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May 5, 2023

VIA ELECTRONIC FILING

Attention: Filing Center
Public Utility Commission of Oregon
P.O. Box 1088
Salem, Oregon 97308-1088

Re: UM 2111 – In the Matter of Public Utility Commission of Oregon, Investigation into Interconnection Process and Policies.

Attention Filing Center:

Attached for filing in the above-captioned docket are the Joint Utilities' Comments Regarding Staff's Initial Proposed Division 39 and Division 82 Redlines.

Please contact this office with any questions.

Sincerely,

Suzanne Prinsen
Legal Assistant

Attachment

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 2111

In the Matter of PUBLIC UTILITY COMMISSION OF OREGON, Investigation Into Interconnection Process and Policies.	**JOINT UTILITIES' COMMENTS REGARDING STAFF'S INITIAL PROPOSED DIVISION 39 AND DIVISION 82 REDLINES**

I. INTRODUCTION

Portland General Electric Company (PGE), PacifiCorp dba Pacific Power (PacifiCorp), and Idaho Power Company (Idaho Power) (together, the Joint Utilities) provide the following comments regarding the Division 82 and Division 39 rule revisions proposed by Public Utility Commission of Oregon (Commission) Staff in March 2023. These comments address the most significant issues identified in the Joint Utilities' review of the proposed rules, but the utilities also identified a number of minor but important revisions that are reflected in the attached redlines and not specifically discussed in these comments.

The Joint Utilities appreciate the significant effort Staff and stakeholders have put into this docket over the last year. The discussion during workshops and exchange of comments has increased understanding of the relevant issues and resulted in consensus on a number of rule revisions. These consensus changes will modernize the Commission's rules and allow more generators to interconnect more easily.

The Joint Utilities' recommendations in these comments center around a few key issues. First, the utilities identified some areas where the rules need to be clarified to avoid confusion or the potential for disputes. Second, the Joint Utilities believe that in a few respects Staff's proposed screens will not maintain safety and reliability and must be revised. Screens represent an initial,

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conservative assessment that reveals whether the interconnection can take place in a safe and reliable manner. The consequence of failing a screen is that the generator must undergo and pay for more in-depth review that may identify upgrades, including critical protective equipment, needed to maintain the safety and reliability of the utility's system. However, the consequence of an overly aggressive screen may be allowing an interconnection that results in negative impacts to the system and degrades the quality of service for existing customers. The Joint Utilities urge Staff to consider these trade-offs when reviewing the Joint Utilities' concerns regarding certain screens. Finally, the Joint Utilities provide practical suggestions regarding some of the new processes Staff proposes to implement in an attempt to balance the value with the effort and time required.

II. DIVISION 82, SMALL GENERATOR INTERCONNECTION RULES

A. Definitions

The Joint Utilities recommend updating the following definitions for the reasons discussed below.

1. Uniform Usage of Nameplate Rating

The Joint Utilities recommend updating the definition of "nameplate rating" proposed in the new rules, as the current language does not accurately reflect the multiple uses of "nameplate rating" in the proposed rules. The proposed definition states "nameplate rating" is the sum of power output of a small generator facility or an energy storage system measured in Alternating Current (AC). However, the phrase "nameplate rating" is used throughout the proposed rules to refer to equipment that is neither a small generator facility nor an energy storage system. The proposed rules relating to export control currently use "nameplate rating" to reference a

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transformer's rating.[1] Similarly, when discussing the Tier 1 and Tier 2 network screens, "nameplate rating" appears again in reference to the transformer.[2] For those rules where "nameplate rating" is used to refer to a transformer power rating, the Joint Utilities propose the use of a separate term: "nameplate power rating." The term "nameplate power rating" likely does not need to be defined in these rules, but the Joint Utilities also do not oppose adding the term to the definitions if Staff prefers.

The Joint Utilities are also concerned that the definition of "nameplate rating" as the maximum output of the generating units measured in AC could be unclear as applied to those generators that generate power in Direct Current (DC) and use an inverter to change the energy to AC. The Joint Utilities understand that in this scenario, the "nameplate rating" definition intends to look to the inverter rating—not the rating of the generating units themselves. To eliminate the potential for confusion, the Joint Utilities propose to add a sentence to the "nameplate rating" definition as shown in bold below:

> "Nameplate rating" means the sum total of maximum rated power output of all of a small generator facility's constituent generating units and/or energy storage systems as identified on the manufacturer nameplate in Alternating Current (AC), regardless of whether it is limited by any approved means. **For a generating unit that uses an inverter to change DC energy supplied to an AC quantity, the nameplate rating will be the manufacturer's AC output rating for the inverter(s).**

2. Timing of Witness Test and Certificate of Completion

The Joint Utilities propose changes to the definition of "certificate of completion" in the proposed rules. The current definition of "certificate of completion" states that the certificate must attest that witness tests are complete. However, proposed OAR 860-082-0025(7)(g)(B) requires

[1] *See* proposed rule 860-082-003X(3) Export Control Methods for Non-Exporting Small Generator Facility.
[2] Proposed rules 860-082-0045(1), 860-082-0050(2).

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that the utility conduct the witness test within three business days of receipt of the certificate of completion. Because these rules conflict with each other, the requirement that witness tests be complete should be removed from the definition of "certificate of completion."

B. Requirement to Provide Executed Interconnection Agreement

In the Tier 2, 3 and 4 Interconnection Review rules, Staff proposes to change the requirement that the utility provide an *executable* interconnection agreement to a requirement that the utility provide an *executed* interconnection agreement—meaning that the utility must sign the agreement before sending it to the customer—within five business days of a project's passing all appropriate screens or completing a study. The Joint Utilities oppose this change and request that Staff maintain the order of operations from the current rules.

The Joint Utilities' established practice is to execute interconnection agreements and other similar agreements only after obtaining the counterparty's signature. Continuing the current practice will lead to a more streamlined interconnection process and avoid delays. In the Joint Utilities' experience, interconnection customers, especially those in Tier 4, often make changes to the interconnection agreement prior to signing. If this happens after the utility has already executed, the customer could mistakenly believe that they have formed a fully effective agreement, which could lead to disputes. Moreover, because changes often occur, the utilities would need to carefully review an agreement once it is returned. If there are changes, the utility would either need to initiate a negotiation process if the utility does not agree to the changes or would need to re-execute the agreement if the changes are acceptable. Importantly, the utilities typically need to obtain approval from multiple departments and a director-level or higher signature, which is a process that can take some time. Thus, requiring the utility to sign first could lead to a less efficient process and extend the time for finalizing the agreement. Given that the Joint Utilities are unaware

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of any concerns expressed by customers regarding the current handling of the interconnection agreement process through PowerClerk, and that the rules include timelines for each party to act to prevent any delays, there is no reason to revise the "executable" interconnection agreement requirement in the rules.

If Staff declines to maintain the existing "executable" interconnection agreement, the Joint Utilities recommend updating the appropriate sections of the rules to (1) extend the time the utility has to provide an executed agreement; and (2) require that the customer provide the necessary deposit within the same timeline that it must execute and return the agreement. First, while the utilities have form interconnection agreements, it still takes time to prepare an interconnection agreement for a specific customer—particularly for larger projects and those projects that require upgrades. Also, as mentioned above, utility execution of an agreement is not instantaneous because it typically requires multiple approvals before signature and availability of high-level utility personnel to sign. For these reasons, five business days is not enough time for a utility to prepare and execute an interconnection agreement, and this timeline should be extended to 15 business days, which is the amount of time the proposed rules allow for the customer to counter-sign. Second, the rules should make clear that the customer must provide the required deposit with the executed agreement. Requiring that the deposit be provided at the same time as the counter-signed agreement avoids the situation where a customer signs an agreement and is immediately in breach because they have not provided the deposit required under the agreement.

C. IEEE 1547-2018 Compliance Timeline

The Joint Utilities recommend removal of the language in OAR 860-082-0030(2) regarding when applications must comply with IEEE 1547-2018. Because "IEEE 1547" is defined as the 2018 version, the rules assume that IEEE 1547-2018 will apply. To the extent that the rules are

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adopted before IEEE 1547-2018 compliance would be reasonable, the Commission can waive that aspect of the rules in its order adopting the rules. But it will likely create confusion and ambiguity to include rule language regarding applying IEEE 1547-2003 until a certain date. Given that stakeholders have settled upon January 1, 2024, as the tentative date for applying IEEE 1547-2018, it seems unlikely that there will be a substantial period of time between when the rule revisions are adopted and when IEEE 1547-2018 applies.

D. Interconnection Handbooks

The Joint Utilities have concerns regarding the requirements for Commission approval and the timeline set forth in the new rule regarding utilities' interconnection handbooks.[3] First, the Joint Utilities oppose the requirement that the Commission both approve the handbooks initially and also approve any subsequent changes to them. The Joint Utilities suggest the Commission refrain from endorsement of handbooks through a formal docket and that an informal process be used for both the initial review of any changes to the handbooks required as a result of this proceeding, as well as a review of future proposed changes unless there are irreconcilable disputes.

The Joint Utilities oppose any requirement for formal filing of handbook materials for Commission approval because such a process will be burdensome for all involved and is unnecessary. To that end, the Joint Utilities note no interconnection customer is requesting such formal filing or approval. Adding another filing requirement will pull utility, Staff, and stakeholder resources away from other priorities without a significant benefit. In addition, handbooks are technical documents of the type that the Commission does not normally review and

[3] While the Joint Utilities each have documents outlining certain interconnection policies, standards, or procedures, only PGE refers to its document as a "handbook." The Joint Utilities understand that the reference to "handbooks" in the proposed rules would apply to each utility's relevant interconnection document regardless of whether it is internally referred to as a "handbook."

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approve. Accordingly, the Joint Utilities are concerned the review and approval process could be protracted. Finally, the Joint Utilities note that PacifiCorp's and Idaho Power's handbooks include information regarding interconnections in states other than Oregon, which should not be subject to the Commission's review and approval.

Rather than formally filing with the Commission, the Joint Utilities propose an informal filing process for review of handbooks. Once the Commission adopts the revised rules, the Joint Utilities will update their handbooks to incorporate the information required by proposed OAR 860-082-0030(1)(c) and then circulate the documents to Staff, docket UM 2111 stakeholders, and any other interested parties to review for compliance with this rule. Any dispute about whether the handbook complies with OAR 860-082-0030(1)(c) can be addressed informally through workshops in docket UM 2111. In the unlikely event there is an irreconcilable disagreement, the parties can ask the Commission to resolve it, but absent a dispute, the Commission need not open a docket or take formal action.

Similarly, for any future handbook updates, the Joint Utilities propose a process similar to that used to implement and revise business practices under their Open Access Transmission Tariffs.[4] The Joint Utilities would provide notice of the proposed changes and an opportunity to comment, typically for a period of 30 days (if exigent circumstances exist, then the comment period could be reduced as needed). The Joint Utilities would then review and respond to any comments before updating the handbook. If there is a concern about an update that is not resolved through the comment process or through informal discussions, then the party who disputes the

[4] *See, e.g.*, PacifiCorp's Business Practice 13, (available at: https://www.oasis.oati.com/woa/docs/PPW/PPWdocs/BP13.pdf (outlining the process for developing business practices)).

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proposed handbook change could bring the issue to the Commission for resolution. This process is comparable to what occurs at the Federal Energy Regulatory Commission (FERC).

Second, the Joint Utilities oppose the proposed timeline for updating handbooks by September 1, 2023, which is unworkable. Even if the proposed rules are adopted prior to September 1, 2023, which is unlikely given that the formal rulemaking will not begin until July, new rules are unlikely to be in place sufficiently in advance of September 1 to allow the Joint Utilities sufficient time to make meaningful and compliant changes to the handbooks. A deadline of September 1, 2024, or a timeline such as "within six months after adoption of these rules" would be more realistic. Furthermore, the Joint Utilities do not believe that a one-time deadline like this is appropriate for inclusion in the rules themselves and suggest that the Commission instead include no timeline in its order adopting the final rules.

E. Revision to Export Controls Rule

The Joint Utilities request a minor but important revision to OAR 860-082-003X regarding export controls. The Joint Utilities appreciate Staff adopting their recommended language regarding circuits with high-speed reclosing in sections (3)(a)(A) and (3)(a)(B); this language should also be added to section (3)(b)(A). All three referenced sections discuss a maximum 2.0 second time delay to limit inadvertent export, and therefore it is important to clarify in each section that a less-than-2.0-second delay may be required on a circuit that uses high-speed reclosing.

F. Applicant Options Meeting Scheduling

The Division 39 and Division 82 rules include essentially the same language in several sections regarding the applicant options meeting. The Joint Utilities do not object to the concept of an applicant options meeting, but have suggested revisions to the rule language to eliminate repetition and increase clarity. The Joint Utilities also request one important substantive change—

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the requirement that the utility offer to convene the meeting within 15 business days should not also require that the utility identify a mutually agreeable time within the 15-business-day window. While the utilities will make reasonable efforts to identify a mutually agreeable time, the utility should not be in violation of the rules if the applicant's representatives or consultants are not available during the times when the necessary utility personnel are available within the 15-business-day window because the utility has no control over the applicant's availability.

G. Tier 1 and Tier 2 Network Screens

Staff proposed to use IREC's screening thresholds for spot networks in the Tier 1 and Tier 2 screens. IREC's Tier 1 screen would allow new interconnections if the aggregate nameplate rating is less than 50 percent of the network's anticipated minimum load. IREC's screen also gives the applicant the option to provide the utility with the applicant's own estimate of the network's anticipated minimum load.

For Tier 2, IREC proposes that the interconnecting small generator facility must be inverter-based and use a protective scheme that ensures that power imported from the utility to the network will remain above 1 percent of the network's maximum load. This screen could result in allowing interconnections that would make the aggregate-generation-to-minimum-load ratio approach 100 percent for some networks. For example, for all but one of PGE's spot networks, the proposed screen would allow new interconnections when the generation-to-load ratio exceeds 90 percent. This level of generation is much too high to allow on a network without further study, and adoption of the screen would risk network protector backfeed.

The Joint Utilities request that Staff revise both the Tier 1 and Tier 2 screens to require that the aggregate nameplate rating on the network be limited to 20 percent of the spot network's anticipated minimum load for a small generator to pass the screen. The Joint Utilities also request

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that Staff eliminate the option for customers to provide estimates of the spot network minimum load. Finally, the Joint Utilities note that, although generators interconnected to area networks are not eligible for Tier 1 review under Staff's draft OAR 860-082-0045(1)(b), the proposed network screen language still includes references to "area network" that should be removed.

1. IREC's Proposed Screens Will Lead to Backfeed on Most Circuits

IREC's proposed network screens do not reflect the realities of network protection on a spot network and will likely lead to increasing instances of network protectors opening. Spot networks are unique in that there are multiple sources connected to the customer—typically three to four sources, each with its own network protector. Where there is one source, a protection scheme can monitor the source to ensure that it does not experience reverse power flow. But with a spot network, as Staff is aware, the load does not split evenly between the network protectors, and some network protectors can experience backfeed even when the total network load is still a net positive. As such, the utilities cannot permit a significant increase in generation on a spot network without increasing the risk of a network protector opening, which lowers the overall reliability of the spot network and may affect the customer's utility service. Because a screen is intended to eliminate the need for individual study and additional assessments, the screen must be conservative enough that the utility can conclude with certainty the new interconnection will not trip existing network protectors, causing additional issues for existing utility customers. Stated differently, the screen must be set at a level where it works for *all* spot networks *all* the time. IREC's proposed network screens do not meet that threshold.

Compliance with IEEE standards creates the minimum level of confidence for the Joint Utilities that the network will not suffer from the additional interconnection. To comply with IEEE standards, there must be a screen that will appropriately identify whether a proposed

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interconnection will need upgrades installed on the network to ensure the new interconnection will not adversely impact service to existing customers. In fact, pursuant to IEEE 1547, the utilities have an obligation to ensure that new interconnections to networks do not cause network protectors to open more frequently than before the connection occurred.[5] Therefore, the screen must consider the generation-to-load ratio that triggers network protectors.

The generation-to-load ratio that causes a network protector to trip varies widely depending on how well balanced the load is among the sources, which is dependent on source impedances. If a source has less impedance—which is influenced by feeder length, amount of load on that feeder, etc.—it will carry more of the spot network's load than the other sources. PGE tested various generation-to-load ratios using its CYME model to measure what percentage each of PGE's 35 spot networks can handle before network protectors would open. For some spot networks, 40 percent generation-to-load was found to cause network protectors to open. Thus, IREC's proposed 50 percent screen for Tier 1 would not work for all networks and is therefore too high for use in the Tier 1 screen. Additionally, the Joint Utilities' analysis indicates that IREC's proposed screen for Tier 2 equates to well above a 90 percent generation-to-minimum-load ratio in most cases, which is much too high given that network protectors can open at as low as 40 percent.

IREC additionally proposes that Tier 2 small generator facilities use a minimum import relay or other protective scheme to monitor generation flowing onto the network. Although generation monitoring mechanisms can assist in preventing backfeed, monitors at the customer meter cannot ensure that the spot network's multiple sources will not experience reverse power

[5] IEEE 1547-2018 – Section 9.1; IEEE consistently contains this standard in its guidance. For example, the 2003 standard stated, "Any D[E]R installation connected to a spot network shall not cause operation… of any network protectors". *See* IEEE 1547-2003, Section 9.1.

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flow and cause a network protector to trip open. As mentioned above, some network protectors may experience backfeed even when the total network load is a net positive, so when minimum import relays are used an engineer should perform a study to determine what minimum total network load is acceptable to prevent each individual network protector from experiencing backfeed. Relying on export-limiting mechanisms on a spot network without performing a study simply does not provide enough protection to comply with IEEE standards or the Joint Utilities' standard practice.

To propose a solution, PGE spoke with Tom Key from the Electric Power Research Institute (EPRI) P174 on April 3, 2023, and discovered that most utilities are still using a 5 percent peak load screen for spot networks. Mr. Key expressed concern that the IREC screens would allow a significant increase in generation and agreed with the Joint Utilities that the screen should be lowered to avoid backfeed. Mr. Key further commented that the Tier 2's focus on export-limiting is out of place in a network screen because an export-limiting protection scheme by itself can only prevent backfeed on radial-fed systems that have one source. On a network, even where export-limiting is employed, monitoring at the customer meter cannot guarantee that each of the network's multiple sources will not experience backfeed. In other words, because this screen is to be applied to a spot network with multiple sources, export-limiting is not sufficient to prevent backfeed. Instead, the screen should be set at a level that will not trigger network protector backfeed and will not permit an interconnection that could require more robust network protections to proceed without further study.

The Joint Utilities recommend replacing the existing Tier 1 and Tier 2 spot network screens with a screen that permits an interconnection when the aggregate nameplate rating is less than or equal to 20 percent of the spot network's anticipated minimum load. Using the daytime peak load

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and daytime minimum load data from PGE's spot networks, 20 percent of daytime minimum load was found to be the most comparable to 5 percent of peak load, such that the 20 percent minimum load screen will not on average be more conservative than the 5 percent peak load screen.

2. Customer Estimates May Not Be Reliable.

As is shown by the analysis above, accurately determining the anticipated minimum load in the generation-to-load calculation is critical to protecting the network. In addition to changing the screen percentage, the Joint Utilities request that Staff update the rule's permitted methods of determining the anticipated minimum load on the network to remove the option to use "the applicant's good faith estimate." Applicants do not have a reliable mechanism for calculating the anticipated minimum load on the network.

Though spot networks are typically one-customer networks, a spot network can serve multiple customers, which would complicate this estimate. In addition, a customer is likely to apply for interconnection before the site is built and before the customer has any information on peak load from which they can calculate minimum load. In short, the customer is unlikely to have accurate information to supply the utility, whereas the utility will be best equipped to provide these estimates. Because this language does not add a viable option to the rule, the Joint Utilities request it be removed. Moreover, utilities are responsible for reliably interconnecting generation to their systems so as to not degrade the service of existing customers and, accordingly, actual data or the utility's good faith estimate should be used.

