicates that the Commission should reconsider whether a utility should be allowed to require an external disconnect switch for inverter-based residential systems between 7.2 kW and 25 kW. ODOE states that the need for such a switch is dubious, as other means for disconnection exist and the inverter provides safety.

Sustainable Solutions and SEIA commented, at the hearing, that Pacific Gas and Electric Company (PG&E) in California does not require customers to have a separate disconnect switch for inverter-based net metering facilities. Staff responds that PG&E's net metering systems and rules should not be compared to those in Oregon because electrical connection requirements are also different.

2. Whole Service Disconnect

Sustainable Solutions expresses concern that the disconnect requirements may act as a barrier to development of some renewable systems. Sustainable Solutions gives as an example a solar array located on the roof of a multi-story building that is across a campus from the meter. Although the appropriate location for interconnection may be on the roof or on an upper floor of the building, running wires down the building to provide an independent external disconnect would add substantial costs. Sustainable Solutions says this problem can be fixed by striking the phrase, "and the customer-generator's electric service," in the rule to allow the intent of the rule to be met by the installation of a whole service disconnect at or near the meter.

Staff agrees that a whole service disconnect for an entire residence, commercial building or other facility should be allowed. Staff states that a whole service disconnect service "would allow the customer to save costs associated with a separate utility-accessible disconnect for the net metering facility while at the same time allowing the utility to isolate the customer's generation from the utility's network." Supplemental Comments of Staff at 4. Like Sustainable Solutions, Staff recommends that the words, "and the customer-generator's electric service" be deleted, as follows:

OAR 860-039-0015(2) – Except for customer-generators established as net metering customers prior to July 1, 2007, a customer-generator of a public utility

² Staff Comments at p. 5, citing Idaho Power Schedule 72 (Sheet Nos. 72-4 and 72-5) approved by the Idaho Public Utilities Commission, at <http://www.idahopower.com/aboutus/regulatoryinfo/tariff/Pdf.asp?id+52&.pdf>.

must install and maintain a manual disconnect switch that will disconnect the net metering facility from the public utility's system ~~and the customer generator's electric service~~. The disconnect switch must be a lockable, load-break switch that plainly indicates whether it is in the open or closed position. The disconnect switch must be readily accessible to the public utility at all times and located within 10 feet of the public utility's meter.

3. Grandfathering Provisions

Staff recommends that the Commission, in its final order in this rulemaking, update the grandfathering provision in subsections (1) and (2) to reflect the effective date of the net-metering rules. Doing so will avoid application of these subsections to customer-generators that installed net metering facilities prior to the effective date of the new rules.

Resolution

We adopt proposed OAR 860-039-0015, with all of the changes that have been either recommended or endorsed by Staff. We are persuaded that it is prudent to not require a certified inverter-based system with up to 30 amps of connected generation behind the inverter to install a manual, lockable disconnect switch. We find that Staff developed this rule in close consultation with pertinent authorities, and we are not persuaded by PacifiCorp's unsupported position that there should be no exceptions to the disconnect requirement. We also agree with the position of Sustainable Solutions, as supported by Staff, that a whole service disconnect option should be available. Finally, the grandfathering provisions in OAR 860-039-0015 shall reflect the effective date of the net metering rules.

F. INTERCONNECTION REQUIREMENTS AND REVIEW PROCEDURES (OAR 860-039-0020 – 860-039-0045)

Proposed Rules and Comments

Staff indicates that proposed rules in OAR 860-039-0020 through 860-039-0045 are largely adopted from rules authorized by the New Jersey Board of Public Utilities. These rules set up three levels of interconnection review based on the size and complexity of the net metering system, with application and review procedures specific to each level, as follows:

- Level 1 Review (OAR 860-039-0030): Level 1 review is for small, certified inverter-based systems, such as solar electric systems, that are rated 25 kW or

less. The proposed rules do not charge customer-generators for this level of review.³

- **Level 2 Review** (OAR 860-039-0035): Level 2 review is for certified systems meeting certain specifications pursuant to OAR 860-039-0035(2). Fees that a utility may charge for application review, engineering work and modifications are specified, and a utility may require utility inspection of system installation, as well as IEEE-specified commissioning tests to demonstrate the safe operation of the system.
- **Level 3 Review** (OAR 860-039-0040): Level 3 review is for systems that do not qualify for Level 1 or 2 review. Level 3 review includes an “impact study” of effects the system will have on the utility’s electric distribution system. Under the proposed rules, the applicant must receive the results of the impact study within 30 calendar days of an executed impact study agreement. If the impact study shows that minor modifications to the utility system are needed, the utility must advise the applicant of the expected costs. If the impact study shows substantial modifications are needed, however, the utility must provide an estimate of costs to the applicant and offer to conduct an “interconnection facilities study” to further identify the scope and cost of needed modifications. A utility may charge fees for application review, engineering work and modifications as specified, and may require utility inspection of system installation, as well as IEEE-specified commissioning tests to demonstrate the safe operation of the system.

For all levels, the proposed rules require timely processing of applications, and specify that associated fees will be paid by the applicant. The proposed rules also indicate that a customer-generator applicant will maintain its position in queue if a new application for interconnection is submitted under a higher review level within 30 business days of the rejection of a lower review application. The proposed rules also require PGE and PacifiCorp to submit standard interconnection application and agreement forms for each level of review.

SEIA requests two changes to OAR 860-039-0030, Level 1 Review. SEIA states that all parties agreed that proposed subsection (4), which should be listed as subsection (3), would indicate that a utility has 10 days, rather than 14 days, after receipt of an application.