3. Joint Utilities' Proposed Revisions

For the reasons discussed, the Joint Utilities propose the following rule for both the Tier 1 and Tier 2 Network Screens:

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Network Screen. For interconnection of a Small Generator facility within a spot network, the aggregate nameplate rating may not exceed **20 percent** of the spot network's anticipated relevant minimum load. The public utility may select any of the following methods to determine anticipated relevant minimum load (in order of precedence):

A. the spot network's measured minimum load in the previous year, if available;

B. five percent of the spot network's maximum load in the previous year; or

C. the public utility's good faith estimate if provided in writing to the applicant along with the reasons why the public utility considered the other methods to estimate minimum load inadequate.

H. Tier 1 Timelines

The timelines in proposed OAR 860-082-0045(3)-(4) regarding processing a Tier 1 application are confusing and appear to be internally contradictory. Subsection (3) provides that the utility must provide notice of whether the proposed facility meets the approval criteria within 15 business days after the application is deemed completed, and that the application is deemed approved if the utility does not provide such notice within 20 business days. Subsection (4) provides that the utility must provide the interconnection agreement within 5 business days after approval, and that if the utility does not notify the applicant whether the application is approved or denied within 20 business days after the notification of the screen results, then the interconnection agreement is deemed effective.

The latter portion of subsection (4) does not make sense because notification of the screen results should be the same thing as notification of whether the application is approved. Also, this provision appears to be duplicative of the timeline in subsection (3), which provides that the application will be deemed approved if the utility does not provide notification of approval or denial within 20 business days. Finally, the Joint Utilities object to having an interconnection agreement deemed effective. Even if this were legally permissible, it would not be good policy

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for utilities to be made parties to agreements without their knowledge. For these reasons, the Joint Utilities recommend deleting the second sentence of subsection (4).

I. Tier 2 Line Configuration Screen

The Joint Utilities propose that the line configuration screen be revised as follows:

Primary Distribution Line Type	**Type of Interconnection to Primary Distribution Line Required to Pass Screen**
Three-phase, three-wire	~~Ungrounded on primary or any type on secondary~~ Interface connection transformer high side is phase-to-phase.
Three-phase, four-wire	Interface connection transformer high side is: • Single-phase line-to-neutral; or • Three-phase line-to-neutral and effectively grounded.
Three-phase, ~~four-wire or~~ mixed three-wire and four-wire	For inverter-based generation: ~~interface connection transformer is Yg-yg, or the small generator facility is on a mixed three-wire/four-wire line and~~ the small generator facility uses medium voltage sensing for voltage protection with preferred default settings found in the interconnection requirements handbook.

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	Or: Where appropriate the utility may extend the neutral wire to the point of interconnection to treat the small generator facility as an interconnection to a three-phase, four-wire system. ~~For rotating generation: connected line-to-neutral and effectively grounded.~~

The Joint Utilities' revisions separate the requirements that apply only to mixed three-wire, four-wire systems from those that apply only to four-wire systems to avoid confusion.

In the first row, which applies to three-phase, three-wire, the Joint Utilities changed "ungrounded on primary" to "phase-to-phase," which has the same meaning and is consistent with the language in the current rules. The Joint Utilities removed "or any type on secondary" because the table addresses only primary connections.

In the second row, which applies to three-phase, four-wire, the Joint Utilities added that the three-phase generator should be line-to-neutral and effectively grounded, which is consistent with the FERC Fast Track Process section 2.2.1.6.

The third row applies to mixed three-wire and four-wire, which is present only on PacifiCorp's system and is not addressed in the current rules. For that configuration, the Joint Utilities propose the MV sensing option or that PacifiCorp may elect to extend the neutral where appropriate to create a four-wire connection and apply the requirements in the second row. The reference to rotating generation in this row was removed as unnecessary because it only applies to four-wire systems, which are now addressed in the second row.

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J. Tier 4 System Impact Study

Staff added language to proposed OAR 860-082-0060(7)(f), which addresses how the utility must conduct the System Impact Study (SIS). The Joint Utilities have two concerns with this proposed language. First, the sentence stating that the SIS must "take into account the proposed small generator facility's design and operating characteristics, including but not limited to the proposed operating profile, and study the small generator facility according to how it is proposed to be operated," represents a significant change that requires further consideration before being implemented. The Joint Utilities have questions about how this language would be implemented and may have concerns about the implications, but because this added language has not been discussed at all in the docket to-date, these issues have not been explored. Throughout this docket, the Joint Utilities have maintained that changes to Tier 4 will require additional discussion and should not occur in Phase 1. The Joint Utilities request that this sentence be removed and that the issue be addressed in a later phase.

The Joint Utilities do not object to the addition of the other new language in that section, provided that Staff makes one revision. The rules states that the SIS "must use the rated fault current" and goes on to say that the customer "may provide" data showing the fault current. The utility should not be required to use the rated fault current, as opposed to a proxy, if the customer does not provide the relevant information. Therefore, the Joint Utilities propose revising this portion of the rule to read "the system impact study **may** use the rated fault current **if the customer provides the relevant information**…"

K. Supplemental Review Penetration Screen

The Joint Utilities continue to oppose setting the Penetration Screen at 100 percent in Supplemental Review. A 100 percent Penetration Screen means that if the aggregate export

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capacity in the applicable area, including the proposed small generator facility, is less than 100 percent of the minimum load in the area, then the applicant passes this screen, and the utility is required to automatically approve the interconnection.[6] The proposed screen prevents the Joint Utilities from studying whether additional protections or upgrades are necessary before the interconnection occurs. To protect system reliability and promote fairness among interconnection customers, Staff should revise the Penetration Screen threshold to be 90 percent of the minimum load on the feeder.

1. A 100 Percent Penetration Screen Leaves No Margin for Error or Load Changes

The Joint Utilities adamantly oppose the recommendation that the Penetration Screen be set at 100 percent of the minimum load because it leaves no room for error or even modest changes to load. If the aggregate export capacity of the feeder is equivalent to 100 percent of the minimum load, then *any* incremental decrease in load or slight under-estimate of the minimum load would result in backfeed into the feeder breaker or line section reclosing device. Any scenario that creates a potential for backfeed requires the utility to do more comprehensive studies to understand and mitigate the impacts to the broader system. However, Staff's proposal to require automatic approval without any additional study when generation equals the minimum load on the feeder creates a high likelihood for backfeed and would create significant risk to the distribution system. When system reliability is implicated, it is prudent and reasonable to build in a margin of safety. Importantly, adopting a 90 percent Penetration Screen would not preclude generators from interconnecting when the aggregate generation exceeds 90 percent of the minimum load; rather, it

[6] The applicant would also need to pass the other Supplemental Review screens before the application would be approved.

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would simply allow the utility to study the impacts and determine whether additional protective equipment is necessary to allow the interconnection to safely proceed.

2. A Penetration Screen at 100 Percent Allows the New Generator to Avoid Upgrades that are Currently Required and Compromises System Reliability.

When a generator seeks to interconnect that would push the generation-to-minimum load ratio on the feeder breaker or line section reclosing device above 90 percent, the Joint Utilities require installation of deadline check (also known as hot line blocking) at the breaker or recloser device to help prevent issues created by out-of-phase reclosing and to protect customers' and the utility's equipment from voltage variations. As background, at any given time, the utility system could be affected by a "fault" or short interference with the electrical current. For example, a tree branch may fall onto a line. To address these interruptions in the current, the utility may employ high speed reclosers–equipment that opens and recloses the circuit to get it back online as soon as possible. High-speed reclosers "flip" the circuit open and closed within 0.2 seconds of detecting the fault.[7] That reclosing interval—the 0.2 second time frame—indicates the amount of time the customers on the circuit experience an outage. High-speed reclosing prevents sustained outages and reduces customer complaints because home electronics will ride through the high-speed reclose.

However, if a generator continues generating while the circuit is disconnected from the larger grid, then "unintentional islanding" occurs because the circuit remains energized but is no longer in sync with the grid. If the recloser reconnects the circuit to the grid before the circuit is fully de-energized, voltage swings can occur that can damage the generator's equipment and other customers' equipment and can create power-quality issues until the generator, the circuit, and the

[7] Even when a utility uses equipment to slow reclosing, the open interval is still 1.0 to 1.5 seconds.

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grid get back in sync. For example, if the circuit powered a motor and the small generator kept the motor energized but turning at a slower speed while the circuit is disconnected, then reclosing would instantly speed up the motor, which would cause damage.

To avoid these impacts, the utilities' existing, general practice is to require protective equipment (either deadline check, direct transfer trip, or both), if the aggregate generation on a feeder is greater than 90 percent of the minimum load. Transfer trip operates to rapidly trip the generator offline so that the reclosing need not be delayed. Deadline checking delays reclosing until confirming that the generator has disconnected and the line is deenergized. When the aggregate generation on a feeder approaches the minimum load, these protective functions are necessary to enable the Joint Utilities to maintain reliable service to existing customers after a new small generator facility is connected.

However, Staff's proposed 100 percent screen would permit new generators to interconnect without installing this protective equipment that the utilities routinely require today. Because the Joint Utilities are obligated to maintain a safe and reliable system, as well as maintain the quality of service experienced by existing customers, the Joint Utilities must still install the protective equipment that is required as a result of the interconnection request. Therefore, the effect of Staff's proposal would be either that future interconnecting generators must bear the burden of installing the equipment necessitated by an earlier interconnection customer's request, or that the utility's customers must pay for the installation to maintain reliability. Neither would be a fair or reasonable result. Staff should instead recommend a 90 percent Penetration Screen, which, in the Joint Utilities' experience, reasonably ensures that there will be no adverse system impacts if a small generator is automatically approved for interconnection without further study and without the need to install protective equipment.

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Finally, as explained in the Joint Utilities' prior comments, a 100 percent screen also compromises reliability by significantly slowing island detection. As the generation-to-load ratio approaches or exceeds the 100 percent threshold, detection of islanding (described above) can significantly slow down due to the interaction of the island detection from various inverters. When the system is functioning as normal, the inverters measure the alternating current voltage waveform of the grid and respond by injecting current that matches the current on the grid. But when a small generator islands, it continues generating and exporting without the inverter supporting the current, which can cause significant swings in local voltages. The Penetration Screen as proposed will permit a generation-to-load ratio at the 100 percent threshold, resulting in significantly slower island detection.[8]

3. Calculating Aggregated Export Capacity

Staff's proposed rules include several provisions addressing how behind-the-meter and net-metered capacity should be considered when determining the aggregate Export Capacity. In particular, proposed subsections (B) and (C) state:

> (B) Load that is co-located with load-following, non-exporting or export-limited Projects should be appropriately accounted for. The utility may take the impacts of non-export or export limited generation on the calculation of daytime minimum load, when evaluating potential system impacts.
>
> (C) The Interconnecting Utility will not consider as part of the aggregate Export Capacity for purposes of this screen Project Export Capacity, including combined heat and power (CHP) facility capacity and behind-the-meter or net-metered capacity, known to be already reflected in the minimum load data.

[8] Sandia National Lab, *Unintentional Islanding Detection Performance with Mixed DER Types*, Aug. 1, 2018 (available at: https://www.osti.gov/biblio/1463446/).

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Read together, these provisions must allow the utility to consider the potential impacts of non-exporting facilities that only offset onsite load when determining the generation-to-load ratio used to apply the penetration screen. Because the reference to "behind-the-meter or net-metered capacity" in subsection (C) could be understood to prohibit inclusion of non-exporting facilities from the calculation of generation-to-load ratio, the Joint Utilities recommend that the language be deleted. The generation-to-load ratio is a measure of pure generation to pure load so that the interaction between generation and load can be determined. Removing or ignoring behind-the-meter and net-metered generation creates blind spots that prevent the utility from making informed decisions on what is required for a safe and reliable electrical design, like determining when hot-line blocking or transfer trip are necessary.

The Joint Utilities' prior comments, submitted on October 25, 2022, provided the following hypothetical to explain why subsection (B) should expressly state that the utility may consider the impacts of non-export or export limited generation on the calculation of daytime minimum load, when evaluating potential system impacts:

> For example, consider a hypothetical feeder that has a total load of 3 MW and a 2 MW generator interconnected (*i.e.*, leaving a minimum load of 1 MW). Later, if a customer on this feeder seeks to install a non-exporting 2 MW solar project, then the utility cannot automatically approve the interconnection of the new solar project even though it is non-exporting and would pass the Penetration Screen, as proposed by IREC. In this scenario, additional study is required because the effect of the proposed new 2 MW non-exporting generation is a net *negative* load (*i.e.,* potential for backfeed) on the feeder of 1 MW. In this scenario, the Supplemental Review process must be clear that the utility can study the impact of the new 2 MW interconnection.

A similar hypothetical scenario illustrates why the generation-to-load calculation must also account for behind-the-meter and net-metered facilities. Assume a feeder has a measured net minimum load of 2 MW with one net-metered facility that has behind-the-meter generation with a nameplate capacity of 1 MW. The feeder also has an additional 3 MW of non-net-metered

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generation nameplate capacity. In this hypothetical scenario, the generation-to-load ratio is as follows (the 2 MW load in the denominator represents the pure load of the net-meter customer):

$$\frac{Existing\ Net\ Meter + Existing\ Small\ Gen}{Net\ Min\ Load + Existing\ Net\ Meter + Existing\ Small\ Gen} = Generation - to - Load$$

$$\frac{1\ MW + 3\ MW}{2\ MW + 1\ MW + 3MW} = 67\%$$

However, if the calculation must ignore the 1 MW of behind-the-meter generation as proposed subsection (C) appears to require, then the generation to load ratio would be understated. The numerator would not include all generation and the denominator would now reflect a mixed load and generation value since existing net metered generation is not disaggregated from the net minimum load:

$$\frac{Existing\ Small\ Gen}{Net\ Min\ Load + Existing\ Small\ Gen} = Generation - to - Load$$

$$\frac{3\ MW}{2\ MW + 3\ MW} = 60\%$$

This hypothetical scenario illustrates the need to disaggregate the net load resulting from behind-the-meter or net-metered facilities, i.e., to separately account for the load and the behind-the-meter or net-metered generation in the denominator of the generation-to-load ratio. In this way, the behind-the-meter or net-metered capacity is reflected in both the numerator and the denominator of the generation-to-load equation. This means that there is no double counting of behind-the-meter generation, which appears to be what subsection (C) is intended to prohibit.

The Joint Utilities' recommendation is consistent with guidance from the National Renewal Energy Laboratory (NREL) in its *High-Penetration PV Integration Handbook for Distribution*

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Engineers,[9] which states: "[b]ecause many forms of [distributed generation] are not monitored and can be disconnected or otherwise absent without prior utility knowledge, it is important that the total load is considered in design and operation practices."[10] And when considering the generation from small PV generators that lack measured output (like net-metered or behind-the-meter facilities), it is reasonable to assume generation equal to the generator's nameplate rating.[11]

As written, the proposed rule appears to require the utilities to less accurately determine the generation-to-load ratio. The Joint Utilities therefore recommend deleting the reference to behind-the-meter or net-metered facilities or otherwise making clear that the use of a disaggregated net load in the denominator of the generation-to-load calculation is not prohibited by the rule. Accurately calculating the generation-to-load ratio in this way is especially critical if the penetration screen is increased to 100 percent because there is no room for error.

III. DIVISION 39, NET METERING RULES

A. Definitions

The Joint Utilities identified four definitions that should be removed from the rules: "area network," "generation capacity," and "spot network" only appear in rule sections that are slated to be removed. "IEEE 1547.1" is not used in the rules. Previously, IEEE 1547 and 1547.1 were both included in the definition of "IEEE standards." If each term will be separately defined in the rules, then IEEE 1547.1 needs to be specifically referenced in OAR 860-039-0015(1) along with IEEE 1547.

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[9] The NREL report is available here: https://www.nrel.gov/docs/fy16osti/63114.pdf.
[10] *Id.* at 4.
[11] *Id.* at 41 ("When the data above are not available the generally accepted conservative practice to assume PV power output at 100% of the PV inverter(s) nameplate with a power factor equal to unity.").

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B. Deletion of Tier 2 Inspection Requirement

In OAR 860-039-0035, the subsection allowing the utility to require inspection and witness tests was removed. The Joint Utilities are not clear whether this deletion was intentional, given that similar language was retained in the Tier 1 and Tier 4 rules. But if the deletion was intended, the Joint Utilities object because they need the ability to conduct a witness test before the facility begins operating.

IV. UPDATING NAMEPLATE CAPACITY TO EXPORT CAPACITY FOR LEGACY PROJECTS

Staff proposes to require the Joint Utilities to evaluate and track all existing and future small generator interconnection applications based on export capacity instead of nameplate capacity. The Joint Utilities do not oppose using export capacity in place of nameplate capacity when evaluating future applications. However, the Joint Utilities do oppose a requirement that they convert *all* existing interconnections, because reevaluating existing interconnections will require significant time and expense to complete and will not significantly increase the amount of generation that can interconnect to most circuits.

The Joint Utilities already have documented the Alternating Current (AC) capacity of most—if not all—small generator facilities, and the AC capacity should reflect the export capacity in most cases. However, the Joint Utilities did not historically document net metering customers' export capacity (in AC); rather, the utilities tracked the nameplate capacity of net metering facilities in Direct Current (DC). Thus, the proposal to require the utilities to convert nameplate capacity to export capacity will primarily affect net metering facilities, which are generally very small projects. As a result, the conversion is likely to result in a minimal change in available interconnection capacity on any given circuit. In contrast, a reevaluation of all existing net

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metering customers' data is a significant undertaking for the Joint Utilities, which will require numerous hours and significant time and effort to complete.

As a compromise, the Joint Utilities propose to undertake a case-by-case reevaluation when doing so could potentially help an applicant pass screens that it would otherwise fail. Specifically, the Joint Utilities will convert existing generation on a circuit when they receive a request to interconnect to the circuit that meets the following criteria: (1) the aggregated capacity on the feeder *including* the new generator is equal to or greater than 90 percent of the relevant minimum load, and (2) the aggregated capacity on the feeder *excluding* the new generator is less than 100 percent of the relevant minimum load. The Joint Utilities would complete the update to AC using the information available in PowerClerk, but would not manually update those projects for which the information is not available in PowerClerk and, accordingly, would require investigation into other systems or compilation by hand based on old records. The Joint Utilities' proposal would achieve Staff's goal of converting the majority of existing generation on a feeder from nameplate capacity to export capacity in those situations where doing so could allow more generation to interconnect, while also addressing the utilities' concerns about the significant burden that would be created by a requirement to update information for *all* interconnected generators.

A. Converting existing generators' nameplate capacity to export capacity will not free up significant capacity for new interconnection customers.

The Joint Utilities' initial analyses indicate that amount of capacity freed up by converting to export capacity will be minimal because (1) the difference between the DC nameplate capacity of the generating equipment and the AC export capacity is generally small, and (2) existing generation is present in both sides of the generation-to-load ratio, so reducing the existing generation value does not result in a linear reduction in the generation-to-load ratio.

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On the first point, PacifiCorp analyzed data from 10 feeders and found that the export capacity (the lesser of DC nameplate and AC nameplate for each generator) tended to be about 87% of the DC nameplate capacity. Moreover, as discussed above, small generator facilities' capacity is already reflected in AC, so it is only the capacity of net metering facilities, which are generally very small, that would be reduced by this amount.

On the second point, the utilities use the following equation to determine the generation-to-load ratio:

Gen/Load Ratio = (Existing Gen + Future Gen) ÷ (Net Minimum Load + Existing Gen)

In a reevaluation, the Joint Utilities would recalculate the "existing generation" and substitute the export capacity for nameplate capacity. However, reducing the "existing generation" does not have a significant impact on the result of the equation, as the value appears in both the numerator and the denominator. While there is some measurable change, decreasing "existing generation" does not have a direct linear impact on the overall ratio, and there is no drastic change in available capacity as a result of the reduction in "existing generation."

PGE analyzed data from 468 feeders to determine hypothetically how much interconnection capacity could be gained on a per-feeder basis. Making the conservative assumption that export capacity would be 80 percent of the DC rating (a lower percentage than what PacifiCorp found in their analysis), PGE found that 361 feeders (77 percent) would gain 0 kW to 9 kW, 96 feeders (21 percent) would gain 9 kW to 18 kW, 8 feeders (2 percent) would gain 18 kW to 27kW, and 3 feeders (1 percent) would gain 27 kW to 36 kW. Considering the annual net minimum load can easily change on the order of a few hundred kilowatts from year-to-year, this is not a significant gain in interconnection capacity. Moreover, in some cases, small generator facilities that are of this small size may be able to interconnect safely despite failing a screen under

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proposed rules regarding approval despite screen failure. Therefore, even if the Joint Utilities do recalculate all existing interconnections, it is very unlikely to achieve Staff's desired result to uncover a significant amount of new capacity for future interconnections.

B. The time and cost required to undertake a reevaluation of all existing interconnections is not reasonable given the benefits.

Each of the Joint Utilities is differently situated with respect to both the amount of effort required to complete a full conversion to export capacity and the time required for this effort.

PGE plans to eventually revisit existing interconnections and calculate their generation in AC as part of its effort to develop a virtual power plant. PGE estimates it would need to review approximately 12,000 applications, which will require PGE to (1) look up each individual contract; (2) review the single-line drawings to determine the inverter model and look up the maximum export capacity of that inverter through manufacturer's available info; (3) compare that new number to the nameplate capacity of panels at the site; and (4) adjust the data in PowerClerk to reflect the difference. PGE estimates it will take employees at least 3,000 hours to fully complete this reevaluation project. PGE continues its efforts to work with Energy Trust to obtain any available data that could help reduce the effort involved. Until PGE and PacifiCorp have an opportunity to review the Energy Trust data, it is impossible to estimate any potential efficiencies. PGE is early in the process of implementing this change and estimates it would require at least one year to complete the full conversion.

Idaho Power estimates it has less than 90 existing interconnections in Oregon and that it has AC data for most connections. For the approximately 20 existing interconnections for which

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Idaho Power does not have AC data, Idaho Power estimates it would take 60 hours to collect the remaining data.[12]

PacifiCorp has approximately 15,000 existing interconnections that it would need review and has not yet begun the process of converting these. As such, PacifiCorp conservatively estimates it would take a full-time employee more than one year to convert all existing interconnections. This estimate assumes the employee is solely focused on the conversion effort, which means PacifiCorp would need to hire an additional employee to do this work in order for PacifiCorp to continue timely processing new applications.

It is clear from the Joint Utilities' estimates that reevaluating all current connections is a massive undertaking that would require additional resources, and therefore costs borne by customers, as well as a significant amount of time to complete. As explained above, a comprehensive conversion of all existing connections is very unlikely to uncover a significant amount of available interconnection capacity. For these reasons, Staff should instead allow the Joint Utilities to incrementally update their records in specific circumstances when doing so might allow approval of a new interconnection request.

V. CONCLUSION

The Joint Utilities respectfully request that Staff implement the revisions discussed in these comments and reflected in the Joint Utilities' proposed redlines. The Joint Utilities would be happy to discuss or answer questions about any of their proposals.

[12] In addition, to the extent that the DC to AC conversion applies primarily to net metering customers, Idaho Power is not subject to the Commission's net metering interconnection rules. *See* OAR 860-039-0005(1).

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UM 2111

Joint Utilities' Proposed Division 39 Redlines

Division 39

NET METERING RULES

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) Upon request or its own motion, the Commission may waive any of the division 039 rule for good cause shown. A request for waiver must be made in writing, unless otherwise allowed by the Commission.

(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~~ 2022 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~~June 9, 2022.

Commented [JU1]: This should be updated to reference the most recent version.

(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).

Commented [JU2]: This definition is no longer used in the rules and should be removed.

(d) “Contiguous” means a single area of land that is considered to be contiguous even if there is an intervening public or railroad right of way, provided that rights of way land on which municipal infrastructure facilities exist (such as street lighting, sewerage transmission, and roadway controls) are not considered contiguous.

(e) "Customer-generator" means the person who is the user of a net metering facility and who has applied for and been accepted to receive electricity service at a premises from the serving public utility.

(f) "~~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.

(g) "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.

(h) "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.

(i) "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.

(j) "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.

(k) "IEEE ~~standards"~~1547" means the standards published in the ~~2003~~2018 edition of the Institute of Electrical and Electronics Engineers (IEEE) Standard 1547, ~~entitled "Interconnecting~~ titled "IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems~~,"~~ Interfaces" and approved by the IEEE SA Standards Board on ~~June 12, 2003, and~~February 15, 2018.

(l) "IEEE 1547.1" means the standards published in the ~~2005~~2020 edition of the IEEE Standard 1547.1, ~~entitled "~~titled "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems~~,"~~ and Associated Interfaces" and approved by the IEEE SA Standards Board on ~~June 9, 2005~~March 5, 2020.

Commented [JU3]: This definition is not currently used in the rules but the Joint Utilities suggest adding it below.

(~~l~~m) "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.

(~~m~~n) "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.

(~~n~~o) "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.

(~~o~~p) "Net metering facility" means a net metering facility as defined in ORS 757.300(1)(d).

(~~p~~g) "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 (s) of this rule.

(~~q~~r) "Point of common coupling" means the point beyond the customer-generator's meter where the customer-generator facility connects with the electric distribution system.

(~~r~~s) "Public utility" has the meaning set forth in ORS 757.005 and is limited to a public utility that provides electric service.

~~(s~~(t) "Reference point of applicability" (RPA) means a location proximate to the generation where the interconnection and interoperability performance requirements, as specified by IEEE 1547, apply.

(u) "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.

(~~t~~v) "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.

(~~u~~w) "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~~a functioning 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.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 757.300
History:
PUC 5-2018, minor correction filed 09/13/2018, effective 09/13/2018
PUC 1-2012, f. & cert. ef. 2-22-12
PUC 6-2011, f. & cert. ef. 9-14-11
PUC 5-2011, f. & cert. ef. 9-7-11
PUC 8-2007, f. & cert. ef. 7-27-07

860-039-0010

Net Metering Kilowatt Limit

(1) For residential customer-generators 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 customer-generators 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 or megawatt limit.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 757.300
History:
PUC 5-2011, f. & cert. ef. 9-7-11
PUC 8-2007, f. & cert. ef. 7-27-07

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 1547 ~~standards~~and IEEE 1547.1.
(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.

Commented [JU4]: Because "IEEE 1547" and "IEEE 1547.1" are now defined separately, "IEEE 1547.1" needs to be referenced here.

(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.
(A) Service type: 240 Volts, Single-phase, 3 Wire — Maximum size 7.2 kW AC.
(B) Service type: 120/208 Volts, 3-Phase, 4 Wire — Maximum size 10.5 kW AC.
(C) Service type: 120/240 Volts, 3-Phase 4 Wire — Maximum size 12.5 kW AC.
(D) Service type: 277/480, 3-Phase, 4 Wire — Maximum size 25.0 kW AC.
(E) 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.

[ED. NOTE: Tables referenced are available from the agency.]

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300
History:
PUC 4-2008, f. & cert. ef. 10-9-08
PUC 8-2007, f. & cert. ef. 7-27-07

860-039-0020

Net Metering Facility Requirements

(1) To qualify for the ~~Level~~Tier 1 and the ~~Level~~Tier 2 interconnection review procedures set forth below, a net metering facility must be certified as complying with the following standards, as applicable:

(a) IEEE 1547 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.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 757.300
History:
PUC 8-2007, f. & cert. ef. 7-27-07

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~~tier of interconnection review sought; e.g., ~~Level~~Tier 1, ~~Level~~Tier 2 or ~~Level 3~~Tier 4;

(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~~Tier 1 or ~~Level~~Tier 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. An application for interconnection is deemed complete when the public utility receives the information required by this rule. If the application is incomplete, the written notice will include a list of all of the information needed to complete the application. The applicant must provide the listed information within 10 business days of receipt of the list or the application is deemed withdrawn.

(3) An applicant will retain its original queue position for an interconnection request if the applicant resubmits its application at a higher ~~level~~tier of review within 30 business days of a utility's denial of the application at a lower ~~level~~tier 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~~Tier 2 or ~~Level 3~~Tier 4 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.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 757.300
History:
PUC 8-2007, f. & cert. ef. 7-27-07

860-039-0030

~~Level~~**Tier 1 Net Metering Interconnection Review**

(1) A net metering facility meeting the following criteria is eligible for ~~Level~~Tier 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 a complete application for interconnection under ~~the Level~~Tier 1 net metering interconnection review ~~procedure if~~: the net metering facility meets the eligibility requirements in subsection (1) of this rule and the facility meets the Tier 1 interconnection review criteria set forth at OAR 860-082-0045(2)(a)-(f).

~~(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~~Tier 1 applicant that the application is complete, the public utility must notify the applicant ~~that:~~whether the facility meets the Tier 1 approval criteria

~~(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~~Tier 1 interconnection applicant in writing ~~or by electronic mail~~ whether the interconnection application is approved or denied within 20 business days after the

receipt of ~~an~~a completed application, the interconnection application will be deemed approved. ~~Interconnections~~Interconnection applications approved under this section remain subject to ~~section~~sections 7 and 8 below.

~~(5~~(5) Approval despite screen failure.

(a) Despite the failure of one or more screens, the public utility, at its sole option, may approve the interconnection provided such approval is consistent with safety and reliability.

(b) If the public utility determines that the customer-generator can be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application.

Commented [JU5]: The Joint Utilities propose making this a separate subsection because it describes a different process than the first sentence of this section.

(6) Process after screen failure. If the public utility cannot determine that the customer-generator may nevertheless be interconnected consistent with safety, reliability, and power quality standards, at the time the public utility notifies the applicant of the Tier 1 review results the public utility shall provide the applicant with

(a) Specific information on the reason(s) for failure in writing using a standard format approved by the Commission,

(b) An executable Supplemental Review Agreement

(c) In addition, the public utility shall allow the applicant to select one of the following, at the applicant's option:

(A) Request an applicant options meeting;

(B) Undergo supplemental review in accordance with OAR 860-082-006X;

(C) Continue evaluating the application under Tier 4.

The applicant must notify the public utility of its selection within 10 business days or the application will be deemed withdrawn.

(7) Applicant options meeting. If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a time within 15 business days of the applicant's request. At the ~~time the public utility notifies the applicant of the Tier 1 review results, the public utility shall provide the applicant the option of participating in an~~applicant options meeting, the applicant and ~~with~~ the public utility ~~to~~ may review possible customer-generator modifications, opportunity to designate a different RPA, ~~-~~ or the screen analysis and related results, to determine what further steps are needed to permit

Commented [JU6]: Rearranged the rule for clarity and to avoid repetition.

Commented [JU7]: Deleted as redundant of (6)(c)(A) above.

the customer-generator to be connected safely and reliably. ~~If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a mutually agreeable time within 15 business days of the applicant's request.~~

(8) Within three business days after sending the notice to an applicant that the proposed interconnection application meets the ~~Level~~Tier 1 interconnection 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~~Tier 1 interconnection agreement, unless the applicant has already submitted such an agreement with its application for interconnection.

(~~6~~9) 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~~10) 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.

~~(811) If an application for Level~~Tier ~~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~~Tier ~~2 or Level 3~~Tier ~~4 interconnection review procedure, as appropriate.~~

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

860-039-0035

~~Level~~**Tier 2 Net Metering Interconnection Review**

(1) A public utility must apply the following ~~Level~~Tier 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~~Tier 1 interconnection review procedures.

(2) The public utility must approve an application for interconnection under the ~~Level~~Tier 2 interconnection review ~~procedure~~ if the net metering facility meets the eligibility requirements in

Commented [JU8]: The language of this sentence was potentially confusing with the word "offer" but also the "mutually agreeable time" requirement. As discussed in the Joint Utilities' comments, the utility should be obligated to make itself available within 15 business days but cannot control whether the applicant is available and should not be in violation of the rules if the applicant is not available.

Commented [JU9]: This provision is unnecessary given that subsection (6)(c) above provides the applicant's options if they fail Tier 1. Also, the Joint Utilities understand that an applicant that was denied under Tier 1 should proceed to Supplemental Review or Tier 4--not Tier 2. Deletion of this provision is consistent with Staff's removal of subsection (7) from 860-039-0035 below.

Commented [JU10]: The Joint Utilities understand that an applicant that was denied under Tier 1 would proceed to Supplemental Review or Tier 4--not Tier 2.

subsection (1) of this rule and the facility meets the Tier 2 interconnection review criteria set forth at OAR 860-082-0050((2)(a)–(l)).~~:~~

~~(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~~.

Commented [JU11]: Deleted redundant text.

~~(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~~Tier 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 written 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~~ five business days after this notice, the public utility will provide the applicant with an executable interconnection agreement;

Commented [JU12]: It makes sense to standardize (a) and (b) and as volumes increase, 5 days is reasonable.

(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 nevertheless 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~~Tier 2 interconnection procedures.

~~(~~4(4) Process after screen failure. If the public utility cannot determine that the customer-generator may nevertheless be interconnected consistent with safety and reliability standards, at the time the public utility notifies the applicant of the Tier 2 review results the public utility shall provide the applicant with:

(a)Specific information on the reason(s) for failure in writing using a standard format approved by the Commission,

(b) An executable Supplemental Review Agreement

(c) In addition, the public utility shall allow the applicant to select one of the following, at the applicant's option:

(A) Request an applicant options meeting;

(B) Undergo supplemental review in accordance with OAR 860-082-006X;

(C) Continue evaluating the application under Tier 4.

The applicant must notify the public utility of its selection within 10 business days or the application will be deemed withdrawn.

(5) Applicant options meeting. If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a ~~mutually agreeable~~ time within 15 business days of the applicant's request. At the ~~time the public utility notifies the applicant of the Tier 2 review results, the public utility shall provide the applicant the option of participating in an~~ applicant options meeting, ~~with~~ the applicant and the public utility may~~to~~ review possible customer-generator modifications or the screen analysis, opportunity to designate a different RPA, and related results, to determine what further steps are needed to permit the customer-generator to be connected safely and reliably. ~~If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a mutually agreeable time within 15 business days of the applicant's request.~~

(6) 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.

Commented [JU13]: Rearranged the rule for clarity and to avoid repetition.

Commented [JU14]: The language of this sentence was potentially confusing with the word "offer" but also the "mutually agreeable time" requirement. As discussed in the Joint Utilities' comments, the utility should be obligated to make itself available within 15 business days but cannot control whether the applicant is available and should not be in violation of the rules if the applicant is not available.

Commented [JU15]: Deleted as redundant of the subsection above.

~~(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~~(5) Approval of interconnected operation of any ~~Level~~Tier 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.~~

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

860-039-0040

~~Level 3~~Tier 4 Net Metering Interconnection Review

(1) The public utility must apply the ~~Level 3~~Tier 4 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~~Tier 1 or Tier 2 interconnection review procedures.

(2) Following receipt of a ~~Level 3~~Tier 4 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~~Tier 4 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:

Commented [JU16]: The Joint Utilities are unclear whether this deletion was intentional given that there are still inspection requirements in Tier 1 and Tier 4. If intended, the Joint Utilities would object to the removal of this section.

Commented [JU17]: The Joint Utilities understand that applicants that failed Tier 1 should go either to Supplemental Review or straight to Tier 4.

(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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

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~~Tier 1 interconnection review. However, if an application for ~~Level~~Tier 1 interconnection review is denied because it does not meet the requirements for ~~Level~~Tier 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~~Tier 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~~Tier 4 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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

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~~Tier 1 or ~~Level~~Tier 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 1547 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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

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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 the meter that is physically attached to the net metering facility ("designated meter") with one or more meters ("aggregated meter") in the manner set out in this rule. This rule is mandatory upon the public utility only when:

(a) The aggregated meters are located on the customer-generator's premises or property that is contiguous to such premises;

(b) The electricity recorded by the designated meter and any aggregated meters is for the customer-generator's requirements, and;

(c) The designated meter and the aggregated meters are served by the same primary feeder at the time of application.

(2) When a customer-generator aggregates one or more meters that are subject to a different rate schedule than the designated meter, the facilities capacity limit in OAR 860-039-0010 is determined by the rate applicable to the designated meter.

(3) 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 aggregated meters to which net metering credits are to be applied, and must rank aggregated meters subject to the same rate schedule as the designated meter above any other meters. At least 60 days in advance of the beginning of the next annual billing period, a customer-generator may amend the rank order of the aggregated meters, subject to the requirements of this rule.

(4) 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.

(5) The utility will first apply the kWh credit to the charges for the designated meter and then to the charges for the aggregated meters in the rank order specified by the customer-generator. 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 and aggregated meters, the utility will apply credits to the next monthly bill for the excess kilowatt-hours first to the designated meter, then to aggregated meters in the rank order specified by the customer-generator. Public utilities subject to ORS 757.300(2) through (8) must specify in tariffs how the kWh credits will be applied when rate schedules have non-uniform kWh charges.

(6) 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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 5-2011, f. & cert. ef. 9-7-11

PUC 8-2007, f. & cert. ef. 7-27-07

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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

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).

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

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.

Statutory/Other Authority: ORS 183, 756 & 757

Statutes/Other Implemented: ORS 756.040 & 757.300

History:

PUC 8-2007, f. & cert. ef. 7-27-07

UM 2111

Joint Utilities' Proposed Division 82 Redlines

Staff proposal Oregon Small Generator Interconnection Rules

860-082-0005 Scope and Applicability

860-082-0005 Scope and Applicability

(1) OAR 860-082-0005 through 860-082-0085 (the "small generator interconnection rules") govern the interconnection of a small generator facility with a nameplate ~~capacity~~rating of 10 megawatts or less to a public utility's transmission or distribution system. These rules do not apply if the interconnection between the small generator facility and the public utility is subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC). ~~These rules do not apply to the interconnection of a net metering facility to a public utility that meets the requirements of ORS 757.300(9).~~

Commented [JU1]: This language is unnecessary given that we still have Division 39 rules.

(2) Except as specified in OAR 860-082-0025(1)(b), the small generator interconnection rules do not apply retroactively to a small generator facility that was interconnected to a public utility's transmission or distribution system prior to the effective date of the small generator interconnection rules (an "existing small generator facility"). These rules become applicable to an existing small generator facility at the expiration of the agreement governing the terms of the interconnection of the existing small generator facility to the ~~interconnected~~interconnecting public utility's transmission or distribution system. If an existing agreement does not have an expiration date, then the small generator interconnection rules become applicable to the existing small generator facility 10 years after the effective date of the rules. An existing small generator facility must submit an application under OAR 860-082-0025(1)(e) to the ~~interconnected~~interconnecting public utility no later than 60 business days before the date that the small generator interconnection rules become applicable.

~~(3)~~(3) Except where explicitly noted in OAR chapter 860, division 039, the small generator interconnection rules do not apply to the interconnection of a net metering facility, which is governed by ~~OAR chapter 860,~~ division 039.

(4) A small generator facility that qualifies as a "small power production facility" under OAR 860-029-0010(25) must also comply with the rules in OAR chapter 860, division 029. If there is a conflict between the small generator interconnection rules and the rules in OAR chapter 860, division 029, then the small generator interconnection rules control.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~Statutes/Other Implemented: ORS 756.040 & 756.060~~
~~History:~~

~~PUC 10-2009, f.~~ **860-082-0010**
Waiver

~~& cert. ef. 8-26-09~~
~~860-082-0010~~
~~Waiver~~

(1) Upon request or its own motion, the Commission may waive any of the Division 082 rules for good cause shown. A request for waiver must be made in writing, unless otherwise allowed by the Commission.