Staff agrees with both changes. Staff agrees that the paragraphs should be renumbered, and that there is an error in the proposed rules at OAR 860-039-0030(4), as parties agreed to a 10-day standard. Staff requests that the rule be modified, as follows:

OAR 860-039-0030(3) – Within 44 10 business days
after the public utility notifies a Level 1 applicant that

³ In supplemental comments, Staff indicates that the paragraphs in OAR 860-039-0030 should be renumbered as there is an inadvertent skip between paragraph (2) and paragraph (4).

the application is complete, the public utility must notify the applicant that:

In supplemental comments, Staff also identifies a clarification to OAR 860-039-0025(1)(e). Staff explains that only equipment certifications should be required at the interconnection *application* stage, and recommends the following modification:

OAR 860-039-0025(1)(e) – Equipment ~~Certifications and agreements regarding utility access to the customer generator's property, emergency procedures, liability, compliance with the electrical codes, proper operation and maintenance, receipt of basic information;~~

PacifiCorp expresses concern that net metering interconnection to spot and area networks will lower system reliability. PacifiCorp recommends that all net metering interconnections to spot and area networks should be subject to Level 3 review, allowing a utility to model interconnection. PacifiCorp recommends that the following language be added to proposed OAR 860-039-0035(2)(i): A net metering facility's point of common coupling will not be on a transmission line, a spot network, or an area network. PacifiCorp recommends that proposed OAR 860-039-0035(2)(j) be deleted in its entirety.

If the Commission decides not to delete proposed OAR 860-039-0035(2)(j), PacifiCorp recommends that the Commission correct the rule and modify it. PacifiCorp believes the proposed rule, as written, now contains a reference error that should be corrected, as follows:

OAR 860-039-0035(2)(j) – If a net metering facility's proposed point of common coupling is on a spot or area network, the interconnection will meet the following requirements, in addition to the requirements in sections (3) through (7), (a) through (i) of this rule:

Staff agrees with PacifiCorp that there is a reference error, and suggests fixing it, as follows:

OAR 860-039-0035(2)(j) – If a net metering facility's proposed point of common coupling is on a spot or area network, the interconnection will meet the following additional requirements, in addition to the requirements in sections (3) through (7), (a) through (i) of this rule:

PacifiCorp also believes the proposed rule should be modified, as follows:

OAR 860-039-0035(2)(j)(A) – For a net metering facility that will be connected to a spot network circuit, the aggregate generation capacity connected to that spot network from the net metering facilities, and any generating facilities, will not exceed five percent of the spot network's annual peak load for the circuit maximum load;

Finally, PacifiCorp suggests the following minor language revisions to the proposed rules:

1. Clarify proposed OAR 860-039-0025(1)(a), as follows:

OAR 860-039-0025(1)(a) – The name of the applicant and the public utility involved;

2. Clarify proposed OAR 860-039-0030(4)(a), as follows:

OAR 860-039-0030(4)(a) – The net metering facility meets all applicable criteria and the interconnection will be approved upon installation of any required meter upgrade, completion of any required inspection of the facility, and execution of an fully executed interconnection agreement; or

3. Clarify proposed OAR 860-039-0030(5) to specify that interconnection requests deemed approved because of lack of timely action by the utility are still subject to the requirement that the customer-generator provide the utility with at least five days notice of intent to start operation:

OAR 860-039-0030(5) – If the public utility 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 subsection remain subject to subsection 8 below.

4. Clarify proposed OAR 860-039-0035(2)(a), as follows:

OAR 860-039-0035(2)(a) – The aggregate generation capacity on the distribution circuit to which the net

metering facility will interconnect, including the capacity of the net metering facility, 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, a net metering facility will not be connected to a circuit whose annual peak load for the circuit that already exceeds 90 percent of the short circuit interrupting capability, prior to interconnection of the facility.

5. Modify proposed OAR 860-039-0035(2)(f), as follows:

OAR 860-039-0035(2)(f) – If a net metering facility is to be connected to three-phase, four wire primary public utility distribution lines, a three-phase or single-phase generator will be connected line-to-neutral and will be effectively grounded.

6. Modify proposed OAR 860-039-0035(2)(j)(C), as follows:

OAR 860-039-0035(2)(j)(C) – For a net metering facility that will be connected to a spot or an area network that does not utilize inverter-based protective functions, or for an inverter-based net metering facility that does not meet the requirements of subsections (A) or (B) of this section, the net metering facility will utilize low forward power relays or other protection devices that ensure no export of power from the net metering facility, including inadvertent export (under fault conditions) that could adversely affect protective devices on the network.

Resolution

We adopt proposed OAR 860-039-0020 through OAR 860-039-0045, with all of the changes that have been either recommended or endorsed by Staff. We find the three levels of review to be appropriately matched to the nature and scope of different types of net metering facilities. We disagree that OAR 860-039-0035(2)(j) should be deleted, but agree that it should be modified as Staff suggests. Having not adopted PacifiCorp's suggested definition for "annual peak load for the circuit," we do not agree that OAR 860-039-0035(2)(j)(A) should be modified to use that term. We do adopt all

but one of the six language modifications proposed by PacifiCorp, finding that they clarify the existing language without changing the meaning in any way. Again, having not adopted PacifiCorp's suggested definition for "annual peak load for the circuit," we do not agree that OAR 860-039-0035(2)(a) should be modified to use the term.

In addition, we correct an error in the language of OAR 860-039-0035(2)(j)(B), as follows:

OAR 860-039-0035(2)(j)(B) – For a net metering facility that utilizes inverter-based protective functions, which will be connected to an area network, the net metering facility, combined with ~~other~~ any other generating facilities on the load side of the network protective devices, will not exceed 10 percent of the minimum annual load on the network, or 500 kilowatts, whichever is less. For the purposes of this paragraph, the percent of minimum load for solar electric generation net metering facility will be calculated based on the minimum load occurring during an off-peak daylight period; and

Finally, we clarify language in OAR 860-039-0020(3) and OAR 860-039-0040(10), as follows:

OAR 860-039-0020(3) – If the equipment package has been tested and listed in accordance with this section as an integrated package, which includes a generator or other electric source, the equipment package will be deemed certified, and the public utility ~~may~~ will not require further design review, testing or additional equipment.

OAR 860-039-0040(10) – If the net metering facility satisfactorily passes any required commissioning tests satisfactorily, if any, the public utility must notify the applicant in writing, within three business days after the tests, of one of the following:

G. REQUIREMENTS AFTER INTERCONNECTION APPROVAL (OAR 860-039-0050)

Proposed Rules and Comments

An applicant will only be charged fees specified in the rules. An applicant that meets Level 1 or 2 criteria will not pay for additional tests related to its approved interconnection. The proposed rules specify, however, that all customer-generators will

be subject to periodic testing and maintenance requirements, including manufacturer recommended testing, based on IEEE standards. For example, a customer-generator will be required to demonstrate, on an annual basis, proper operation of its system inverter. To reduce testing costs, the proposed rules specify that testing may be done by any “reasonably able person” and not necessarily an electrical contractor. The proposed rules also specify that testing must be done if a customer-generator replaces a major equipment component with a different model than the one originally installed. Under the proposed rules, a utility is allowed to inspect a facility for compliance with requirements.

The proposed rules also require a customer-generator to maintain written records documenting maintenance and testing results for seven years. Staff argues that this requirement is appropriate for two reasons: 1) Oregon law allows construction claims for a period of up to ten years after completion; and 2) despite the reciprocal waivers of liability that will be in place, a utility may be subject to a liability claim associated with a net metering system interconnected to its system for over seven years.

SEIA, however, argues that the requirement is unreasonable for Level 1 Review customer-generators, who should not have any record keeping requirement. SEIA also asserts that record keeping requirements should be reduced to two (2) years for Level 2 Review customer-generators and five (5) years for Level 3 Review customer-generators.

Resolution

We adopt proposed OAR 860-039-0050. Given potential legal liabilities, it behooves all customer-generators to maintain records for the designated period of time.

H. BILLING (OAR 860-039-0055)

Proposed Rules and Comments

ORS 757.300(3) requires a utility to bill a customer-generator only for net energy consumed during a billing period, calculated to be the difference between the energy consumed and produced. At the end of a billing period, the statute provides that a utility may credit the customer-generator for excess energy at Commission approved avoided cost rates, while charging the utility’s minimum fixed basic charge. Under current tariffs pursuant to this statute, excess generation on a monthly basis is not carried forward to the next month, but is credited on an energy only basis.

The proposed rules would establish an annual billing period, allowing monthly excess energy to be applied to subsequent months as a kWh credit, meaning at full retail rates, until the end of the annual billing period. Staff asserts that this change in the rules is appropriate to accommodate the seasonal variations in intermittent generation resources, such as wind, solar and hydro. Staff acknowledges, however, that this billing method may result in net metering customers contributing less toward utility fixed transmission and distribution costs. On the other hand, Staff states, as most new net

metering systems are expected to be solar systems, which operate during peak hours, utility peak costs for energy, transmission and distribution will be reduced.

Resolution

We adopt proposed OAR 860-039-0055. We are persuaded that the rule appropriately accommodates anticipated net metering systems.

I. EXCESS ENERGY CREDITS (OAR 860-039-0060)

Proposed Rules and Comments

Under the proposed rules, a customer-generator's excess energy credits remaining at the end of the annual billing period would be granted to the utility's low-income energy assistance program. Staff asserts that this provision encourages customer-generators to size net metering systems appropriately, thereby mitigating the loss of utility revenue for fixed transmission and distribution costs.

PacifiCorp supports the proposed rule, finding it consistent with ORS 757.300(3)(d). PacifiCorp asserts that the proposed rule appropriately discourages the development of oversized net metering facilities. PacifiCorp observes that a customer that wants to build generation in excess of its load should sell energy to a utility as a qualifying facility (QF) or a wholesale generator, but not as a customer-generator.

RNP is concerned that proposed OAR 860-039-0060 would negatively impact net metering customers that appropriately size their net metering facilities at construction for expected load, but take a few years to grow to expected load. As proposed, the rule provides that annual excess net generation is transferred to low income customers. RNP suggests instead, that for some period of time, such as three years, utilities should roll forward kWh credits for a customer's net excess generation at the end of the year, thereby allowing net metering customers to grow into the size of their metering facilities without penalty, but without benefit too. At the end of the designated period, if unused kWh credits still remain, RNP indicates that these credits should then be transferred to the low income assistance program.

Mr. Munch, on his own behalf as well as his clients, asserts that customer-generators should be credited for all excess energy at avoided cost rates. Mr. Munch also asserts that the proposed rule confuses the two laudable goals of promoting net metering and providing discounted power to low income customers.

SEIA argues that annual excess energy should be credited back to the customer at avoided cost rates. SEIA also argues that such a provision will provide incentive for customer generators to implement conservation measures after installation of renewable energy systems. SEIA also questions the legality of taking excess energy.

Sustainable Solutions also takes the position that excess generation should not be granted to low income customers as currently proposed under OAR 860-039-0060. Sustainable Solutions expresses concerns that the provision will hinder financing of commercial installations, as well as discourage conservation.

Staff responds that the proposed rules provide generous compensation at retail rates for monthly excess energy generated under net metering, and that there needs to be an incentive for customer-generators to appropriately size net metering systems. Staff also observes that other states require a customer-generator to donate excess energy credits at the end of an annual billing cycle. Moreover, Staff explains that rolling forward excess credits beyond one year is not permissible under the law.

Staff also reminds customer-generators that they have options other than net metering. Staff explains that customer-generators that want to oversize an on-site generating system, or who experience load reductions up to 10 MW, have the ability to enter into a standard PURPA contract to sell, for up to 20 years, excess capacity at avoided cost rates.

Resolution

We adopt proposed OAR 860-039-0060. We are persuaded that the rule provides incentives to develop appropriately sized net metering systems, and that other options exist to accommodate systems that start as, or become, oversized.

J. AGGREGATION OF METERS (OAR 860-039-0065)

Proposed Rules and Comments

The proposed rules would allow a customer-generator to combine multiple meters on the same rate schedule on contiguous property, thereby permitting the customer-generator to be billed for net energy consumed on a particular site. This form of aggregation would allow a customer to install a single net metering facility, instead of physically consolidating the meters or attaching a series of smaller net metering facilities. A utility may request Commission approval of a fee to cover the administrative costs associated with meter aggregation.

Although RNP applauds aggregation, RNP expresses concern that the requirement that aggregated meters must all be on the same rate schedule is too restrictive. RNP explains that some net metering customers may be harmed. RNP explains, for example, that a customer-generator with a home on a residential rate schedule and a farm on an irrigation schedule on the same site would be unable to aggregate net metering facilities.

Staff responds that aggregation of meters on different rate schedules would mean aggregation of different customer classes, leading to significant billing complications. Staff indicates that other parties argued during development of the rules

that aggregation of meters, on different customers' premises, should be allowed. Staff responds, however, that the net metering law does not permit aggregation of meters on different customers' premises. Staff explains that ORS 757.300(1)(d) requires that a net metering facility: 1) be located on the customer-generator's property; and 2) is intended primarily to offset the customer-generator's electricity requirements.