(2) A public utility and an applicant or interconnection customer may agree to reasonable extensions to the required timelines in these rules without requesting a waiver from the Commission.

(a) If a public utility and an applicant or interconnection customer are unable to agree to waive a timeline, then the public utility, applicant, or interconnection customer may request that the Commission grant a waiver.

(b) In deciding whether to grant a waiver of a timeline, the Commission will consider the number of pending applications for interconnection review and the type of applications, including review level, facility type, and facility size.

(c) Waiver of a timeline, whether by agreement or Commission order, does not affect an application's queue position.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 6-2011, f. & cert. ef. 9-14-11
PUC 10-2009, f. & cert. ef. 8-26-09 ~~ORS 183, 756 & 757~~

~~Statutes/Other Implemented: ORS 756.040 & 756.060~~
~~History:~~

~~PUC 6-2011, f.~~ **860-082-0015**
Definitions

~~& cert. ef. 9-14-11~~
~~PUC 10-2009, f. & cert. ef. 8-26-09~~
~~860-082-0015~~
~~Definitions~~

As used in 860-082-0005 through 860-082-0085:

(1) ~~(1)~~ "Adverse system impact" means a negative effect caused by the interconnection of a small generator facility that may compromise the safety or reliability of a transmission or distribution system.

(2) ~~(2)~~ "Affected system" means a transmission or distribution system, not owned or operated by the interconnecting public utility, which may experience an adverse system impact from the interconnection of a small generator facility.

(3) ~~(3)~~ "Aggregated ~~nameplate~~export capacity" means the total combined ~~nameplate~~export capacity of:

(a) ~~(a)~~ A proposed Small generator facility;

(b) ~~(b)~~ Existing Small generator facilities, net metering facilities, FERC jurisdictional generators, and state jurisdictional generators with a nameplate ~~capacity~~rating greater than 10 megawatts; and

(c) ~~(c)~~ Small generator ~~facilities~~facility~~ies~~, net metering facilities, FERC jurisdictional generators, and state jurisdictional generators with a nameplate ~~capacity~~rating greater than 10 megawatts that have pending completed applications with higher queue positions than the proposed small generator facility.

Commented [JU2]: Throughout the rules, "small generator facility" has odd capitalization and is frequently singular when it should be plural.

(4) ~~(4)~~ "Aggregated nameplate rating" means the total combined nameplate rating of: ~~A proposed Small generator facility:~~

(a) A proposed Small generator facility;

(b) Existing Small generator facilities, net metering facilities, FERC jurisdictional generators, and state jurisdictional generators with a nameplate rating greater than 10 megawatts; and

(c) Small generator facility, net metering facilities, FERC jurisdictional generators, and state jurisdictional generators with a nameplate rating greater than 10 megawatts that have pending completed applications with higher queue positions than the proposed small generator facility.

~~(4)~~(5) "Applicant" means a person who has submitted an application to interconnect

(a) A small generator facility to a public utility's transmission or distribution system~~.~~, or

(b) ~~(5) A net metering facility to an electric distribution system.~~

~~(5)~~(6) "Application" means a written request to interconnect a Small generator facility with a public utility's transmission or distribution system~~.~~, ~~and~~ which must follow the standard form ~~applications~~ developed by the public utility and approved by the Commission.

~~(6)~~(7) ~~(6)~~ "Area network" means a type of 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 1547, section 4.1.4.~~

~~(7)~~(8) ~~(7)~~ "Certificate of completion" means a certificate signed by an applicant and an interconnecting public utility attesting that a small generator facility is complete, meets the applicable requirements of the small generator interconnection rules, ~~and has been inspected, tested~~has passed all applicable federal, state, and local inspection requirements~~,~~ ~~any required witness tests are complete~~, and certified as physically ready for operation. A ~~c~~Certificate of completion includes the "as built" specifications and initial settings for the small generator facility and its associated interconnection equipment.

~~(8)~~(9) ~~(8)~~ "Distribution system" means the portion of an electric system that delivers electricity from transformation points on the transmission system to points of connection on a customer's premises.

(10) ~~(9)~~ "Energy storage system" ~~or "ESS"~~ means a mechanical, electrical, or electrochemical means to store and release electrical energy, and its associated interconnection and control equipment. For the purposes of these ~~Interconnection Procedures~~rules, an energy storage system~~ESS~~ can be considered part of a s~~S~~mall generator facility or a small generator facility in whole that operates in parallel with the distribution system.

(11) "Export capacity" means the amount of power that can be transferred from the small generator facility to the distribution system. Export capacity is either the nameplate rating, or a lower amount if limited using an acceptable means identified in OAR 860-082-003X.

~~(9)~~(12) "Fault current" means an electrical current that flows through a circuit during a fault condition. A fault condition occurs when one or more electrical conductors contact ground or each other. Types of faults include phase to ground, double-phase to ground, three-phase to ground, phase to phase, and three-phase.

Commented [JU3]: The Joint Utilities oppose this addition. The word "applicant" is used throughout these rules, and adding NEM facilities to this definition could have the unintended effect of making most of the Div. 82 rules applicable to NEM facilities. Given that we still have separate Div. 39 rules, this does not seem necessary.

Commented [JU4]: This clause should be removed because later in the rules, the certificate of completion is what starts the clock for conducting the witness test. Having the certificate of completion come before the witness test is consistent with current practice.

Commented [JU5]: It could be unclear what "these Interconnection Procedures" refers to, so the Joint Utilities propose referencing the rules instead.

~~(10)~~(13)~~(10)~~ "Field-tested equipment" means interconnection equipment that is identical to equipment that was approved by the interconnecting public utility for a different small generator facility interconnection ~~under Tier 4 review~~ and successfully completed a witness test ~~within three years~~under the requirements included in the current version of the public utility's interconnection requirements handbook before the date of the submission of the current application.

(14)~~(11)~~"Host load" means electrical power, less the small generator facility auxiliary load, consumed by the customer at the location where the small generator facility is connected.

~~(11)~~(15) "IEEE 1547" means the standards published in the ~~2003~~2018 edition of the Institute of Electrical and Electronics Engineers (IEEE) Standard 1547, titled "~~Interconnecting~~ IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces" and approved by the IEEE SA Standards Board on ~~June 12, 2003~~February 15, 2018.

~~(12)~~(16)~~(12)~~ "IEEE 1547.1" means the standards published in the ~~2005~~2020 edition of the IEEE Standard 1547.1, titled "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems and Associated Interfaces" and approved by the IEEE SA Standards Board on ~~June 9, 2005~~March 5, 2020.

(17)~~(13)~~"Inadvertent export" means the unscheduled export of active power from a small generator facility, exceeding a specified magnitude and for a limited duration, generally due to fluctuations in load-following behavior.

~~(13)~~(18) "Interconnection agreement" means a contract between an applicant or interconnection customer and an interconnecting public utility that governs the interconnection of a small generator facility to the public utility's transmission or distribution system and the ongoing operation of the small generator facility after it is interconnected. An interconnection agreement will follow the standard form agreement developed by the public utility and filed with the Commission

~~(14)~~(19)~~(14)~~ "Interconnection customer" means a person with one or more small generator facilities interconnected to a public utility's transmission or distribution system.

~~(15)~~(20)~~(15)~~ "Interconnection equipment" means a group of components or an integrated system provided by an interconnection customer or applicant to connect a small generator facility to a public utility's transmission or distribution system.

~~(16)~~(21)~~(16)~~ "Interconnection facilities" means the facilities and equipment required by a public utility to accommodate the interconnection of a small generator facility to the public utility's transmission or distribution system and used exclusively for that interconnection. Interconnection facilities do not include system upgrades.

(22)~~(17)~~"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~~small generator facility to the utility's distribution system.

~~(17)~~(23) "Interconnection service" means service provided by an interconnecting public utility to an interconnection customer.

~~(18)~~(24)~~(18)~~ "Lab-tested equipment" means interconnection equipment that has been designed to comply with IEEE 1547, tested in accordance with IEEE 1547.1, and certified and labeled as compliant with these IEEE standards at the point of manufacture by a nationally recognized testing lab. For interconnection equipment to be considered lab-tested equipment under these rules, the equipment must be used in a manner consistent with the certification.

(25)~~(19)~~"Limited export" means the exporting capability of a small generator facility whose export capacity is limited by the use of any configuration or operating mode described in OAR 860-082-003X.

~~(19)~~(26) "Line section" means that portion of a public utility's transmission or distribution system that is connected to an interconnection customer and bounded by automatic sectionalizing devices or the end of a distribution line.

~~(20)~~(27)~~(20)~~ "Minor equipment modification" means a change to a small generator facility or its associated interconnection equipment that:

~~(a) Does not affect the application of the approval requirements in Tiers 1, 2, or 3;~~

(a) ~~(b) Does~~Includes a change or replacement of equipment that is a like-kind substitution in size, ratings, impedances, efficiencies, or capabilities of the equipment specified in the original interconnection application.~~,~~ ~~m~~Minor variations that do not affect safety, performance, or interoperability are acceptable;

(b) Includes a replacement of existing inverters with new inverters that conform to standards in effect at the time of replacement;

(c) Includes a reduction in the nameplate rating and/or export capacity of the small generator facility of 10 percent or less provided that a change made to a small generator facility with a pending completed application must not adversely impact lower queued projects; or

~~(a)~~(d) For changes not specified in subsections (a) through (c) of this definition, the change must not, in the interconnecting public utility's reasonable opinion, have a material impact on the safety or reliability of the public utility's transmission or distribution system or an affected system~~; and~~.

~~(c) Does not affect the nameplate capacity of a small generator facility.~~

~~(21) "Nameplate capacity" means the full-load electrical quantities assigned by a facility's designer to a generator and its prime mover or other piece of electrical equipment, such as transformers and circuit breakers, under standardized conditions, as expressed in amperes, kilovoltamperes, kilowatts, volts, megawatts, or other appropriate units. Nameplate capacity is usually indicated on a nameplate attached to the individual device.~~

(e) ~~(22)~~Applicants must inform the interconnecting utility of minor equipment modifications prior to making the change.

Commented [JU6]: The notification should happen before the modification.

(28)"Nameplate rating" means the sum total of maximum rated power output of all of a small generator facility's constituent generating units and/or energy storage system~~ESS~~ as identified on the manufacturer nameplate in Alternating Current (AC), regardless of whether it is limited by any approved means. For a generating unit that uses an inverter to change direct current energy supplied to an AC quantity, the nameplate rating will be the manufacturer's AC output rating for the

Commented [JU7]: As explained in comments, the Joint Utilities added language to make clear how the definition applies to facilities that generate in DC.

inverter(s).

~~(21)~~(29) "Nationally recognized testing laboratory" ~~or "NRTL"~~ means a qualified private organization that performs independent safety testing and product certification. Each nationally recognized testing laboratory ~~NRTL~~ must meet the requirements set forth by the United States Occupational Safety and Health Administration.

~~(22)~~(30)~~(23)~~ "Net metering facility" has the meaning set forth in ORS 757.300(1)(d).

(31)~~(24)~~ "Non-export or non-exporting" means when the small generator facility is sized and designed, and operated using any of the methods in OAR 860-082-003X, such that the output is used for host load only and no electrical energy (except for any Inadvertent Export) is transferred from the small generator facility to the distribution system.

~~(23)~~(32)"Pending completed application" means an application for interconnection of a small generator facility, a net metering facility, or a FERC jurisdictional generator that an interconnecting public utility has deemed complete.

~~(25) "Person" has the meaning set forth in OAR 860-011-0035(8).~~

(33)~~(26)~~ "Person" includes individuals, joint ventures, partnerships, corporations and associations or their officers, employees, agents, lessees, assignees, trustees or receivers, as supplemented to include governmental entities.

~~(24)~~(34) "Point of interconnection" means the point where a small generator facility is electrically connected to a public utility's transmission or distribution system. This term has the same meaning as "point of common coupling" as defined in IEEE 1547~~, section 3.1.13. This term does not have the same meaning as "point of common coupling" as defined in OAR 860-039-0005(3)(p).~~

(35)~~(27)~~"Power control system" ~~or "PCS"~~ means systems or devices which electronically limit or control steady state currents to a programmable limit.

~~(25)~~(36) "Primary line" means a distribution line with an operating voltage greater than 600 volts.

~~(26)~~(37)~~(28)~~ "Public utility" has the meaning set forth in ORS 757.005 and is limited to a public utility that provides electric service.

~~(27)~~(38)~~(29)~~ "Queue position" means the rank of a pending completed application, relative to all other pending completed applications, that is established based on the date and time that the interconnecting public utility receives the completed applications, including application fees.

(39)~~(30)~~ "Reference point of applicability" (RPA) means a location proximate to the generation where the interconnection and interoperability performance requirements, as specified by IEEE 1547, apply.

(40)"Relevant minimum load" means the lowest measured load coincident with the generating facility's production. For solar-only facilities this shall be the daytime minimum load.

~~(28)~~(41)"Scoping meeting" means an initial meeting between representatives of an applicant and an interconnecting public utility that is conducted to discuss the ~~reference point of applicability~~RPA; to discuss alternative interconnection options; to exchange information, including any relevant transmission or distribution system data and earlier studies that would reasonably be expected to

affect the interconnection options; to analyze such information; and to determine the potentially feasible points of interconnection.

~~(29)~~(42)~~(31)~~ "Secondary line" means a service line with an operating voltage of 600 volts or less.

~~(30)~~(43)~~(32)~~ "Small generator facility" means a facility, that operates in parallel with the distribution system, for the production of electrical energy that has a nameplate ~~capacity~~rating of 10 megawatts or less. A small generator facility may include an energy storage system, and does not include interconnection equipment, interconnection facilities, or system upgrades.

~~(31)~~(44)~~(33)~~ "Spot network" means a type of transmission or distribution system that uses two or more intertied 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.

~~(32)~~(45)~~(34)~~ "System upgrade" means an addition or modification to a public utility's transmission or distribution system or to an affected system that is required to accommodate the interconnection of a small generator facility.

~~(33)~~(46)~~(35)~~ "Transmission line" means any electric line operating at or above 50,000 volts.

~~(34)~~(47)~~(36)~~ "Transmission system" means a public utility's high voltage facilities and equipment used to transport bulk power or to provide transmission service under the public utility's open access transmission tariff.

~~(35)~~(48)~~(37)~~ "Witness test" means the on-site visual verification of the interconnection installation and commissioning as required in IEEE 1547~~, sections 5.3 and 5.4.~~. For interconnection equipment that does not meet the definition of lab-tested equipment, the witness test may, at the discretion of the public utility, also include a ~~system design~~type test and ~~production~~Small generator facility evaluation according to IEEE 1547~~, sections 5.1 and 5.2,~~ as applicable to the specific interconnection equipment used.

~~(36)~~(49)~~(38)~~ "Written notice" means a ~~notice~~ required notice sent by the ~~small~~ utility via electronic mail if the customer-generator ~~interconnection rules~~ has provided a functioning electronic mail address. If the customer-generator has not provided a functioning electronic mail address, or has requested in writing to be notified by United States mail then written notices from the utility shall be sent via First Class United States mail to the notification address provided by the customer-generator. The ~~duty to provide written notice is~~utility shall be deemed to have fulfilled its duty to respond under these rules on the day ~~that the~~ it sends the customer-generator notice via electronic mail or deposits such notice ~~is deposited in the mail. A public utility and an applicant or interconnection customer may agree in writing to accept written notice via electronic mail. If using electronic mail by agreement, then the duty to provide written notice is deemed fulfilled on the day the notice is sent. A public utility and an applicant or interconnection customer are~~in First Class mail. The customer-generator shall be responsible for informing ~~one another~~the utility of any changes to ~~the physical or electronic address used to receive notifications.~~its notification address~~.~~.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060

History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0020~~

860-082-0020
Pre-Application Process

(1) Each public utility must designate an employee or office from which relevant information about the small generator interconnection process, the public utility's transmission or distribution system, and affected systems may be obtained through informal requests for a potential applicant proposing a small generator facility at a specific site. The public utility must post contact information for the employee or office on the public utility's website. The information provided by the public utility in response to a potential applicant's request must include relevant existing studies and other materials that may be used to understand the feasibility of interconnecting a small generator facility at a particular point on the public utility's transmission or distribution system. The public utility must comply with reasonable requests for access to or copies of such information, except to the extent that providing such materials would violate security requirements, confidentiality obligations to third parties, or be contrary to federal or state regulations. The public utility may require a person to sign a confidentiality agreement if required to protect confidential or proprietary information. For a potential Small generator ~~facilities~~facility requiring Tier 4 review, and at the potential applicant's request, the public utility must meet with the potential applicant to exchange information. A public utility employee with relevant technical expertise must attend any such meeting.

(2) A person requesting information under section (1) must reimburse the public utility for the reasonable costs of gathering and copying the requested information.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~Statutes/Other Implemented: ORS 756.040 & 756.060~~
~~History:~~
~~PUC 10-2009, f.~~ **860-082-0025**
~~& cert. ef. 8-26-09~~
~~860-082-0025~~

Applications to Interconnect a Small Generator Facility

(1) A person may not interconnect a small generator facility to a public utility's transmission or distribution system without authorization from the public utility.

(a) A person proposing to interconnect a new small generator facility to a public utility's transmission or distribution system must submit an application to the public utility.

(b) A person with an existing interconnected Small generator facility who proposes to make any change to the facility, other than a minor equipment modification, must submit an application to the public utility. This includes changes affecting the nameplate ~~capacity~~rating of the existing

interconnected small generator facility or the output capacity authorized in the agreement governing the terms of the interconnection.

(c) An applicant with a pending completed application to interconnect a small generator facility must submit a new application if the applicant proposes to make any change to the small generator facility other than a minor equipment modification. This includes changes affecting the nameplate ~~capacity~~rating of the proposed small generator facility.

(A) The applicant relinquishes the queue position assigned to the pending completed application, and the public utility assigns a new queue position based on the date and time the public utility receives the new application.

(B) If the new application is submitted within 30 business days of the date of submission of the original application, then the public utility must apply the original application fee to the application fee required for the new application.

(d) A person with a pending completed application to interconnect a net metering facility or a FERC jurisdictional generator who proposes to change the facility to a small generator facility must submit a new application under the small generator interconnection rules.

(A) The applicant relinquishes the queue position assigned to the pending completed application, and the public utility assigns a new queue position based on the date and time that the interconnecting public utility receives the small generator interconnection application.

(B) If the small generator interconnection application is received within 30 business days of the date of submission of the original net metering or FERC jurisdictional generator interconnection application, then the public utility must apply the original application fee to the application fee required for the new application.

Commented [JU8]: The Joint Utilities note that the requirement to apply a FERC-jurisdictional application fee could conflict with requirements in the OATT to refund such fees if the application is withdrawn.

(e) An interconnection customer must submit an application to renew an existing small generator facility interconnection before the expiration of the interconnection agreement between the interconnection customer and the ~~interconnected~~interconnecting~~`~~ public utility. The application must be submitted no later than 60 business days before the interconnection agreement's expiration date.

(A) A public utility may not unreasonably refuse to grant expedited review of an application to renew an existing small generator facility interconnection if there have been no changes to the small generator facility other than minor equipment modifications.

(B) A public utility may not require an existing small generator facility to undergo Tier 4 review if there have been no changes to the small generator facility other than minor equipment modifications and there have been no material changes to the portion of the public utility's transmission or distribution system affected by the interconnection of the small generator facility.

(C) A public utility may require the interconnection customer to pay for interconnection facilities, system upgrades, or changes to the small generator facility or its associated interconnection equipment that are necessary to bring the small generator facility interconnection into compliance with the small generator interconnection rules or IEEE 1547 or 1547.1.

(D) If the public utility has not completed its review of an application to renew and a new interconnection agreement is not signed before the expiration of the current interconnection agreement governing the interconnection of an existing small generator facility to a public utility's transmission or distribution system, then the current interconnection agreement remains in effect until the renewal process is completed and a new interconnection agreement is signed.