Although PGE supports the proposed rules on aggregating meters, PacifiCorp takes the position that aggregation is undesirable, due to its administrative complexity. PacifiCorp explains that the billing and crediting processes required for aggregation would be manual in nature. For this reason, PacifiCorp plans to file a fee to recover the additional costs.

To the extent the Commission permits aggregation, PacifiCorp states that the rules' conditions on aggregation are appropriate, but suggests additional language be added to OAR 860-039-0065(2), as follows:

OAR 860-039-0065(2) – A customer-generator must give at least 60 days notice to the utility to request that additional meters be included in meter aggregation. The specific meters must be identified at the time of such request. In the event that more than one additional meter is identified, the customer-generator must designate the rank order for the additional meters to which net metering credits are to be applied, in accordance with section (4).

Resolution

We adopt proposed OAR 860-039-0065, finding that it appropriately implements ORS 757.300 by allowing aggregation of one customer-generator's net metering facilities on one rate schedule on one property site. Although we understand that there may be some customer-generators with net metering facilities on different rate schedules, we expect that billing arrangements will already need to be adapted to accommodate aggregation as permitted under OAR 860-039-0065. The rules can be later modified to permit additional forms of aggregation, as appropriate.

We also find PacifiCorp's language addition to OAR 860-039-0065(2) to be appropriate, as it adds clarity to the aggregation process, and we adopt the proposed modification.

**K. PUBLIC UTILITY MAPS, RECORDS AND REPORTS
(OAR 860-039-0070)*****Proposed Rules and Comments***

The proposed rules would require the utilities to maintain basic information about net metering facilities in their service areas, providing a summary of such information on an annual basis to the Commission.

Resolution

We adopt proposed OAR 860-039-0070, as we deem it appropriate for the utilities to collect and summarize basic information about net metering facilities in their service areas.

**L. PUBLIC UTILITY NOT TO LIMIT NET METERING SYSTEMS
(OAR 860-039-0075)*****Proposed Rules and Comments***

ORS 757.300(6) allows the Commission to limit net metering in PGE and PacifiCorp service areas after the cumulative capacity of net metering systems totals one-half of one percent of the utility's historic single-hour peak load.

Staff states that current utility tariffs indicate that net metering will not be an option for new customer-generators after the specified levels. Proposed OAR 860-039-0075 prohibits the utilities from restricting net metering in any way until specifically ordered to do so by the Commission.

Resolution

We adopt proposed OAR 860-039-0075, thereby reserving our decision as to when net metering should be limited, as is consistent with ORS 757.300(6).

M. INSURANCE (OAR 860-039-0080)***Proposed Rules and Comments***

The proposed rule clarifies ORS 757.300(4)(c), by explaining that a utility is not allowed to require a customer-generator in compliance with ORS 757.300(4) to purchase additional liability insurance, or to name the utility as an additional insured.

Resolution

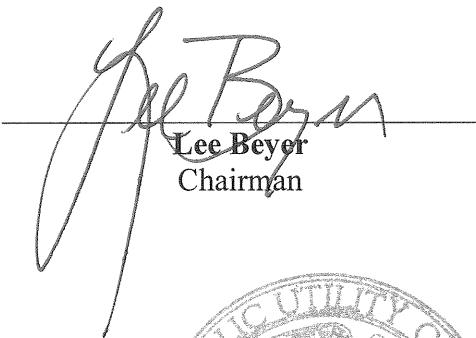
We adopt proposed rule OAR 860-039-0080, which appropriately clarifies ORS 757.300(4)(c) and is consistent with insurance rules for QF contracts.

ORDER

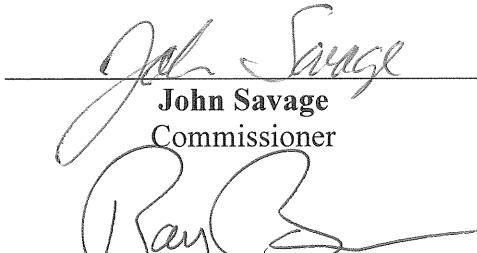
IT IS ORDERED that:

1. Oregon Administrative Rules 860, Division 039, as set forth in Appendix A, are adopted.
2. The rules shall become effective upon filing with the Secretary of State.
3. Within 60 days of the effective date of this order, PacifiCorp and PGE each shall file with the Commission its standard forms for:
 - a. Interconnection applications for each level of review (Level 1, Level 2 and Level 3);
 - b. Interconnection agreements for each level of review; and
 - c. Net Metering agreements.

Made, entered, and effective JUL 24 2007.



Lee Beyer
Chairman



John Savage
Commissioner



Ray Baum
Commissioner

A person may petition the Commission for the amendment or repeal of a rule pursuant to ORS 183.390. A person may petition the Court of Appeals to determine the validity of a rule pursuant to ORS 183.400.

DIVISION 039
NET METERING RULES

860-039-0005**Scope and Applicability of Net Metering Facility Rules**

(1) OAR 860-039-0010 through 860-039-0080 (the “net metering rules”) establish rules governing net metering facilities interconnecting to a public utility as required under ORS 757.300. Net metering is available to a customer-generator only as provided in these rules. These rules do not apply to a public utility that meets the requirements of ORS 757.300(9).

(2) For good cause shown, a person may request the Commission waive any of the net metering facility rules.

(a) A public utility and net metering applicant may mutually agree to reasonable extensions to the required times for notices and submissions of information set forth in these rules for the purpose of allowing efficient and complete review of a net metering application.

(b) If a public utility unilaterally seeks waiver of the timelines set forth in these rules, the Commission must consider the number of pending applications for interconnection review and the type of applications, including review level and facility size.

(3) As used in OAR 860-039-0010 through 860-039-0080:

(a) “ANSI C12.1 standards” means the standards prescribed by the 2001 edition of the American National Standards Institute, Committee C12.1 (ANSI C12.1), entitled “American National Standard for Electric Meters – Code for Electricity Metering,” approved by the C12.1 Accredited Standard Committee on July 9, 2001.

(b) "Applicant" means a person who has filed an application to interconnect a net metering facility to an electric distribution system.

(c) "Area network" means a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit in order to provide high reliability of service. This term has the same meaning as the term "secondary grid network" as defined in IEEE standard 1547 Section 4.1.4 (published July 2003).

(d) “Customer-generator” means a customer-generator as defined in ORS 757.300(1)(a).

(e) "Electric distribution system" means that portion of an electric system which delivers electricity from transformation points on the transmission system to points of connection at a customer's premises.

(f) "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.

(g) "Fault current" means electrical current that flows through a circuit and is produced by an electrical fault, such as to ground, double-phase to ground, three-phase to ground, phase-to-phase, and three-phase.

- (h) "Generation capacity" means the nameplate capacity of the power generating device(s). Generation capacity does not include the effects caused by inefficiencies of power conversion or plant parasitic loads.
- (i) "Good utility practice" means a practice, method, policy, or action engaged in or accepted by a significant portion of the electric industry in a region, which a reasonable utility official would expect, in light of the facts reasonably discernable at the time, to accomplish the desired result reliably, safely and expeditiously.
- (j) "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.
- (k) "Impact study" means an engineering analysis of the probable impact of a net metering facility on the safety and reliability of the public utility's electric distribution system.
- (l) "Interconnection agreement" means an agreement between a customer-generator and a public utility, which governs the connection of the net metering facility to the electric distribution system, as well as the ongoing operation of the net metering facility after it is connected to the system. An interconnection agreement will follow the standard form agreement developed by the public utility and filed with the Commission.
- (m) "Interconnection facilities study" means a study conducted by a utility for the customer-generator that determines the additional or upgraded distribution system facilities, the cost of those facilities, and the time schedule required to interconnect the net metering facility to the utility's distribution system.
- (n) "Net metering facility" means a net metering facility as defined in ORS 757.300(1)(d).
- (o) "Non-residential customer" means a retail electricity consumer that is not a residential customer, except "non-residential customer" does not include a customer who would be a residential customer but for the residency provisions of subsection (r) of this rule.
- (p) "Point of common coupling" means the point beyond the customer-generator's meter where the customer-generator facility connects with the electric distribution system.
- (q) "Public utility" has the meaning set forth in ORS 757.005 and is limited to a public utility that provides electric service.
- (r) "Residential customer" means a retail electricity consumer that resides at a dwelling primarily used for residential purposes. "Residential customer" does not include retail electricity customers in a dwelling typically used for residency periods of less than 30 days, including hotels, motels, camps, lodges, and clubs. "Dwelling" includes, but is not limited to, single-family dwellings, separately-metered apartments, adult foster homes, manufactured dwellings, and floating homes.
- (s) "Spot network" means a type of electric distribution system that uses two or more inter-tied transformers protected by network protectors to supply an electrical

network circuit. A spot network may be used to supply power to a single customer or a small group of customers.

(t) "Written notice" means a required notice sent by the utility via electronic mail if the customer-generator has provided an electronic mail address. If the customer-generator has not provided an electronic mail address, or has requested in writing to be notified by United States mail, or if the utility elects to provide notice by United States mail, then written notices from the utility shall be sent via First Class United States mail. The utility shall be deemed to have fulfilled its duty to respond under these rules on the day it sends the customer-generator notice via electronic mail or deposits such notice in First Class mail. The customer-generator shall be responsible for informing the utility of any changes to its notification address.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0010

Net Metering Kilowatt Limit

(1) For residential customers of a public utility, these rules apply to net metering facilities that have a generating capacity of 25 kilowatts or less.

(2) For non-residential customers of a public utility, these rules apply to net metering facilities that have a generating capacity of two megawatts or less.

(3) Nothing in these rules is intended to limit the number of net metering facilities per customer-generator so long as the net metering facilities in aggregate on the customer-generator's contiguous property do not exceed the applicable kilowatt/megawatt limit.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0015

Installation, Operation, Maintenance, and Testing of Net Metering Facilities

(1) Except for customer-generators established as net metering customers prior to the effective date of this rule, a customer-generator of a public utility must install, operate and maintain a net metering facility in compliance with the IEEE standards.

(2) Except for customer-generators established as net metering customers prior to the effective date of this rule, a customer-generator of a public utility must install and maintain a manual disconnect switch that will disconnect the net metering facility from the public utility's system. The disconnect switch must be a lockable, load-break switch that plainly indicates whether it is in the open or closed position. The disconnect switch must be readily accessible to the public utility at all times and located within 10 feet of the public utility's meter.

(a) For customer services of 600 volts or less, a public utility may not require a disconnect switch for a net metering facility that is inverter-based with a maximum rating as shown below.

Service Type—Maximum Net Metering Facility Size (kW)

240 Volts, Single-phase, 3 Wire—7.2

120/208 Volts, 3-Phase, 4 Wire—10.5

120/240 Volts, 3-Phase 4 Wire—12.5

277/480, 3-Phase, 4 Wire—25.0

For other service types, the net metering facility must not impact the customer-generator's service conductors by more than 30 amperes.

(b) The disconnect switch may be located more than 10 feet from the public utility meter if permanent instructions are posted at the meter indicating the precise location of the disconnect switch. The public utility must approve the location of the disconnect switch prior to the installation of the net metering facility.

(3) The customer-generator's electric service may be disconnected by the public utility entirely if the net metering facility must be physically disconnected for any reason.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0020

Net Metering Facility Requirements

(1) To qualify for the Level 1 and the Level 2 interconnection review procedures set forth below, a net metering facility 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).

(2) An equipment package will be considered certified for interconnected operation if it 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 (1) of this rule.

(3) If the equipment package has been tested and listed in accordance with this section as an integrated package, which includes a generator or other electric source, the equipment package will be deemed certified, and the public utility will not require further design review, testing or additional equipment.

(4) If the equipment package includes only the interface components (switchgear, inverters, or other interface devices), an interconnection applicant must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and consistent with the testing and listing specified for the package. If the generator or electric source being utilized with the equipment package is consistent with the testing and listing performed by the nationally recognized testing and certification laboratory, the

equipment package will be deemed certified, and the public utility will not require further design review, testing or additional equipment.