(2) All applications must be made using the appropriate application form ~~and must follow the standard form applications developed by the public utility and approved by the Commission~~. The public utility must provide separate application forms for review under Tier 1 and for review under Tiers 2, 3, and 4. The Tier 1 application form must include an unexecuted interconnection agreement. The public utility must provide a copy of an application form to any person upon request and must post copies of the application forms on the public utility's website.

(a) Applicants ~~must~~may use the Tier 1 application form only for a Small generator ~~facilities~~facility that ~~will not be interconnected with a transmission line and will~~meets the requirements of OAR 860-082-0045(1).

(b) All applicants may use ~~lab-tested, inverter-based interconnection equipment with a nameplate capacity of 25 kilowatts or less.~~

~~(b) Applicants must use~~ the application form for ~~review under~~ Tiers 2, 3, or 4 ~~for interconnection of all other small generator facilities~~.

(3) A public utility may require payment of a nonrefundable application processing fee. The amount of the fee depends upon the review tier requested in the application and is intended to cover the reasonable costs of processing and evaluating the application.

(a) The application fee may not exceed $100 for Tier 1 review, $500 for Tier 2 review, and $1000 for review under Tiers 3 and 4.

(b) An applicant must pay the reasonable costs incurred by the public utility to perform any studies and engineering evaluations permitted by these rules and necessary to evaluate the proposed application to interconnect. Before the public utility may assess any costs in excess of the application fee, the public utility must receive written authorization from the applicant. If the applicant does not authorize the additional costs, then the application is deemed withdrawn and the original application fee is forfeited.

(c) If an application is denied at one review tier, and the applicant resubmits the application at a higher review tier within 15 business days after the date the applicant received notification of the denial, then the applicant maintains the queue position assigned to the original application and the public utility must apply the original application fee and any other fees paid in conjunction with the original application to the fees applicable to the resubmitted application.

(4) If an applicant proposes to interconnect multiple Small generator facilities to the public utility's transmission or distribution system at a single point of interconnection, then the public utility must evaluate the applications based on the combined total nameplate ~~capacity~~rating for all of the Small generator facilities. If the combined total nameplate ~~capacity~~rating exceeds 10 megawatts, then the small generator interconnection rules do not apply.

Commented [JU9]: It makes more sense to include this requirement here than to include it in the definition of "application."

Commented [JU10]: The Joint Utilities understand that the IA in the application form should be unexecuted and seek to clarify that with this change. The Joint Utilities would oppose including an executed IA in an application form posted on the utility's website, which could lead to a situation where an applicant thinks they have formed an agreement simply by applying.

(5) An applicant must provide documentation of site control with an interconnection application. Site control may be demonstrated through ownership of the site, a leasehold interest in the site, or an option or other right to develop the site for the purpose of constructing the small generator facility. Site control may be documented by a property tax bill, deed, lease agreement, or other legally binding contract.

(6) A public utility may propose to interconnect multiple Small generator facilities at a single point of interconnection to minimize costs, and an affected applicant or interconnection customer may not unreasonably refuse such a proposal. An applicant or interconnection customer may, however, elect to maintain a separate point of interconnection if the applicant or interconnection customer agrees to pay the entire cost of the separate interconnection facilities.

(7) Application review process.

(a) Within 10 business days of receipt of an application to interconnect a small generator facility, the interconnecting public utility must provide written notice to the applicant stating whether the application is complete.

(A) If the application is incomplete, then the public utility must provide the applicant with a detailed list of the information needed to complete the application. An application is deemed complete when the public utility receives the listed information. The applicant must provide the listed information within 10 business days of receipt of the list or the application is deemed withdrawn.

(B) If a public utility does not have a record of receipt of an application or cannot locate an application, then the applicant must provide an additional copy of the application to the public utility. If the applicant can demonstrate that a complete application was originally delivered to the public utility at a particular time on a particular date, then the public utility must assign a queue position to the application based on the original time and date of delivery.

(b) Once the public utility deems an application to be complete, the public utility must assign the application a queue position. An applicant must meet all applicable deadlines in the small generator interconnection rules to maintain its queue position unless the deadlines have been waived by agreement with the interconnecting public utility or by Commission order.

(c) If the public utility determines during the evaluation process that supplemental or clarifying information is required, then the public utility must request the information from the applicant, and the applicant must provide the requested information within 15 business days or the application will be deemed withdrawn. The time necessary to complete the evaluation of the application may be extended by the time required for the receipt of the additional information. Requests for information do not affect the applicant's queue position.

Commented [JU11]: There needs to be a timeline on this step to avoid lengthy delays and confusion about application status.

(d) A public utility must use IEEE 1547 and IEEE 1547.1 to evaluate small generator interconnection applications unless otherwise specified in these rules or unless the Commission grants a waiver to use different or additional standards.

(e) Reference Point of Applicability Review.

(A) For T~~t~~ier 4 applications, the public utility will raise any concerns about the ~~reference point of applicability~~RPA in the scoping meeting.

(B) For T~~t~~ier 1 through T~~t~~ier 3 applications, the public utility notifies an applicant if the proposed RPA is appropriate when it provides screen results. If the RPA is inappropriate the public utility will notify the applicant in writing, including an explanation as to why it requires correction. The applicant shall resubmit the application with the corrected RPA within ten business days. If the applicant does not provide the appropriate RPA, a request for an extension of time, or request an applicant options meeting within the deadline, the application will be deemed withdrawn.

(f) Interconnection Agreement. If the proposed interconnection requires no construction of facilities by the public utility, or the public utility approves the proposed interconnection despite screen failure or at the applicant options meeting the public utility must provide the applicant an ~~executable~~executable~~d~~ interconnection agreement no later than five business days after the ~~date of approval of an interconnection application. The interconnection agreement must follow the standard form agreement developed by the public utility and approved by the Commission. The applicant must~~applicant options meeting, providing supplemental review screen results, or completing the last T~~t~~ier 4 study. If the applicant does not return ~~an executed~~a countersigned interconnection agreement and any required deposit to the public utility or request negotiation of a non-standard interconnection agreement within 15 business days of receipt ~~or~~of an executed interconnection agreement, the application is deemed withdrawn.

(A) An applicant or a public utility is entitled to the terms in the standard form agreement, but may choose to negotiate for different terms.

(B) If negotiated changes to a standard interconnection agreement are materially inconsistent with the small generator interconnection rules, then the applicant and the public utility must seek Commission approval of the negotiated interconnection agreement.

(~~f~~g) The applicant must provide the public utility written notice at least 20 business days before the planned commissioning for the small generator facility.

(A) The public utility has the option of conducting a witness test at a mutually agreeable time within 10 business days of ~~the scheduled commissioning~~receipt of the certificate of completion.

(B) The public utility must provide written notice to the applicant indicating whether the public utility plans to conduct a witness test or will waive the witness test within three business days of receipt of the certificate of completion.

(C) If the public utility notifies the applicant that it plans to conduct a witness test, but fails to conduct the witness test within 10 business days of ~~the scheduled commissioning date~~receipt of the certificate of completion or within a time otherwise agreed upon by the applicant and the public utility, then the witness test is deemed waived.

~~(D~~(D) If the witness test is conducted and is successful, or if the public utility

waives the witness test, the public utility must provide the countersigned certificate of completion within five business days of conducting the witness test or waiver of witness test.

Commented [JU12]: As discussed in comments, if Staff does not maintain the "executable" language, this timeline must be extended to 15 business days.

Commented [JU13]: The Joint Utilities have explained that requiring the utility to execute the IA first can cause confusion, does not significantly speed up the process, and can create problems if the customer is also required to submit a deposit. If Staff nevertheless continues to recommend that the utility provide an executed IA, it should also make this change to the rules to avoid the situation where a customer executes an IA and is immediately in breach because they failed to provide the required deposit.

Commented [JU14]: The Joint Utilities are ok with this change so long as the witness test is removed from the rule above as a prerequisite for a certificate of completion.

(E) If the witness test is conducted and is not acceptable to the public utility, then the public utility must provide written notice to the applicant describing the deficiencies within five business days of conducting the witness test. The public utility must give the applicant 20 business days from the date of the applicant's receipt of the notice to resolve the deficiencies. If the applicant fails to resolve the deficiencies to the reasonable satisfaction of the public utility within 20 business days or at a mutually agreeable time, then the application is deemed withdrawn.

(~~g~~h) A public utility must meet all applicable deadlines in the small generator interconnection rules unless the deadlines have been waived by agreement with an applicant or interconnection customer or by Commission order. If the public utility cannot meet an applicable deadline, then the public utility must provide written notice to the applicant or interconnection customer explaining the reasons for the failure to meet the deadline and an estimated alternative deadline. A public utility's failure to meet an applicable deadline does not affect an applicant's queue position.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~Statutes/Other Implemented: ORS 756.040 & 756.060~~
~~History:~~
~~PUC 10-2009, f.~~ **~~860-082-0030~~**
~~& cert. ef. 8-26-09~~
~~860-082-0030~~

Construction, Operation, Maintenance, and Testing of Small Generator Facilities

(1) IEEE 1547. An interconnection customer or applicant must construct, operate, and maintain a small generator facility and its associated interconnection equipment in compliance with IEEE 1547 and 1547.1. For purposes of OAR 860-082-0030, capitalized terms not otherwise defined in Division 082 have the meaning set forth in IEEE 1547~~-2018~~.

(a) ~~Applications to interconnect new Small generator facilities submitted on or after January 1, 2024, or a later date set by Commission order, shall comply with IEEE 1547-2018. Applications submitted before July 1, 2023 that are reviewed under Tier 4 or supplemental review may, but are not required to, comply with IEEE 1547-2018.~~ Small generator facilities compliant with IEEE 1547~~-2018~~ shall conform with the following minimum requirements:

(A) Abnormal performance requirements: Category III Ride-Through capabilities must be supported for inverter-based Small generator facilities. Rotating Small generator facilities must meet Category I Ride-Through capabilities, at minimum.

(B) Normal performance requirements: Inverter-based Small generator facilities must meet reactive power requirements of IEEE 1547~~-2018~~ Category B. Rotating Small generator facilities must meet Category A, and may meet Category B.

(C) Inverter-based interconnection equipment shall be tested to and certified as being compliant with UL 1741 Third Edition, Supplement SB, by a Nationally Recognized Test Laboratory

Commented [JU15]: As discussed in comments, the Joint Utilities recommend that this language be removed from the rules and that timing for compliance be addressed in the Commission's order. Because "IEEE 1547" is defined above to be the 2018 version, attempting to carve out compliance with 1547-2018 for a limited time through this rule creates confusion. Given that the rules are unlikely to be adopted significantly in advance of 1/1/24, including a carve out in the rules themselves seems unnecessary.

~~(NRTL)~~. Equipment that is not certified by a Nationally Recognized Test Laboratory may require additional evaluation and commissioning testing to confirm compliance with IEEE 1547~~-2018.~~

(b) Interconnection requirements handbook. Each public utility shall post an interconnection requirements handbook on its public website. Prior to revising its interconnection requirements handbook, a public utility must provide public notice and an opportunity to comment and the public utility must respond to any comments received. ~~Interconnection requirements handbooks shall be filed with the commission for public notice and comment, and commission approval by September 1, 2023. Subsequent changes to interconnection requirements handbooks shall also be filed with the commission for public notice and comment and commission approval~~

(c) Preferred default settings. A public utility shall allow s~~S~~mall generator facilities to interconnect using the public utility's preferred default settings, except when the application is reviewed under Tier 4, OAR 860-082-0060, or the application fails the Tier 1, Tier 2, or Tier 3 approval criteria in OAR 860-082-0045(2), OAR 860-082-0050(2), or OAR 860-082-0055(2). Interconnection requirements handbooks shall include preferred default settings. ~~For Small generator facilities compliant with IEEE 1547-2018 before July 1, 2023, these settings shall be determined by mutual agreement between the public utility and applicant.~~ As applicable, the following shall be identified in the interconnection requirements handbook:

(A) Voltage and frequency trip settings;

(B) Frequency droop settings;

(C) Activated reactive power control function and default settings;

(D) Voltage active power (volt-watt) mode activation and default settings; and

(E) Communication protocols and ports requirements.

(2) The applicant must provide written notice to the interconnecting public utility 10 business days before beginning operation of an approved small generator facility.

(3) Before beginning operation of a small generator facility, an interconnection customer or applicant must receive approval of the facility under the small generator interconnection rules and must execute an interconnection agreement with the interconnecting public utility. Applicants or interconnection customers are entitled to a ~~maximum~~ 20-year term for an interconnection agreement, but ~~can be~~ a different term can be mutually agreed upon between the interconnecting utility and customer.

(4) A small generator facility must be capable of being isolated from the interconnecting public utility's transmission or distribution system. An interconnection customer may not disable an isolation device without the prior written consent of the ~~interconnected~~interconnecting public utility.

(a) For a ~~S~~small generator ~~facilities~~facility interconnecting to a primary line, the interconnection customer or applicant must use a lockable, visible-break isolation device readily accessible to the public utility.

Commented [JU16]: As explained in comments, the Joint Utilities oppose a formal approval process for changes to implement these rules or future revisions. Instead, the Joint Utilities propose a notice and comment process similar to that under the OATT.

Commented [JU17]: As discussed in comments, this should be removed from the rules given that the rules will not be in effect before July 1, 2023.

(b) For a sSmall generator facilitiesfacility interconnecting to a secondary line, the interconnection customer or applicant must use a lockable isolation device that is readily accessible by the public utility. The status of the isolation device must be clearly indicated. An exception from the requirement to use a lockable isolation device is allowed for a small generator facility that has a maximum total output of 30 amperes or less; is connected to a secondary line; uses lab-tested, inverter-based interconnection equipment; and is interconnected to the distribution system through a metered service owned by the interconnectedinterconnecting public utility. In this limited case, the meter base may serve as the required isolation device if it is readily accessible to the public utility.

(A) A draw-out type circuit breaker with the provision for padlocking at the draw-out position can be considered an isolation device.

(B) The interconnection customer or applicant may elect to provide the public utility access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the public utility. The interconnection customer or applicant must provide a lockbox capable of accepting a lock provided by the public utility that provides ready access to the isolation device. The interconnection customer or customer must install the lockbox in a location that is readily accessible by the public utility and must affix a placard in a location acceptable to the public utility that provides clear instructions to utility personnel on how to access the isolation device.

(c) Other than the exception in (4)(b), all isolation devices must be installed, owned, and maintained by the interconnection customer or applicant; must be capable of interrupting the full load of the small generator facility; and must be located between the small generator facility and the point of interconnection.

(5) An interconnecting public utility must have access to an interconnection customer's or an applicant's premises for any reasonable purpose related to an interconnection application or an interconnected small generator facility. The public utility must request access at reasonable hours and upon reasonable notice. In the event of an emergency or hazardous condition, the public utility may access the interconnection customer's or applicant's premises at any time without prior notice, but the public utility must provide written notice within five business days after entering the interconnection customer's or applicant's premises that describes the date of entry, the purpose of entry, and any actions performed on the premises.

(6) When a small generator facility undergoes maintenance or testing in compliance with the small generator interconnection rules, IEEE 1547, or IEEE 1547.1, the interconnection customer must retain written records for at least seven years documenting the maintenance and the results of testing. The interconnection customer must provide copies of these records to the interconnectedinterconnecting public utility upon request.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

860-082-~~0035~~003X ""

Export Controls

(1) If a s~~S~~mall generator facility uses any configuration or operating mode in subsection (3) to limit the export of electrical power across the Point of Interconnection, then the Export Capacity shall be only the amount capable of being exported (not including any Inadvertent Export). To prevent impacts on system safety and reliability, any Inadvertent Export from a Small generator facility must comply with the limits identified in this Section. The Export Capacity specified by the interconnection customer in the application will subsequently be included as a limitation in the interconnection agreement.

(2) An a~~A~~pplication proposing to use a configuration or operating mode to limit the export of electrical power across the Point of Interconnection shall include proposed control and/or protection settings.

(3) Acceptable Export Control Methods

(a) Export Control Methods for Non-Exporting Small generator facility

(A) Reverse Power Protection (Device 32R): To limit export of power across the Point of Interconnection, a reverse power protective function is implemented using a utility grade protective relay. The default setting for this protective function shall be 0.1% (export) of the service transformer's nominal base n~~N~~ameplate power ~~R~~rating, with a maximum 2.0 second time delay to limit Inadvertent Export. When a project is located on a circuit using high speed reclosing the utility may require a maximum delay of less than 2.0 seconds to safely facilitate the reclosing.

(B) **Minimum Power Protection (Device 32F):** To limit export of power across the Point of Interconnection, a minimum import protective function is implemented utilizing a utility grade protective relay. The default setting for this protective function shall be 5% (import) of the Small generator facility's total Nameplate Rating, with a maximum 2.0 second time delay to limit Inadvertent Export. When a project is located on a circuit using high speed reclosing the utility may require a maximum delay of less than 2.0 seconds to safely facilitate the reclosing.

(C) **Relative Distributed Energy Resource Rating:** Upon utility agreement, this option requires the Small generator facility's Nameplate Rating to be so small in comparison to its host facility's minimum load that the use of additional protective functions is not required to ensure that power will not be exported to the electric distribution system. This option requires the Small generator facility's Nameplate Rating to be no greater than 50% of the interconnection customer's verifiable minimum host load during relevant hours over the past 12 months. This option is not available for interconnections to area networks or spot networks.

(b) Export Control Methods for Limited Export Small generator facility

(A) **Directional Power Protection (Device 32):** To limit export of power across the Point of Interconnection, a directional power protective function is implemented using a utility grade protective relay. The default setting for this protective function shall be the Export Capacity value, with a maximum 2.0 second time delay to limit Inadvertent Export. When a project is located on a circuit using high speed reclosing the utility may require a maximum delay of less than 2.0 seconds to safely facilitate the reclosing.

(B) **Configured Power Rating:** A reduced output power rating utilizing the power rating configuration setting may be used to ensure the Small generator facility does not generate power beyond a certain value lower than the Nameplate Rating. The configuration setting

Commented [DT*P18]: New Section

Commented [JU19]: Joint Utilities recommend checking capitalization in this new rule--there are many capitalized terms that are not defined terms.

Commented [JU20]: As explained in comments, the Joint Utilities propose the term "nameplate power rating" be applied to transformers, which are not covered by the defined term "nameplate rating."

Commented [JU21]: The Joint Utilities' language that Staff incorporated above should be added to this section as well since it also talks about 2.0 second delay.

corresponds to the active or apparent power ratings in Table 28 of IEEE Std 1547-2018, as described in subclause 10.4. A local Small generator facility communication interface is not required to utilize the configuration setting as long as it can be set by other means. The reduced power rating may be indicated by means of a Nameplate Rating replacement, a supplemental adhesive Nameplate Rating tag to indicate the reduced Nameplate Rating, or a signed attestation from the customer confirming the reduced capacity.

(c) Export Control Methods for Non-Exporting Small generator facility or Limited Export Small generator facility

(A) **Certified Power Control Systems:** Small generator facility may use certified power control systems to limit export. Small generator facility utilizing this option must use a power control system and inverter certified per UL 1741 by a nationally recognized testing laboratory ~~(NRTL)~~ with a maximum open loop response time of no more than 30 seconds to limit Inadvertent Export. Nationally recognized testing laboratory~~NRTL~~ testing to the UL Power Control System Certification Requirement Decision shall be accepted until similar test procedures for power control systems are included in a standard. This option is not available for interconnections to area networks or spot networks.

(B) **Agreed-Upon Means:** Small generator facility may be designed with other control systems and/or protective functions to limit export and Inadvertent Export if mutual agreement is reached with the Distribution Provider. The limits may be based on technical limitations of the interconnection customer's equipment or the electric distribution system equipment. To ensure Inadvertent Export remains within mutually agreed-upon limits, the interconnection customer may use an uncertified power control system, an internal transfer relay, energy management system, or other customer facility hardware or software if approved by the Distribution Provider.