(5) A net metering facility must be equipped with metering equipment that can measure the flow of electricity in both directions, comply with ANSI C12.1 standards and OAR 860-023-0015. The public utility will install the required metering equipment at the utility's expense.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0025

Application for Net Metering Interconnection

(1) An application for interconnection review will be submitted on a standard form, available from the public utility and posted on the public utility's website. The application form will require the following types of information:

- (a) The name of the applicant and the public utility involved;
- (b) The type and specifications of the net metering facility;
- (c) The level of interconnection review sought; e.g., Level 1, Level 2 or Level 3;
- (d) The contractor who will install the net metering facility;
- (e) Equipment certifications;
- (f) The anticipated date the net metering facility will be operational; and
- (g) Other information that the utility deems is necessary to determine compliance with these net metering rules.

(2) Within three business days after receiving an application for Level 1 or Level 2 interconnection review, the public utility will provide written or electronic mail notice to the applicant that it received the application and whether the application is complete. If the application is incomplete, the written notice will include a list of all of the information needed to complete the application.

(3) An applicant will retain its original queue position for an interconnection request if the applicant resubmits its application at a higher level of review within 30 business days of a utility's denial of the application at a lower level of review.

(4) Each public utility will designate an employee or office from which an applicant can obtain basic application forms and information through an informal process. On request, the public utility must provide all relevant forms, documents, and technical requirements for submittal of a complete application for interconnection review under these net metering rules, as well as specific information necessary to contact the public utility representatives assigned to review the application.

(5) On request, the public utility must meet with an applicant who qualifies for Level 2 or Level 3 interconnection review to assist them in preparing the application.

(6) A public utility will not be responsible for the cost of determining the rating of equipment owned by a customer-generator or of equipment owned by other local customers.

(7) At the time of application, an applicant may choose to simultaneously submit an executed public utility's standard form interconnection agreement.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0030

Level 1 Net Metering Interconnection Review

(1) A net metering facility 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 public utility must approve interconnection under the Level 1 interconnection review procedure if:

(a) The aggregate generation capacity on the distribution circuit to which the net metering facility will interconnect, including the capacity of the net metering facility, will 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) A net metering facility's point of common coupling will not be on a transmission line, a spot network, or an area network.

(c) If a net metering facility is to be connected to a radial distribution circuit, the aggregate generation capacity connected to the circuit, including that of the net metering facility, will not exceed 10 percent (15 percent for solar electric generation) of the circuit's total annual peak load, as most recently measured at the substation.

(d) If a net metering facility is to be connected to a single-phase shared secondary, the aggregate generation capacity connected to the shared secondary, including the net metering facility, will not exceed 20 kilovolt-amps.

(e) If a single-phase net metering facility is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the net metering facility will 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 public utility notifies a Level 1 applicant that the application is complete, the public utility must notify the applicant that:

(a) The net metering facility meets all applicable criteria and the interconnection will be 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 net metering facility has failed to meet one or more of the applicable criteria and the interconnection application is denied.

(4) If a public utility 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, a public utility must notify the applicant whether:

(a) An inspection of the net metering facility for compliance with the net metering rules is required prior to the operation of the facility; and

(b) An interconnection agreement is required for the net metering facilities. If required, the public utility 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 any required executed interconnection agreement from the applicant and satisfactory completion of any required inspection, the public utility will approve the interconnection, conditioned on compliance with all applicable building codes.

(7) A customer-generator will notify the public utility of the anticipated start date for operation of the net metering facility at least five business days prior to starting operation, either through the submittal of the interconnection agreement or in a separate notice. If the public utility requires an inspection of the net metering facility, the applicant will 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 section, an applicant may resubmit the application under the Level 2 or Level 3 interconnection review procedure, as appropriate.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0035

Level 2 Net Metering Interconnection Review

(1) A public utility must apply the following Level 2 interconnection review procedure for an application to interconnect a net metering facility that meets the following criteria:

(a) The facility has a capacity of two megawatts or less; and

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

(2) The public utility must approve interconnection under the Level 2 interconnection review procedure if:

(a) The aggregate generation capacity on the distribution circuit to which the net metering facility will interconnect, including the capacity of the net metering facility, 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, a net metering facility will 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 net metering facility, connected to the distribution low voltage side of the substation transformer feeding the distribution circuit containing the point of common coupling will not exceed 10 megawatts.

(c) The aggregate generation capacity connected to the distribution circuit, including the net metering facility, will 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 a net metering facility is to be connected to a radial distribution circuit, the aggregate generation capacity connected to the electric distribution system by non-public utility sources, including the net metering facility, will not exceed 10 percent (or 15 percent for solar electric generation) 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 net metering facility.

(e) If a net metering facility is to be connected to three-phase, three wire primary public utility distribution lines, a three-phase or single-phase generator will be connected phase-to-phase.

(f) If a net metering facility is to be connected to three-phase, four wire primary public utility distribution lines, a three-phase or single-phase generator will be connected line-to-neutral and will be effectively grounded.

(g) If a net metering facility is to be connected to a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the net metering facility, will not exceed 20 kilovolt-amps.

(h) If a net metering facility is single-phase and is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the net metering facility will 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) A net metering facility's point of common coupling will not be on a transmission line.

(j) If a net metering facility's proposed point of common coupling is on a spot or area network, the interconnection will meet the following additional requirements:

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

(B) For a net metering facility that utilizes inverter-based protective functions, which will be connected to an area network, the net metering facility, combined with any other generating facilities on the load side of network protective devices, will not exceed 10 percent of the minimum annual load on the network, or 500 kilowatts, whichever is less. For the purposes of this paragraph, the percent of minimum load for solar electric generation net metering facility will be calculated based on the minimum load occurring during an off-peak daylight period; and

(C) For a net metering facility that will be connected to a spot or an area network that does not utilize inverter-based protective functions, or for an inverter-based net metering facility that does not meet the requirements of paragraphs (A) or (B) of this subsection, the net metering facility will utilize low forward power relays or other protection devices that ensure no export of power from the net metering facility, 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 public utility must perform an initial review of the proposed interconnection to determine whether the interconnection meets the applicable criteria. During this initial review, the public utility 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 net metering facility 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 public utility will provide the applicant with an executable interconnection agreement;

(b) The net metering facility failed to meet one or more of the applicable requirements, but the public utility determined that the net metering facility may be interconnected consistent with safety, reliability, and power quality. In this case, the public utility will 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 public utility will provide the applicant with an executable interconnection agreement;

(c) The net metering facility failed to meet one or more of the applicable requirements, but additional review may enable the public utility to determine that the net metering facility may be interconnected consistent with safety, reliability, and power quality. In such a case, the public utility will offer to perform additional review to determine whether minor modifications to the electric distribution system would enable the interconnection to be made consistent with safety, reliability and power quality. The public utility will provide to the applicant a nonbinding, good faith estimate of the costs of such additional review, or such minor modifications, or both. The public utility will undertake the additional review or modifications only after the applicant consents to pay for the review or modifications, or both; or

(d) The net metering facility failed to meet one or more of the applicable requirements, and that additional review would not enable the public utility to determine that the net metering facility could be interconnected consistent with safety, reliability, and power quality. In such a case, the public utility will notify the applicant that the interconnection application has been denied, and will provide an explanation of the reason(s) for the denial, including a list of additional information, or modifications to the net metering facility, 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 public utility at least 10 business days prior to starting operation of the net metering facility (unless the public utility does not so require); and

(b) Indicate to the public utility the anticipated start date for operation of the net metering facility.

(5) The public utility may require a public utility inspection of a net metering facility for compliance with these net metering rules prior to operation, and may require and arrange for witness of commissioning tests as set forth in IEEE standards. The public utility 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 net metering facility until after the inspection and testing is completed.

(6) Approval of interconnected operation of any Level 2 net metering facility 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 public utility inspection or witnessing, or both, of commissioning tests requested by the public utility; 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 in this section, the applicant may resubmit the application under the Level 3 interconnection review procedure.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0040

Level 3 Net Metering Interconnection Review

(1) The public utility must apply the Level 3 review procedure for an application to interconnect a net metering facility that meets the following criteria:

(a) The facility has a capacity of two megawatts 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 public utility 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 net metering facility, 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 public utility must provide an impact study agreement to the applicant, which will include a non-binding, good faith cost estimate for an impact study to be performed by the public utility. The impact study will be conducted in accordance with good utility practice and must:

(a) Detail the impacts to the electric distribution system that would result if the net metering facility were interconnected without modifications to either the net metering facility or to the electric distribution system;

(b) Identify any modifications to the public utility'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; and

(G) Additional elements, if approved in writing by Commission staff prior to the impact study.

(4) After the applicant executes the impact study agreement and pays the public utility the amount of the good faith estimate, the public utility will complete the impact study and will notify the applicant within 30 calendar days of one of the following results:

(a) Only minor modifications to the public utility's electric distribution system are necessary to accommodate interconnection. In such a case, the public utility will send the applicant an interconnection agreement that details the scope of the necessary modifications and a non-binding, good faith estimate of their cost; or

(b) Substantial modifications to the public utility's electric distribution system are necessary to accommodate the proposed interconnection. In such a case, the public utility must provide a non-binding, good faith estimate of the cost of the modifications, which must be accurate to within plus or minus 25 percent. In addition, the public utility must offer to conduct, at the applicant's expense, an interconnection facilities study that must identify the types and cost of equipment needed to safely interconnect the applicant's net metering facility.

(5) If the proposed interconnection may affect electric transmission or delivery systems other than those controlled by the public utility, 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 public utility will coordinate the studies but will not be responsible for their timing. The applicant will be responsible for the costs of any such additional studies required by another affected system. Such studies will be conducted only after the applicant has provided written authorization.

(6) If an applicant requests a facilities study under subsection (4)(b), the public utility 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 the execution

by the applicant of the interconnection facilities study agreement, the public utility will conduct an interconnection facilities study to identify the facilities necessary to safely interconnect the net metering facility with the public utility's electric distribution system, and 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 public utility 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 net metering facility to safely interconnect with the public utility's electric distribution system, and must include a non-binding, good faith estimate of the cost of those facilities and the estimated time required to build and install those facilities.

(8) If the applicant wishes to interconnect, it must execute the interconnection agreement and return it to the public utility at least 10 business days prior to starting operation of the net metering facility (unless the public utility does not so require), 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 net metering facility, and agree to pay the public utility the actual installed cost of the facilities needed to interconnect as identified in the interconnection facilities study.

(9) Within 15 business days after notice from the applicant that the net metering facility has been installed, the public utility will inspect the net metering facility and will arrange to witness any commissioning tests required under IEEE standards. The public utility and the applicant will select a date by mutual agreement for the public utility to witness commissioning tests.

(10) If the net metering facility satisfactorily passes required commissioning tests, if any, the public utility 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 net metering facility may begin operation; or

(b) The interconnection facilities study identified necessary construction that has not been completed, the date upon which the construction will be completed and the date when the net metering facility may begin operation.

(11) If the commissioning tests are not satisfactory, the applicant will repair or replace the unsatisfactory equipment and reschedule a commissioning test.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0045

Net Metering Interconnection Fees and Costs

(1) A public utility may not charge an application, or other fee, to an applicant that requests Level 1 interconnection review. However, if an application for Level 1 interconnection review is denied because it does not meet the requirements for Level 1 interconnection review, and the applicant resubmits the application under

another review procedure, the public utility may impose a fee for the resubmitted application, consistent with this section.

(2) For a Level 2 interconnection review, the public utility may charge fees of up to \$50.00 plus \$1.00 per kilowatt of the net metering facility's capacity, plus the reasonable cost of any required minor modifications to the electric distribution system or additional review. Costs for such minor modifications or additional review will be based on the public utility's non-binding, good faith estimates and the ultimate actual installed costs. Costs for engineering work done as part of any additional review will not exceed \$100.00 per hour. A public utility may adjust the \$100.00 hourly rate once in January of each year to account for inflation and deflation as measured by the Consumer Price Index.