860-082-0035
Cost Responsibility

(1) Study costs. Whenever a study is required under Tier 4 of the small generator interconnection rules, the applicant must pay the public utility for the reasonable costs incurred in performing the study. The public utility must base study costs on the scope of work determined and documented in the feasibility study agreement, the system impact study agreement, or the facilities study agreement, as applicable. The estimated engineering costs used in calculating study costs must not exceed $100 per hour. A public utility may adjust the $100 hourly rate once in January of each year to account for inflation and deflation as measured by the Consumer Price Index. Before beginning a study, a public utility may require an applicant to pay a deposit of up to 50 percent of the estimated costs to perform the study or $1000, whichever is less.

(2) Interconnection facilities. For interconnection review under Tier 4, a public utility must identify the interconnection facilities necessary to safely interconnect the small generator facility with the public utility's transmission or distribution system. The applicant must pay the reasonable costs of the interconnection facilities. The public utility constructs, owns, operates, and maintains the interconnection facilities.

(3) Interconnection equipment. An applicant or interconnection customer must pay all expenses associated with constructing, owning, operating, maintaining, repairing, and replacing its interconnection equipment. Interconnection equipment is constructed, owned, operated, and maintained by the applicant or interconnection customer.

(4) System upgrades. A public utility must design, procure, construct, install, and own any system upgrades to the public utility's transmission or distribution system necessitated by the interconnection of a small generator facility. A public utility must identify any adverse system impacts on an affected system caused by the interconnection of a small generator facility to the public utility's transmission or distribution system. The public utility must determine what actions or upgrades are required to mitigate these impacts. Such mitigation measures are considered system upgrades as defined in these rules. The applicant must pay the reasonable costs of any system upgrades.

(5) A public utility may not begin work on interconnection facilities or system upgrades before an applicant receives the public utility's good-faith, non-binding cost estimate and provides written notice to the public utility that the applicant accepts the estimate and agrees to pay the costs. A public utility may require an applicant to pay a deposit before beginning work on the interconnection facilities or system upgrades.

(a) If an applicant agrees to make progress payments on a schedule established by the applicant and the interconnecting public utility, then the public utility may require the applicant to pay a deposit of up to 25 percent of the estimated costs or $10,000, whichever is less. The public utility and the applicant must agree on progress billing, final billing, and payment schedules before the public utility begins work.

(b) If an applicant does not agree to make progress payments, then the public utility may require the applicant to pay a deposit of up to 100 percent of the estimated costs. If the actual costs are lower than the estimated costs, then the public utility must refund the unused portion of the deposit to the applicant within 20 business days after the actual costs are determined.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~Statutes/Other Implemented: ORS 756.040 & 756.060~~
~~History:~~

~~PUC 10-2009, f.~~ **860-082-0040**
Insurance

~~& cert. ef. 8-26-09~~
~~860-082-0040~~
~~Insurance~~

(1) A public utility may not require an applicant or an interconnection customer with a small generator facility with a nameplate ~~capacity~~rating of 200 kilowatts or less to obtain liability insurance in order to interconnect with the public utility's transmission or distribution system.

(2) A public utility may require an applicant or an interconnection customer with a small generator facility with a nameplate ~~capacity~~rating greater than 200 kilowatts to obtain prudent amounts of general liability insurance in order to interconnect to the public utility's transmission or distribution system.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~Statutes/Other Implemented: ORS 756.040 & 756.060~~
~~History:~~
~~PUC 10-2009, f.~~ **860-082-0045**
~~& cert. ef. 8-26-09~~
~~860-082-0045~~

Tier 1 Interconnection Review

(1) ~~(1)~~ A public utility must use the Tier 1 review procedures ~~for~~when an applicant submits an application to interconnect a Small generator facility that meets the following requirements:

(a) The Small generator facility must have an export capacity not greater than 25 kilowatts, a nameplate rating not greater than 50 kilowatts and use ~~lab-tested,~~a UL 1741 certified inverter~~-based interconnection equipment;~~; and

(b) The Small generator facility must ~~have a nameplate capacity of 25 kilowatts or less; and~~

~~(c) The small generator facility must~~ not be interconnected to a transmission line~~.~~, or an area network.

(2) Tier 1 Approval Criteria. A public utility must approve an application for interconnection under the Tier 1 interconnection review procedures if the Small generator facility meets the approval criteria in subsections (a) through (e). A public utility may not impose different or additional approval criteria.

(a) A Tier 1 Small generator facility interconnection must use existing public utility facilities.

(b) Substation transformer backfeed screen. Where existing protective devices and equipment cannot adequately support backfeed, the aggregated export capacity on the substation transformer must be less than 80 percent of the relevant minimum load for the substation transformer.

(c) Penetration Screen for interconnection ~~of a small generator facility~~ to a radial distribution circuit~~, the aggregated nameplate~~.

(A) If 12 months of minimum load data (including onsite load but not station service load served by the proposed Small generator facility) are available for the line section, the aggregated export capacity on the line section is less than 90 percent of the relevant minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed Small generator facility;

(B) If 12 months of minimum load data (including onsite load but not station service load served by the proposed Small generator facility) are not available for line section, the aggregated export capacity on the circuit is less than 90 percent of the relevant minimum load for the feeder;

(C) If minimum load data are not available for the line section or the circuit, the aggregated export capacity on the circuit must not exceed 15 percent of the line section annual peak load as most recently measured at the substation or calculated for the line section.

~~(c)~~(d) Network Screen. ~~Network Screen.~~ For interconnection of a Small generator facility ~~to the load side of~~ within a spot network ~~protectors, the aggregated~~, the aggregate nameplate rating ~~including the Small generator facility's nameplate capacity on the load siderating~~ may not exceed 20~~50~~ percent of the spot network ~~protectors must not exceed or area network~~'s anticipated relevant minimum load. ~~If solar energy generating facilities are used exclusively, only the anticipated daytime minimum load shall be considered.~~ The public utility may select any of the following methods to determine anticipated relevant minimum load:

(A) the spot network ~~or area network~~'s measured minimum load in the previous year, if available;

(B) five percent of ~~a~~the spot ~~network's~~network ~~or area network~~'s maximum load ~~or 50 kilowatts, whichever is less.~~in the previous year;

~~(d)~~(C) ~~the applicant's good faith estimate, if provided; or~~

(D) the public utility's good faith estimate if provided in writing to the applicant along with the reasons why the public utility considered the other methods to estimate minimum load inadequate.

(e) Single-Phase Shared Secondary Screen. For interconnection of a Small generator facility to a single-phase shared secondary line, the aggregated ~~nameplate~~export capacity on the ~~line~~shared secondary must not exceed ~~20 kilowatts~~65 percent of the transformer nameplate power rating.

~~(e)~~(f) Service Imbalance Screen. For interconnection of a single-phase Small generator facility to the center tap neutral of a 240-volt service line, the addition of the Small generator facility must not create a current imbalance between the two sides of the 240-volt service line of more than 20 percent of the nameplate power rating of the service transformer.

(3) In addition to the timelines and requirements in OAR 860-082-0025, the public utility must provide written notice to the applicant stating whether the small generator facility meets the Tier 1 approval criteria no later than 15 business days from the date a Tier 1 interconnection application is deemed complete. If a public utility does not notify an applicant whether the interconnection is approved or denied within 20 business days after the public utility notifies the applicant that the application is~~receipt of a~~ complete under OAR 860-082-0025(7),~~n application,~~ the interconnection request will be deemed approved.

(4) Interconnection after passing screens. If the proposed interconnection passes the screens, the public utility shall provide the applicant with a copy of interconnection agreement that was submitted with the Tier 1 application form, no later than five business days after approval, signed by the public utility, forming the Tier 1 interconnection agreement. ~~If the public utility does not~~

Commented [JU22]: The definition of "aggregated nameplate rating" specifically includes the proposed generator, so this language is redundant.

Commented [JU23]: As explained in comments, 50 percent is too high for a spot network.

Commented [JU24]: The eligibility section above says the generator cannot be interconnected to an area network so this reference to "area network" should be deleted.

Commented [JU25]: This language is unnecessary because "relevant minimum load" is defined in these rules to be the daytime minimum load for solar facilities.

Commented [JU26]: As explained in comments, the Joint Utilities oppose this option.

Commented [JU27]: As explained in comments, the Joint Utilities propose the term "nameplate power rating" be used here because transformers are not covered by the defined term "nameplate rating."

Commented [JU28]: Under these rules, the utility has 10 days to review an application and notify the applicant whether it's complete. The 20 business days should run from when the utility notifies that the application is complete--not initial receipt of the application.

Commented [JU29]: Requiring the utility to provide a signed copy of the "application form" creates confusion. The Joint Utilities added clarifying language to explain what the JUs understand the process is intended to be.

~~notify an applicant whether an application is approved or denied in writing within twenty business days after notification of the Tier 1 review results, the interconnection agreement signed by the applicant as part of the Tier 1 application shall be deemed effective.~~

(5) Approval despite screen failure. Despite the failure of one or more screens, the public utility, at its sole option, may approve the interconnection provided such approval is consistent with safety and reliability. If the public utility determines that the Small generator facility can be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application~~(4~~.

(6) Process after screen failure. If the public utility cannot determine that the Small generator facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, at the time the public utility notifies the applicant of the Tier 1 review results the public utility shall provide the applicant with

(a)Specific information on the reason(s) for failure in writing using a standard format approved by the Commission,

(b) An executable Supplemental Review Agreement

(c) In addition, the public utility shall allow the applicant to select one of the following, at the applicant's option:

(A) Request an applicant options meeting;

(B) Undergo supplemental review in accordance with OAR 860-082-006X;

(C) Continue evaluating the application under Tier 4.

The applicant must notify the public utility of its selection within 10 business days or the application will be deemed withdrawn.

(7) Applicant options meeting. If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a ~~mutually agreeable~~time within 15 business days of the applicant's request. At the ~~time the public utility notifies the applicant of the Tier 1 review results, the public utility shall provide the applicant the option of participating in an~~ applicant options meeting, ~~with~~ the public utility and the applicant ~~to~~may review possible Small generator facility modifications, opportunity to designate a different RPA, ~~-~~ or the screen analysis and related results, to determine what further steps are needed to permit the Small generator facility to be connected safely and reliably. ~~If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a mutually agreeable time within 15 business days of the applicant's request.~~

(8) The interconnection process is not complete until:

Commented [JU30]: As explained in comments, this sentence should be removed because it does not make sense (notification of approval and of screen results are the same thing) and because there is already a timeline for deemed approval in subsection (3) above.

Commented [JU31]: As explained in comments, the Joint Utilities rearranged the rule for clarity and to avoid repetition.

Commented [JU32]: The language of this sentence was potentially confusing with the word "offer" but also the "mutually agreeable time" requirement. The utility should be obligated to make itself available within 15 business days but cannot control whether the applicant is available and should not be in violation of the rules if the applicant is not available.

Commented [JU33]: Deleted as redundant of (6)(c)(A) above.

~~(a) The public utility approves the application;~~
~~(b~~(a) The witness test, if conducted by the public utility, is successful; and
~~(c~~

(b) The applicant and public utility execute a certificate of completion. The certificate of completion must follow the standard form certificate developed by the public utility and approved by the Commission.

~~(5) If a small generator facility is not approved under the Tier 1 interconnection review procedure, then the applicant may submit a new application under the Tier 2, Tier 3, or Tier 4 review procedures. At the applicant's request, the public utility must provide a written explanation of the reasons for denial within five business days of the request.~~

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0050~~

860-082-0050
Tier 2 Interconnection Review

(1) A public utility must use the Tier 2 interconnection review procedures ~~for~~when an applicant submits an application requesting Tier 2 review to interconnect a Small generator facility that meets the following requirements:

(a) The Small generator facility does not qualify for ~~or failed to meet~~ the Tier 1 interconnection review ~~requirements~~;

(b) If the Small generator facility ~~must have a nameplate capacity of two megawatts or less;~~

~~(c)~~ is inverter-based, the Small generator ~~facility must be interconnected to either a radial distribution circuit or a spot network distribution circuit limited to serving one customer;~~facility's export capacity does not exceed the limits identified in the table below, which vary according to the voltage of the line at the proposed point of interconnection.

Line Voltage	Export Capacity for Tier 2 Eligibility	
	Regardless of location	On > 600 amp line and < 2.5 line miles from substation
< 5 kV	< 1 MW	< 2 MW
5 kV – 14 kV	< 2 MW	< 3 MW
15 kV – 30 kV	< 3 MW	< 4 MW
31 kV – 69 kV	< 4 MW	< 5 MW

Commented [JU34]: The Joint Utilities added "line" to ensure clarity.

Small generator facilit~~y~~ies, which are inverter-based, located within 2.5 line miles of a substation and on a main distribution line with minimum 600-amp capacity are eligible for Tier 2 interconnection under higher thresholds;

(c) If the Small generator facility is not inverter-based, the Small generator facility's export capacity is two megawatts or less;

(d) The Small generator facility must not ~~be interconnected~~interconnect to a transmission line, or area network; and

(e) The Small generator facility must use interconnection equipment that is either lab-tested equipment or field-tested equipment. For equipment to gain status as field-tested equipment, the applicant must provide all the documentation from the prior ~~Tier 4 study, review, and~~ utility approval~~,~~ including any interconnection studies and the certificate of completion.

Commented [JU35]: The Joint Utilities added "utility" to clarify what approval this refers to.

(2) Tier 2 Approval Criteria. A public utility must approve an application to interconnect a Small generator facility under the Tier 2 interconnection review procedures if the facility meets the approval criteria in subsections (a) through (l). A public utility may not impose different or additional approval criteria.

(a) Substation transformer backfeed screen. Where existing protective devices and equipment cannot adequately support backfeed, the aggregated export capacity on the substation transformer must be less than 80 percent of the relevant minimum load for the substation transformer.

(b) Penetration Screen for interconnection ~~of a small generator facility~~ to a radial distribution circuit~~, the aggregated nameplate~~.

(A) If 12 months of minimum load data (including onsite load but not station service load served by the proposed Small generator facility) are available for the line section, the aggregated export capacity on the line section is less than 90 percent of the relevant minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed Small generator facility;

(B) If 12 months of minimum load data (including onsite load but not station service load served by the proposed Small generator facility) are not available for line section, the aggregated export capacity on the circuit is less than 90 percent of the relevant minimum load for the feeder;

(C) If minimum load data are not available for the line section or the circuit, the aggregated export capacity on the circuit must not exceed 15 percent of the line section annual peak load as most recently measured at the substation or calculated for the line section.

~~(b)~~(c) Network Screen. For interconnection of a Small generator facility ~~to the load side of~~within a spot network ~~protectors, the aggregated nameplate capacity on the load side of the spot network protectors~~, the aggregate nameplate rating may not exceed 20 percent of the spot network's anticipated relevant minimum load.~~Small generator facility must not exceed the lesser of five~~be ~~inverter-based and use a minimum import relay or other protective scheme that will ensure that power imported from the public utility to the network will, during normal public utility operations remain above one percent of a spot network's~~the network's ~~maximum load or 50~~

Commented [JU36]: As explained in comments, the Joint Utilities propose mirroring the Tier 1 network screen (as revised by the Joint Utilities) in Tier 2.

~~kilowattsover the past year or will remain above a point reasonably set by the public utility in good faith. At the public utility's discretion, the requirement for minimum import relays or other protective schemes may be waived.~~ The public utility may select any of the following methods to determine anticipated minimum load:

(A) the spot network's measured minimum load in the previous year, if available;

(B) five percent of the spot network's maximum load in the previous year;

or

(C) the public utility's good faith estimate if provided in writing to the applicant along with the reasons why the public utility considered the other methods to estimate minimum load inadequate.

~~(c) The aggregated nameplate capacity must~~(d) Fault Current Screen. The Small generator facility, aggregated with other generation on the distribution circuit, will not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the primary voltage distribution line nearest the point of interconnection.

(~~d~~)e) Short-Circuit Interrupting Capability Screen. The ~~Small generator facility, aggregated nameplate capacitywith other generation~~aggregated nameplate rating on the distribution circuit must not cause any distribution protective devices and equipment (including substation breakers, fuse cutouts, and line reclosers) or other public utility equipment on the transmission or distribution system to be exposed to fault currents exceeding 90 percent of the short circuit interrupting capability. The Small generator facility's point of interconnection must not be located on a circuit that already exceeds 90 percent of the short circuit interrupting capability.

Commented [JU37]: This should reference the defined term "aggregated nameplate rating" because that is what it is describing.

~~(e) The aggregated nameplate capacity on~~(f) Transient Stability Screen. The Small generator facility's nameplate rating, in aggregate with other Small generator facilities interconnected to the distribution side of a substation transformer feeding the circuit where the Small generator facility proposes to interconnect must not exceed 10 megawatts in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (for example, three or four distribution busses from the point of interconnection).

~~(f) If~~(g) Line Configuration Screen. Using the ~~small generator facility~~table below, determine the type of interconnection ~~is~~ to a primary ~~line on the~~ distribution ~~system, then~~line. This screen includes a review of the ~~interconnection must meet~~ type of electrical service provided to the ~~following criteria:~~

~~(A) If the small generator facility is three-phase or single-phase~~small generator facility~~project~~, including line configuration and ~~will be connected to a three-phase, three-wire primary line, then~~the transformer connection to limit the ~~small generator facility must be connected phase-to-phase.~~

~~(B) If the small generator facility is three-phase or single-phase and will be connected~~potential for creating over-voltages on the interconnecting public utility's electric power system due to a ~~three-phase, four-wire primary line, then~~loss of ground during the ~~small generator facility must be connected line-to-neutral and effectively grounded.~~operating time of any anti-islanding function

~~(g)~~

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line Required To Pass Screen
Three-phase, three-wire	~~Ungrounded on primary or any type on secondary~~Interface connection transformer high side is phase-to-phase
Three-phase, four-wire	Interface connection transformer high side is: • Single-phase line-to-neutral • Three phase line-to-neutral and effectively grounded
Three-phase, ~~four-wire or~~ mixed three-wire and four-wire	For inverter-based generation: • The small generator facility uses medium voltage sensing for voltage protection with preferred default settings found in the interconnection requirements handbook. OR: Where appropriate, the utility may extend the neutral wire to the point of interconnection to treat the small generator facility as an interconnection to a three-phase, four-wire system. ~~interface connection transformer is Yg-yg, or the small generator facility is on a mixed three-wire/four-wire line and uses medium voltage sensing for voltage protection with preferred default settings found in the interconnection requirements handbook.~~ ~~For rotating generation: connected line-to-neutral and effectively grounded.~~

Commented [JU38]: The Joint Utilities propose additional revisions to the screen for the reasons explained in comments.

Commented [DT*P39]: The Line Configuartion Screen presented here is still under discussion and may have additional edits.

(h) Single-Phase Shared Secondary Screen. For interconnection of a Small generator facility to a single-phase shared service line on the transmission or distribution system, the aggregated ~~nameplate~~export capacity on the shared secondary ~~line~~ must not exceed ~~20 kilowatts~~65 percent of the transformer nameplate power rating.

~~(h)~~(i) Service Imbalance Screen. For interconnection of a single-phase Small generator facility to the center tap neutral of a 240-volt service line, the addition of the Small generator facility must not create a current imbalance between the two sides of the 240-volt service line of more than 20 percent of the nameplate power rating of the service transformer.

(~~i~~j) Except as provided in subsection (~~2~~4)(~~l~~), the interconnection of the Small generator facility must not require system upgrades or interconnection facilities different from or in addition to the applicant's proposed interconnection equipment.

~~(j) The aggregated nameplate capacity, in combination with exiting transmission loads, must not cause the transmission system circuit directly connected to the distribution circuit where the small generator facility interconnection is proposed to exceed its design capacity.~~

(k) If the public utility's distribution circuit uses high speed reclosing with less than two seconds of interruption, then the Small generator facility must not be a synchronous machine. If the Small generator facility is a synchronous machine, then the applicant must submit a Tier 4 application.

~~(l) If the small generator facility fails to meet one or more of the criteria in subsections (2)(a) through (k), but the public utility determines that the small generator facility could be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications.~~ (l) Inadvertent Export Screen. For interconnection of a proposed Small generator facility that can introduce inadvertent export, where the nameplate rating minus the export capacity is greater than 250 kilowatts, the following inadvertent export screen is required. With a power change equal to the nameplate rating minus the export capacity, the change in voltage at the point on the medium voltage (primary) level nearest the point of interconnection does not exceed three percent. Voltage change will be estimated applying the following formula:

$$\frac{(R_{SOURCE} \times \Delta P) - (X_{SOURCE} \times \Delta Q)}{V^2}$$

Where:

$$\Delta P = (\text{DER apparent power Nameplate Rating} - \text{Export Capacity}) \times PF,$$

$$\Delta Q = (\text{DER apparent power Nameplate Rating} - \text{Export Capacity}) \times \sqrt{(1 - PF^2)},$$

R_{SOURCE} is the grid resistance, X_{SOURCE} is the grid reactance, V is the grid voltage, PF is the power factor

~~Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application under Tier 2.~~

(3) Timelines. In addition to the timelines and requirements in OAR 860-082-0025, and if a net metering facility OAR 860-039, the following timelines and requirements apply to Tier 2 interconnection reviews:

Commented [JU40]: This cross-reference should be to subsection (4) "Approval Despite Screen Failure".

~~(a) A public utility must schedule a scoping meeting within 10 business days after notifying an applicant that its application is complete. The public utility and the applicant may agree to waive the scoping meeting requirement.~~

~~(b~~(a) Within 20 business days after a public utility notifies an applicant that its application is complete~~ or a scoping meeting is held, whichever is later~~, the public utility must:

(A) Evaluate the application using the Tier 2 approval criteria in section (2);

(B) Review any independent analysis of the proposed interconnection provided by the applicant that was performed using the Tier 2 approval criteria; and

(C) Provide written notice to the applicant stating whether the public utility approved the application. If the proposed interconnection passes the screens, the public utility shall provide the applicant an ~~executed~~executable interconnection agreement within five days of the screen results. If applicable, the public utility must include a comparison of its evaluation to the applicant's independent analysis.

Commented [JU41]: As explained in comments, the Joint Utilities propose that only an executable IA be required.

~~(4~~(4) Approval despite screen failure. Despite the failure of one or more screens, the public utility, at its sole option, may approve the interconnection provided such approval is consistent with safety and reliability. If the public utility determines that the Small generator facility could be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application.

(5) Process after screen failure. If the public utility cannot determine that the Small generator facility may nevertheless be interconnected consistent with safety and reliability standards, at the time the public utility notifies the applicant of the Tier 2 review results the public utility shall provide the applicant with:

(a)Specific information on the reason(s) for failure in writing using a standard format approved by the Commission,

(b) An executable Supplemental Review Agreement

(c) In addition, the public utility shall allow the applicant to select one of the following, at the applicant's option:

(A) Request an applicant options meeting;

(B) Undergo supplemental review in accordance with OAR 860-082-006X;

(C) Continue evaluating the application under Tier 4.

The applicant must notify the public utility of its selection within 10 business days or the application will be deemed withdrawn.

(6) Applicant options meeting. If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a ~~mutually agreeable~~ time within 15 business days of the applicant's request. At the ~~time the public utility notifies the applicant of the Tier 2 review results, the public utility shall provide the applicant the option of participating in an~~ applicant options meeting, ~~with~~ the public utility and the applicant may~~to~~ review possible Small generator facility modifications or the screen analysis, opportunity to designate a different RPA, and related results, to determine what further steps are needed to permit the Small generator facility to be connected safely and reliably. ~~If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a mutually agreeable time within 15 business days of the applicant's request.~~

(7) The interconnection process is not complete until:

(a) The public utility approves the application;

(b) Any minor modifications to the transmission or distribution system required under subsection (~~2)(~~4) are complete;

(c) The witness test, if conducted by the public utility, is successful; and

(d) The applicant and public utility execute a certificate of completion. The certificate of completion must follow the standard form certificate developed by the public utility and approved by the Commission.

~~(5) If a small generator facility is not approved under the Tier 2 interconnection review procedure, then the applicant may submit a new application under the Tier 3 or Tier 4 review procedures. At the applicant's request, the public utility must provide a written explanation of the reasons for denial within five business days of the request.~~

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0055~~

860-082-0055
Tier 3 Interconnection Review

(1) A public utility must use the Tier 3 interconnection review procedures ~~for~~when an applicant submits an application requesting Tier 3 review to interconnect a Small generator facility that meets the following requirements:

(a) The Small generator facility ~~does not qualify for or failed to meet the Tier 1 or Tier 2 interconnection review requirements;~~

~~(b) The small generator facility~~ must have a nameplate ~~capacity~~rating of 10 megawatts or less;

(b) The Small generator facility must not be connected to a transmission line;

(c) The Small generator facility must not ~~be connected to a transmission line;~~

~~(d) The small generator facility must not~~ export power beyond the point of interconnection; and

Commented [JU42]: Please see explanatory comments re changes above in Tier 1.

(~~e~~d) The Small generator facility must use low forward power relays or other protection functions that prevent power flow onto the area network.

(2) Tier 3 Approval Criteria. A public utility must approve an application to interconnect a Small generator facility under the Tier 3 interconnection review procedures if the Small generator facility meets the Tier 2 approval criteria in OAR 860 082 0050(2)(a~~) (h), (j)~~), (b), (i), and the additional approval criteria in subsections (a), (b), or (c) of this section. A public utility may not impose different or additional approval criteria.

(a) For a Small generator facility to interconnect to the load side of an area network distribution circuit, the small generator facility must meet the following criteria:

(A) The nameplate ~~capacity~~rating of the Small generator facility must be 50 kilowatts or less;

(B) The Small generator facility must use lab-tested, inverter-based interconnection equipment;

(C) The aggregated nameplate ~~capacity~~rating on the area network must not exceed five percent of an area network's maximum load or 50 kilowatts, whichever is less; and

(D) Except as allowed in subsection (2)(c), the interconnection of the Small generator facility must not require system upgrades or interconnection facilities different from or in addition to the applicant's proposed interconnection equipment.

(b) For a Small generator facility to interconnect to a distribution circuit that is not networked, the small generator facility must meet the following criteria:

(A) The ~~small generator facility must have a nameplate capacity of 10 megawatts or less;~~

~~(B) The~~ aggregated nameplate ~~capacity~~rating on the circuit must be 10 megawatts or less;

~~(C) The small generator facility must not export power beyond the point of interconnection;~~

~~(D~~(B) The Small generator facility's point of interconnection must be to a radial distribution circuit;

(~~E~~C) The Small generator facility must not be served by a shared transformer;

(~~F~~D) Except as allowed in subsection (2)(c), the interconnection of the Small generator facility must not require system upgrades or interconnection facilities different from or in addition to the applicant's proposed interconnection equipment; and

(~~G~~E) If the public utility's distribution circuit uses high speed reclosing with less than two seconds of interruption, then the Small generator facility must not be a synchronous machine. If the Small generator facility is a synchronous machine, then the applicant must submit a Tier 4 application.

(c) If the Small generator facility fails to meet one or more of the Tier 3 approval requirements, but the public utility determines that the Small generator facility could be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000.

If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application under Tier 3.

(3) In addition to the timelines and requirements in OAR 860-082-0025, the following timelines and requirements apply to Tier 3 interconnection reviews:

(a) An interconnecting public utility must schedule a scoping meeting within 10 business days after notifying an applicant that its application is complete. The ~~public utility and the~~ applicant may agree to waive the scoping meeting requirement.

(b) Within 20 business days after a public utility notifies an applicant its application is complete or a scoping meeting is held, whichever is later, the public utility must:

(A) Evaluate the application using the Tier 3 approval criteria;

(B) Review any independent analysis of the proposed interconnection provided by the applicant that was performed using the Tier 3 approval criteria; and

(C) Provide written notice to the applicant stating whether the public utility approved the application. If the proposed interconnection passes the screens, the public utility shall provide the applicant an executable~~ed~~ interconnection agreement within five days of the screen results. If applicable, the public utility must include a comparison of its evaluation to the applicant's independent evaluation.

Commented [JU43]: As explained in comments, the Joint Utilities propose that only an executable IA be required.

~~(4~~(4) Approval despite screen failure. Despite the failure of one or more screens, the public utility, at its sole option, may approve the interconnection provided such approval is consistent with safety and reliability.

(5) Process after screen failure. If the public utility cannot determine that the Small generator facility may nevertheless be interconnected consistent with safety and reliability standards, at the time the public utility notifies the applicant of the Tier 3 review results the public utility shall provide the applicant with:

(a)Specific information on the reason(s) for failure in writing using a standard format approved by the Commission,

(b) An executable Supplemental Review Agreement

(c) In addition, the public utility shall allow the applicant to select one of the following, at the applicant's option:

(A) Request an applicant options meeting;

(B) Undergo supplemental review in accordance with OAR 860-082-006X;

(C) Continue evaluating the application under Tier 4.

The applicant must notify the public utility of its selection within 10 business days or the application will be deemed withdrawn

(6) Applicant options meeting. If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a ~~mutually agreeable~~ time within 15 business days of the applicant's request. At the ~~time the public utility notifies the applicant of the Tier 3 review results, the public utility shall provide the applicant the option of participating in an~~ applicant options meeting, ~~with~~ the public utility and the applicant may~~to~~ review possible Small generator facility modifications, opportunity to designate a different RPA, or the screen analysis and related results, to determine what further steps are needed to permit the Small generator facility to be connected safely and reliably. ~~If the applicant requests an applicant options meeting, the public utility shall offer to convene a meeting at a mutually agreeable time within 15 business days of the applicant's request.~~

(7) The interconnection process is not complete until:

(a) The public utility approves the application;

(b) Any minor modifications to the transmission or distribution system required under subsection (2)(c) are complete;

(c) The witness test, if conducted by the public utility, is successful; and

(d) The applicant and public utility execute a certificate of completion. The certificate of completion must follow the standard form certificate developed by the public utility and approved by the Commission.

~~(5) If a small generator facility is not approved under the Tier 3 interconnection review procedures, then the applicant may submit a new application under the Tier 4 review procedures. At the applicant's request, the public utility must provide a written explanation of the reasons for denial within five business days of the request.~~

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0060~~

860-082-0060
Tier 4 Interconnection Review

(1) A public utility must use the Tier 4 interconnection review procedures ~~for~~when an applicant submits an application requesting Tier 4 review to interconnect a small generator facility ~~that meets~~meeting the following ~~requirements~~:

(a) The small generator facility ~~does not qualify for or failed to meet the Tier 1, Tier 2, or Tier 3 interconnection review requirements; and~~

~~(b) The small generator facility~~ must have a nameplate ~~capacity~~rating of 10 megawatts or less.

(b) An applicant whose Tier 1, Tier 2, or Tier 3 application was denied may request that the public utility treat that existing application already in the public utility's possession as a new Tier 4 application. Within ten business days of receipt of the applicant's request to use the existing application, the public utility shall transfer ~~of~~ the existing application to the Tier 4 process and

Commented [JU44]: Please see explanatory comments re changes in Tier 1.

notify the applicant whether or not the application is complete. If the application is incomplete, the public utility shall provide a written list detailing all information that the applicant must provide to complete the application. The applicant will have ten business days after receipt of the list to submit the listed information. Otherwise, the application will be deemed withdrawn. The public utility shall notify the applicant within ten business days of receipt of the revised application whether the revised application is complete or incomplete. The public utility may deem the application withdrawn if it remains incomplete.

(2) A public utility must approve an application to interconnect a small generator facility under the Tier 4 interconnection review procedures if the public utility determines that the safety and reliability of the public utility's transmission or distribution system will not be compromised by interconnecting the small generator facility. The applicant must pay the reasonable costs of any interconnection facilities or system upgrades necessitated by the interconnection.

(3) In addition to the timelines and requirements in OAR 860-082-0025, the timelines and requirements in sections (5) through (12) of this rule apply to Tier 4 interconnection reviews.

(4) A public utility and an applicant may agree to waive the requirement for a scoping meeting~~, the feasibility study,~~ the system impact study, or the facilities study. The applicant may waive the requirement for a feasibility study.

(5) A public utility must schedule a scoping meeting within 10 business days after notifying an applicant that its application is complete.

(a) The public utility and the applicant must bring to the scoping meeting all personnel, including system engineers, as may be reasonably required to accomplish the purpose of the meeting.

(b) The public utility and applicant must discuss whether the public utility should perform a feasibility study or proceed directly to a system impact study, a facilities study, or an interconnection agreement.

(c) If the public utility determines that no studies are necessary, then the public utility must ~~approve the application~~send the applicant an executable~~ed~~ interconnection agreement within 15 business days of the scoping meeting if:

Commented [JU45]: As explained in comments, the Joint Utilities propose that only an executable IA be required.

(A) The application meets the criteria in section (2); and

(B) The interconnection of the small generator facility does not require system upgrades or interconnection facilities different from or in addition to the applicant's proposed interconnection equipment.

(d) If the public utility determines that no studies are necessary and that the small generator facility could be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must ~~approve the application~~send the applicant an executed interconnection agreement

within 15 business days of receipt of the applicant's agreement to pay for the minor modifications.

(6) If ~~a public utility reasonably concludes that an adequate evaluation of an application requires~~the applicant requests a feasibility study, ~~then~~ the public utility must provide the applicant with an executable feasibility study agreement within five business days of the date of the scoping meeting.

(a) The feasibility study agreement must include a detailed scope for the feasibility study, a reasonable schedule for completion of the study, and a good-faith, non-binding estimate of the costs to perform the study.

(b) The feasibility study agreement must follow the standard form agreement developed by the public utility and approved by the Commission.

(c) The applicant must execute the feasibility study agreement within 15 business days of receipt of the agreement or the application is deemed withdrawn.

(d) The public utility must make reasonable, good-faith efforts to follow the schedule set forth in the feasibility study agreement for completion of the study.

(e) The feasibility study must identify any potential adverse system impacts on the public utility's transmission or distribution system or an affected system that may result from the interconnection of the small generator facility. In determining possible adverse system impacts, the public utility must consider the aggregated nameplate rating or~~and~~ export capacity when applicable, of all generating facilities that, on the date the feasibility study begins, are directly interconnected to the public utility's transmission or distribution system, have a pending completed application to interconnect with a higher queue position, or have an executed interconnection agreement with the public utility.

Commented [JU46]: Consistent with subsection (7)(f) below, the Joint Utilities revised "and" to "or".

(f) The public utility must evaluate multiple potential points of interconnection at the applicant's request. The applicant must pay the costs of this additional evaluation.

(g) The public utility must provide a copy of the feasibility study to the applicant within five business days of the study's completion.

(h) If the feasibility study identifies any potential adverse system impacts, then the public utility must perform a system impact study.

(i) If the feasibility study does not identify any adverse system impacts, then the public utility must perform a facilities study if the public utility reasonably concludes that a facilities study is necessary to adequately evaluate the application.

(A) If the public utility concludes that a facilities study is not required, then the public utility must approve the application ~~with 15 business days of completion of the feasibility study~~ if the application meets the criteria in section (2) and the interconnection of the small generator facility does not require system upgrades or interconnection facilities different from or in addition to the applicant's proposed interconnection equipment.

(B) If the public utility concludes that a facilities study is not required and that the small generator facility could be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application ~~within 15 business days of receipt of the applicant's agreement to pay for the minor modifications~~.

(7) If a public utility is required to perform a system impact study under subsection (6)(h), or if an applicant and a public utility agree in the scoping meeting to waive the feasibility study and proceed directly to the system impact study, then the public utility must provide the applicant with an executable system impact study agreement within five business days of completing the feasibility study or from the date of the scoping meeting, whichever is applicable.

(a) The system impact study agreement must include a detailed scope for the system impact study, a reasonable schedule for completion of the study, and a good-faith, non-binding estimate of the costs to perform the study.

(b) The system impact study agreement must follow the standard form agreement developed by the public utility and approved by the Commission.

(c) The applicant must execute the system impact study agreement within 15 business days of receipt of the agreement or the application is deemed withdrawn.

(d) The public utility must make reasonable, good-faith efforts to follow the schedule set forth in the system impact study agreement for completion of the study.

(e) The system impact study must identify and detail the impacts on the public utility's transmission or distribution system or on an affected system that would result from the interconnection of the small generator facility if no modifications to the small generator facility or system upgrades were made. The system impact study must include evaluation of the adverse system impacts identified in the feasibility study and in the scoping meeting.

(f) In determining possible adverse system impacts, the public utility must consider the aggregated nameplate rating, or export capacity when applicable, of all generating facilities that, on the date the system impact study begins, are directly interconnected to the public utility's transmission or distribution system, have a pending completed application to interconnect with a higher queue position, or have an executed interconnection agreement with the public utility. ~~The system impact study must take into account the proposed small generator facility's design and operating characteristics, including but not limited to the proposed operating profile, and study the small generator facility according to how it is proposed to be operated.~~ If the small generator facility limits export pursuant to OAR 860-082-003X, the system impact study must use export capacity instead of the nameplate rating, except when assessing fault current contribution. To assess fault current contribution, the system impact study may~~ust~~ use the rated fault current if the customer provides the relevant information; for example, the customer may provide

Commented [JU47]: As discussed in comments, the Joint Utilities oppose this addition because this issue has not been discussed in workshops to-date and requires further discussion in a later phase to understand how it could be implemented and explore potential implications.

Commented [JU48]: As discussed in comments, the utility should not be required to locate or develop the data if the customer does not provide it.

manufacturer test data (pursuant to the fault current test described in IEEE 1547.1-2020 clause 5.18) showing that the fault current is independent of the nameplate rating.

(g) The system impact study must include:

(A) A short circuit analysis;

(B) A stability analysis;

(C) A power flow analysis;

(D) Voltage drop and flicker studies;

(E) Protection and set point coordination studies;

(F) Grounding reviews;

(G) The underlying assumptions of the study;

(H) The results of the analyses; and

(I) Any potential impediments to providing the requested interconnection service.

(h) If an applicant provides an independent system impact study to the public utility, then the public utility must evaluate and address any alternative findings from that study.

(i) The public utility must provide a copy of the system impact study to the applicant within five business days of completing the study.

(j) If a public utility determines in a system impact study that interconnection facilities or system upgrades are necessary to safely interconnect a small generator facility, then the public utility must perform a facilities study.

(k) If the public utility determines that no interconnection facilities or system upgrades are required, and the public utility concludes that the application meets the criteria in section (2), then the public utility must approve the application with 15 business days of completion of the system impact study.

(l) If the public utility determines that no interconnection facilities or system upgrades are required and that the small generator facility could be interconnected safely if minor modifications to the transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the public utility must offer the applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are not considered minor under this subsection if the total cost of the modifications exceeds $10,000. If the applicant authorizes the public utility to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the public utility must approve the application within 15 business days of the applicant's agreement to pay for the minor modifications.

(8) If a public utility is required to perform a facilities study under subsection (6)(i) or 7(j), or if an applicant and a public utility agree in the scoping meeting to waive the system impact study and proceed directly to the facilities study, then the public utility must provide the applicant with

an executable facilities study agreement within five business days of completing the system impact study or within five business days from the date of the scoping meeting, whichever is applicable.

(a) The facilities study agreement must include a detailed scope for the facilities study, a reasonable schedule for completion of the study, and a good-faith, non-binding estimate of the costs to perform the study.

(b) The facilities study agreement must follow the standard form agreement developed by the public utility and approved by the Commission.

(c) The applicant must execute the interconnection facilities study agreement within 15 business days after receipt of the agreement or the application is deemed withdrawn.