(3) For a Level 3 interconnection review, the public utility may charge fees of up to \$100.00 plus \$2.00 per kilowatt of the net metering facility's capacity, as well as charges for actual time spent on any required impact or facilities studies. Costs for engineering work done as part of an impact study or interconnection facilities study will not exceed \$100.00 per hour. A public utility may adjust the \$100.00 hourly rate once in January of each year to account for inflation and deflation as measured by the Consumer Price Index. If the public utility must install facilities in order to accommodate the interconnection of the net metering facility, the cost of such facilities will be the responsibility of the applicant.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0050

Requirements After Approval of a Net Metering Interconnection

(1) A public utility may not require an applicant whose facility meets the criteria for interconnection approval under the Level 1 or Level 2 interconnection review procedure to perform or pay for additional tests, except if agreed to by the applicant.

(2) A public utility may not charge any fee or other charge for connecting to the public utility's distribution system or for operation of a net metering facility for the purposes of net metering, except for the fees provided for under these net metering rules.

(3) Once a net metering interconnection has been approved under these net metering rules, the public utility may not require a customer-generator to test or perform maintenance on its facility except for the following:

(a) An annual test in which the net metering facility is disconnected from the public utility's equipment to ensure that the inverter stops delivering power to the grid;

(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) The customer-generator replaces a major equipment component that is different from the originally installed model.

(4) When an approved net metering facility undergoes maintenance or testing in accordance with the requirements of these net metering rules, the customer-generator must retain written records for seven years documenting the maintenance and the results of testing.

(5) A public utility has the right to inspect a customer-generator's facility after interconnection approval is granted, at reasonable hours and with reasonable prior notice to the customer-generator. If the public utility discovers that the net metering facility is not in compliance with the requirements of these net metering rules, the public utility may require the customer-generator to disconnect the net metering facility until compliance is achieved.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0055

Net Metering Billing

(1) Each monthly billing period, the public utility will charge the customer-generator the minimum monthly charge and all applicable charges for the net electricity that the public utility supplied. Subject to sections (2) and (3) of this rule, if in a monthly billing period a customer-generator supplies to the public utility more electricity than the public utility supplies the customer-generator, the public utility will apply the excess kilowatt-hours as a cumulative credit to the customer-generator's next monthly bill. The credit for the excess kilowatt-hours will be applied at the full retail rate for each rate component on the bill that uses kilowatt-hours as the billing determinant.

(2) Unless the public utility and the customer-generator otherwise agree, the annual billing cycle will end at the end of the March billing month of each year. Should the public utility and a customer-generator reach an agreement for a billing cycle ending other than at the end of the March billing month, the public utility must inform the Commission in writing of the alternative billing period within 30 calendar days of the agreement's execution.

(3) The alternative billing period must be for a period of twelve months or less.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0060

Excess Energy from Net Metering Facilities

(1) Any unused kilowatt-hour credit accumulated by a customer-generator of a public utility at the conclusion of the annual billing cycle will be transferred, in a manner approved by the Commission, to customers enrolled in the public utility's low-income assistance programs. The public utility will value any unused kilowatt-hour credit at the applicable average annual avoided cost tariff rate.

(2) The customer-generator may not elect to receive a credit or payment for any unused credit accumulated at the conclusion of the annual billing cycle.

(3) The public utility will report in writing to the Commission by July 1 each year the unused kilowatt-hour credits and the dollar amount transferred to the low-income assistance program in the previous billing year.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0065

Aggregation of Meters for Net Metering

(1) For the purpose of measuring electricity usage under the net metering program, a public utility must, upon request from a customer-generator, aggregate for billing purposes a meter to which the net metering facility is physically attached ("designated meter") with one or more meters ("additional meter") in the manner set out in this section. This rule is mandatory upon the public utility only when:

(a) The additional meter is located on the customer-generator's contiguous property;

(b) The additional meter is used to measure only electricity used for the customer-generator's requirements;

(c) The designated meter and the additional meter are subject to the same rate schedule; and

(d) The designated meter and the additional meter are served by the same primary feeder.

(2) A customer-generator must give at least 60 days notice to the utility to request that additional meters be included in meter aggregation. The specific meters must be identified at the time of such request. In the event that more than one additional meter is identified, the customer-generator must designate the rank order for the additional meters to which net metering credits are to be applied, in accordance with section (4).

(3) The aggregation of meters will apply only to charges that use kilowatt-hours as the billing determinant. All other charges applicable to each meter account will be billed to the customer-generator.

(4) If in a monthly billing period the net metering facility supplies more electricity to the public utility than the energy usage recorded by the customer-generator's designated meter, the utility will apply credits to the next monthly bill for the excess kilowatt-hours first to the designated meter, then to additional meters that have the same charges as the designated meter, and finally to other additional meters.

(5) If an additional meter changes service to a rate schedule that is different than the designated meter, the additional meter is not eligible for net metering credits for the remainder of the billing year and until such time as the additional meter receives service on the same rate schedule as the designated meter.

(6) If the designated meter changes service to a different rate schedule, aggregation of net metering credits is not allowed for the remainder of the billing

year and may not occur until such time as the additional meters receive service on the same rate schedule as the designated meter.

(7) With the Commission's prior approval, a public utility may charge the customer-generator requesting to aggregate meters a reasonable fee to cover the administrative costs of this provision pursuant to a tariff approved by the Commission.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0070

Public Utility Maps, Records and Reports

(1) Each public utility must maintain current maps and records of customer-generator net metering facilities showing size, location, generator type, and date of installation.

(2) By April 1 of each year, the public utility will submit to the Commission an annual report with the following summary information for the previous year:

- (a) The total number of net metering facilities by resource type; and
- (b) The total estimated rated generating capacity of net metering facilities by resource type.

(3) Upon request, each public utility must file with the Commission maps, records, and reports to identify, locate and summarize net metering facilities. All maps, records, and reports which the Commission may require the public utility to file must be in a form satisfactory to the Commission.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0075

Public Utility Not to Limit Net Metering Systems

A public utility will not limit the cumulative generating capacity of net metering systems in any manner except as expressly ordered by the Commission under ORS 757.300(6).

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW

860-039-0080

Net Metering Insurance

A public utility will not require a customer-generator whose net metering facility is in compliance with the standards in paragraphs (a) and (b) of ORS 757.300(4) and the safety standards contained in these rules to purchase additional liability

insurance or to name the utility as an additional insured on the customer-generator's liability insurance policy.

Stat. Auth.: ORS 183, 756 & 757

Stats. Implemented: ORS 756.040, 757.300

Hist: NEW