(d) The public utility must make reasonable, good-faith efforts to follow the schedule set forth ~~in the~~infacilities study shall be completed within 45 business days of the applicant's delivery of the executed facilities study agreement ~~for completion of the study~~.

Commented [JU49]: Based on communications with Staff, the Joint Utilities understand that this redline is a relic and that Staff does not intend to propose this change to the rules.

(e) The facilities study must identify the interconnection facilities and system upgrades required to safely interconnect the small generator facility and must determine the costs for the facilities and upgrades, including equipment, engineering, procurement, and construction costs. Design for any required interconnection facilities or system upgrades must be performed under the facilities study agreement. The public utility must also identify the electrical switching configuration of the equipment, including transformer, switchgear, meters, and other station equipment.

(f) The public utility may contract with a third-party consultant to complete the interconnection facilities and system upgrades identified in the facilities study. A public utility and an applicant may agree in writing to allow the applicant to hire a third-party consultant to complete the interconnection facilities and system upgrades, subject to public utility oversight and approval.

(g) The interconnection facilities study must include a detailed estimate of the time required to procure, construct, and install the required interconnection facilities and system upgrades.

(h) If the applicant agrees to pay for the interconnection facilities and system upgrades identified in the facilities study, then the public utility must approve the application ~~within 15 business days of the applicant's agreement~~.

(9) The public utility may contract with a third-party consultant to complete a feasibility study, system impact study, or facilities study. A public utility and an applicant may agree in writing to allow the applicant to hire a third-party consultant to complete a feasibility study, system impact study, or facilities study, subject to public utility oversight and approval.

(10) The interconnection process is not complete until:

(a) The public utility approves the application;

(b) Any interconnection facilities or system upgrades have been completed;

(c) Any minor modifications to the public utility's transmission or distribution system required under subsections (5)(d), 6(i)(B), or (7)(l) have been completed;

(d) The witness test, if conducted by the public utility, is successful; and

(e) The applicant and public utility execute a certificate of completion.

(11) If a small generator facility is not approved under the Tier 4 interconnection review procedures, then the public utility must provide a written explanation of the denial to the applicant.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

860-082-~~0065~~006X
Supplemental Review

(1) To accept the offer of a Supplemental Review, the a~~A~~pplicant shall submit a signed copy of the Supplemental Review Agreement and pay a Supplemental Review fee of $1,000, both within ten (10) b~~B~~usiness days of the offer. If the written agreement and fee have not been received within that timeframe, the a~~A~~pplication shall be deemed withdrawn unless the Applicant has notified the u~~U~~tility that they wish to continue being evaluated~~-~~ under the Tier 4 review procedures.

(2) Within twenty (20) Business Days of an Applicant's election to undergo Supplemental Review, the Utility shall perform Supplemental Review using the screens set forth below, notify the Applicant of the results, and include with the notification a written report of the analysis and data underlying the Utility's determinations under the screens.

(a) Supplemental Review Penetration Screen: Where 12 months of Line Section minimum load data (including onsite load but not station service load served by the proposed Small generator facility) are available, can be calculated, can be estimated from existing data, or determined from a power flow model, the aggregated Export Capacity on the feeder or line section is less than 90~~100~~ percent of the relevant minimum load on the feeder. If minimum load data is not available, or cannot be calculated, estimated, or determined, the aggregated Export Capacity ~~of the Project, aggregated with the Export Capacity of other Projects~~ on the Line Section~~,~~ is less than 15~~30~~ percent of the peak load for all Line Sections bounded by automatic sectionalizing devices upstream of the proposed Project.

~~The type of Project used by the proposed Project will be taken into account when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application this screen. Solar photovoltaic (PV) Projects with no battery storage use daytime minimum load (i.e. 10 a.m. to 4 p.m. for fixed panel systems and 8 a.m. to 6 p.m. for PV systems utilizing tracking systems), while all other Projects use absolute minimum load.~~

Commented [JU50]: The Joint Utilities recommend that capitalization and terminology throughout this rule be standardized with the rest of the rules. For example "Project" is not a defined term and should reference "small generator facility."

Commented [JU51]: As discussed in comments, the Joint Utilities continue to advocate for a 90 percent screen.

Commented [JU52]: If the Joint Utilities' 90 percent recommendation is accepted, this value should be changed from 30 to 15 percent, which is more similar to 90 percent.

Commented [JU53]: This language is unnecessary given the that "relevant minimum load" is a defined term that says daytime minimum load should be used for solar facilities.

(A) Load that is co-located with load-following, non-exporting or export-limited ~~Projects~~small generator facilities should be appropriately accounted for. The utility may take the impacts of non-export or export limited generation on the calculation of daytime minimum load, when evaluating potential system impacts.

(B) The Interconnecting Utility will not consider as part of the aggregated Export Capacity for purposes of this screen the export capacity of generators known to be already reflected in the minimum load data ~~Project Export Capacity~~, including combined heat and power (CHP) facility capacity ~~and behind-the-meter or net-metered capacity, known to be already reflected in the minimum load data~~.

Commented [JU54]: As explained in comments, the Joint Utilities propose changes to this language.

(b) Voltage and Power Quality Screen. In aggregate with existing generation on the Line Section:

(A) The voltage regulation on the Line Section can be maintained in compliance with relevant requirements under all system conditions;

(B) The voltage fluctuation is within acceptable limits as defined by IEEE ~~Std~~ 1547™;

(C) The harmonic levels meet IEEE ~~Std~~ 1547™ limits at the Point of Interconnection; and

(D) Substation transformer backfeed screen. Where existing protective devices and equipment cannot adequately support backfeed, the aggregated export capacity on the substation transformer must be less than 80 percent of the relevant minimum load for the substation transformer.

(E) Supplemental Grounding Screen: If the ~~Project~~small generator facility failed the Line Configuration Screen in OAR 860-082-0050(2)(g), apply this Supplemental Grounding Screen:

ii. For ~~Projects~~small generator facilities with a rotating machine, if effective grounding is maintained the ~~Project~~small generator facility passes the screen.

iii. For ~~Projects~~small generator facilities with a three-phase inverter, apply one of the following screens:

I. If the Line-to-Neutral connected load on the feeder or line section is greater than 33% of peak load on the feeder or line-section, the ~~Project~~small generator facility passes the screen.

II. If using a supplemental grounding software tool:

1. If the tool determines that supplemental grounding is not required to maintain effective grounding, the ~~Project~~small generator facility passes this screen.

2. If the tool determines that supplemental grounding is required, the Applicant must agree to modify the ~~Project~~small generator facility to include

supplemental grounding. If the Applicant does not agree to modify the ~~Project~~small generator facility, the ~~Project~~small generator facility fails this screen.

iv. If using detailed hosting capacity analysis that incorporates evaluation of temporary overvoltage risk for inverters: the ~~Project~~small generator facility passes the screen if the Nameplate Rating of the ~~Project~~small generator facility is below the available hosting capacity at the Point of Interconnection.

If the ~~Project~~small generator facility limits export pursuant to Section 860-082-003X , the Export Capacity must be included in any analysis including power flow simulations.

(c).Safety and Reliability Screen. The location of the proposed Small generator facility and the aggregated Export Capacity on the Line Section do not create impacts to safety or reliability that cannot be adequately addressed without application of the Study Process. If the Project limits export pursuant to OAR 860-082-003X, the Export Capacity must be included in any analysis including power flow simulations, except when assessing fault current contribution. To assess fault current contribution, the analysis must use the Rated Fault Current; for example, the ~~Interconnection Requestor~~applicant may provide manufacturer test data (pursuant to the fault current test described in IEEE 1547.1~~-2020~~ clause 5.18) showing that the fault current is independent of the Nameplate Rating. The Interconnecting Utility may consider the following factors and others in determining potential impacts to safety and reliability in applying this screen:

(A) Whether the Line Section has significant minimum loading levels dominated by a small number of customers (i.e., several large commercial customers).

(B) Whether the loading along the Line Section is uniform or even.

(C) Whether the ~~Project~~small generator facility is located in close proximity to the substation (i.e., less than 2.5 ~~electrical circuit~~line miles), and whether the Line Section from the substation to the Point of Interconnection is a m~~M~~ainline rated for normal and emergency ampacity.

Commented [JU55]: This is not a defined term, and it does not need to be.

(D) Whether the ~~Project~~small generator facility incorporates an adjustable time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time.

(E) Whether operational flexibility is reduced by the ~~Project~~small generator facility, such that transfer of the Line Section(s) of the ~~Project~~small generator facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues.

(F) Whether the ~~Project~~small generator facility employs equipment or systems certified by a recognized standards organization to address technical issues such as, but not limited to, islanding, reverse power flow, or voltage quality.

(3) If the proposed interconnection passes the supplemental screens, the Application shall be approved and the Utility will provide the Applicant an executable Interconnection

Agreement pursuant to the procedure set forth in OAR 860-082-0025(7)(e).

(4) After receiving an Interconnection Agreement ~~executed by the Utility~~, the Applicant shall proceed under the terms of the applicable level of review under which the Application was initially studied.

(5) Applicants undergoing Supplemental Review will be able to access, review, and verify minimum load calculations except in cases where the minimum load data contains identifiable individual customer data

860-082-0065

Recordkeeping and Reporting Requirements

(1) The public utility must maintain a record of the following information for at least two years:

(a) The number of complete small generator interconnection applications received;

(b) The time required to complete the review process for each application; and

(c) The reasons for the approval or denial of each application.

(2) For as long as an interconnection customer's small generator facility is interconnected to a public utility's transmission or distribution system, the interconnecting public utility must maintain copies of the interconnection application, interconnection agreement, and certificate of completion for the small generator facility. The public utility must provide a copy of the interconnection customer's records to the interconnection customer within 15 business days after receipt of a written request.

(3) The public utility must submit an annual report to the Commission summarizing the public utility's interconnection activities for the previous calendar year. The annual report must be filed by May 30 and must include the following information:

(a) The number of complete small generator interconnection applications received;

(b) The number of small generator facility interconnections completed;

(c) The types of small generator facilities applying for interconnection and the nameplate ~~capacity~~rating of the facilities;

(d) The location of completed and proposed small generator facilities by zip code;

(e) For each Tier 3 and Tier 4 small generator interconnection approval, the basic telemetry configuration, if applicable; and

(f) For each Tier 4 small generator interconnection approval:

(A) The interconnection facilities required to accommodate the interconnection of a small generator facility and the estimated costs of those facilities; and

Commented [JU56]: The Joint Utilities note that the use of "executed by the Utility" appears to conflict with "executable" in the subsection above. The Joint Utilities support the requirement to provide an executable interconnection agreement.

(B) The system upgrades required to accommodate the interconnection of a small generator facility and the estimated costs of those upgrades.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0070~~

860-082-0070
Metering and Monitoring

(l) The public utility must install, maintain, test, repair, operate, and replace any metering and data acquisition equipment necessary under the terms of the public utility's interconnection agreement, power purchase agreement, or power service agreement with an applicant or interconnection customer. The applicant or interconnection customer is responsible for all reasonable costs associated with the metering and data acquisition equipment. The public utility and the applicant or interconnection customer must have unrestricted access to such equipment as necessary to conduct routine business or respond to an emergency.

(2) Except as provided in subsection 3(b), a public utility may not require an applicant or interconnection customer with a small generator facility with a nameplate ~~capacity~~rating of less than three megawatts to provide or pay for the data acquisition or telemetry equipment necessary to allow the public utility to remotely monitor the small generator facility's electric output.

(3) At its discretion, a public utility may require an applicant or interconnection customer to pay for the purchase, installation, operation, and maintenance of the data acquisition or telemetry equipment necessary to allow the public utility to remotely monitor the small generator facility's electric output if:

(a) The small generator facility has a nameplate ~~capacity~~rating greater than or equal to 3 megawatts; or

(b) The small generator facility meets the criteria in OAR 860-082-0055(1) for Tier 3 interconnection review and the aggregated nameplate ~~generation~~rating on the circuit exceeds 50 percent of the line section annual peak load.

Commented [JU57]: The Joint Utilities recommend using the defined term "aggregated nameplate rating" here.

(4) A public utility and an applicant or interconnection customer may agree to waive or modify the telemetry requirements in this rule.

(5) Telemetry Requirements.

(a) The communication must take place via a private network link using a frame relay, fractional T-1 line, or other suitable device. Dedicated remote terminal units from the interconnected small generator facility to a public utility's substation and energy management system are not required.

(b) A single communication circuit from the small generator facility to the public utility is sufficient.

(c) Communications protocol must be DNP 3.0 or another reasonable standard used by the public utility.

(d) The small generator facility must be capable of sending telemetric monitoring data to the public utility at a minimum rate of every two seconds from the output of the small generator facility's telemetry equipment to the public utility's energy management system.

(e) A small generator facility must provide the following minimum data to the public utility:

(A) Net real power flowing out or into the small generator facility (analog);

(B) Net reactive power flowing out or into the small generator facility (analog);

(C) Bus bar voltage at the point of common coupling (analog);

(D) Data processing gateway heartbeat (used to certify the telemetric signal quality); and

(E) On-line or off-line status (digital).

(f) If an applicant or interconnection customer operates the equipment associated with the high voltage switchyard interconnecting the small generator facility to the transmission or distribution system and is required to provide monitoring and telemetry, then the interconnection customer must provide the following data to the public utility in addition to the data in subsection (e):

(A) Switchyard line and transformer megawatt and mega volt ampere reactive values;

(B) Switchyard bus voltage; and

(C) Switching device status.

Statutory/Other Authority: ORS 183, 756 & 757
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0075~~

860-082-0075
Temporary Disconnection

(1) Under emergency conditions, a public utility or an interconnection customer may suspend interconnection service and temporarily disconnect a small generator facility from the public utility's transmission or distribution system at any time and for as long as reasonably necessary.

(a) A public utility must notify an interconnection customer immediately after becoming aware of an emergency condition that may reasonably be expected to affect a small generator facility's operation. To the extent possible, the notice must describe the emergency condition, the extent of the damage or deficiency, the expected effect on the small generator facility, the anticipated duration of the condition, and the necessary corrective action.

(b) An interconnection customer must notify the public utility immediately after becoming aware of an emergency condition that may reasonably be expected to affect the public utility's

transmission or distribution system. To the extent possible, the notice must describe the emergency condition, the extent of the damage or deficiency, the expected effect on the public utility's transmission or distribution system, the anticipated duration of the condition, and the necessary corrective action.

(2) A public utility or an interconnection customer may suspend interconnection service and temporarily disconnect a small generator facility to perform routine maintenance, construction, or repairs. A public utility or an interconnection customer must provide written notice five business days before suspending interconnection service or temporarily disconnecting the small generator facility. A public utility and an interconnection customer must use reasonable efforts to coordinate interruptions caused by routine maintenance, construction, or repairs.

(3) A public utility must use reasonable efforts to provide written notice to an interconnection customer affected by a forced outage of the public utility's transmission or distribution system at least five business days before the forced outage. If prior written notice is not given, then the public utility must provide the interconnection customer written documentation explaining the circumstances of the disconnection within five business days after the forced outage.

(4) A public utility may disconnect a small generator facility if the public utility determines that operation of the small generator facility will likely cause disruption or deterioration of service to other customers served by the public utility's transmission or distribution system, or if the public utility determines that operation of the small generator facility could cause damage to the public utility's transmission or distribution system.

(a) The public utility must provide written notice to the interconnection customer of the disconnection at least five business days before the disconnection. If the condition requiring disconnection can be remedied, then the public utility must describe the remedial action necessary.

(b) If requested by the interconnection customer, the public utility must provide documentation supporting the public utility's decision to disconnect.

(c) The public utility may disconnect the small generator facility if the interconnection customer fails to perform the remedial action identified in the notice of disconnection within a reasonable time, but no less than five business days after the interconnection customer received the notice of disconnection.

(5) A public utility may temporarily disconnect a small generator facility if an interconnection customer makes any change to the facility, other than a minor equipment modification, without the public utility's prior written authorization. The public utility may disconnect the small generator facility for the time necessary for the public utility to evaluate the affect of the change to the small generator facility on the public utility's transmission or distribution system.

(6) A public utility has the right to inspect an interconnection customer's small generator facility at reasonable hours and with reasonable prior written notice to the interconnection customer. If the public utility discovers that the small generator facility is not in compliance with the requirements of the small generator interconnection rules, then the public utility may require the interconnection customer to disconnect the small generator facility until compliance is achieved.

Statutory/Other Authority: ORS 183 & 756
Statutes/Other Implemented: ORS 756.040 & 756.060
History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0080~~

860-082-0080
Arbitration of Disputes

(1) An interconnecting public utility or an interconnection applicant may petition the Commission for arbitration of disputes arising during review of an application to interconnect a small generator facility or during negotiation of an interconnection agreement. If the public utility or the applicant petitions the Commission to arbitrate their dispute, then the Commission will use an administrative law judge (ALJ) as arbitrator unless workload constraints necessitate the use of an outside arbitrator.

(2) A petition for arbitration of an interconnection agreement must contain:

(a) A statement of all unresolved issues;

(b) A description of each party's position on the unresolved issues; and

(c) A proposed agreement addressing all issues, including those on which the parties have reached agreement and those that are in dispute.

(3) A petition for arbitration of a dispute arising during review of an application to interconnect a small generator facility must contain:

(a) A statement of all unresolved issues;

(b) A description of each party's position on the unresolved issues; and

(c) A proposed resolution for each unresolved issue.

(4) Respondent may file a response within 25 calendar days of the petition for arbitration. In the response, the respondent must address each issue listed in the petition, describe the respondent's position on those issues, and present any additional issues for which the respondent seeks resolution.

(5) The filing of a petition for arbitration of a dispute arising during review of an application to interconnect a small generator facility does not affect the application’s queue position.

(6) The arbitration is conducted in a manner similar to a contested case proceeding, and the arbitrator has the same authority to conduct the arbitration process as an ALJ has in conducting hearings under the Commission's rules, but the arbitration process is streamlined. The arbitrator holds an early conference to discuss processing of the case. The arbitrator establishes the schedule and decides whether an oral hearing is necessary. After the oral hearing or other procedures (for example, rounds of comments), each party submits its final proposed interconnection agreement or resolution of disputed issues. The arbitrator chooses between the

two final offers. If neither offer is consistent with applicable statutes, Commission rules, and Commission policies, then the arbitrator will make a decision that meets those requirements.

(7) The arbitrator may allow formal discovery only to the extent deemed necessary. Parties are required to make good faith attempts to exchange information relevant to any disputed issue in an informal, voluntary, and prompt manner. Unresolved discovery disputes are resolved by the arbitrator upon request of a party. The arbitrator will order a party to provide information if the arbitrator determines the requesting party has a reasonable need for the requested information and that the request is not overly burdensome.

(8) Only the two negotiating parties have full party status. The arbitrator may confer with Commission staff for assistance throughout the arbitration process.

(9) To keep the process moving forward, appeals to the Commission are not allowed during the arbitration process. An arbitrator may certify a question to the Commission if the arbitrator believes it is necessary.

(10) To accommodate the need for flexibility, the arbitrator may use different procedures so long as the procedures are fair, treat the parties equitably, and substantially comply with the procedures listed here.

(11) The arbitrator must serve the arbitration decision on the interconnecting public utility and the interconnection applicant. The parties may file comments on the arbitration decision with the Commission within 10 calendar days after service.

(12) The Commission must accept, reject, or modify an arbitration decision within 30 calendar days after service of the decision.

(13) Within 14 calendar days after the Commission issues an order on a petition for arbitration of an interconnection agreement, the petitioner must prepare an interconnection agreement complying with the terms of the decision and serve it on respondent. Respondent must either sign and file the interconnection agreement or file objections to it within 10 calendar days of service of the agreement. If objections are filed, respondent must state how the interconnection agreement fails to comply with the Commission order and offer substitute language complying with the decision. The Commission must approve or reject a filed interconnection agreement within 20 calendar days of its filing or the agreement is deemed approved.

(14) If petitioner, without respondent's consent, fails to timely prepare and serve an interconnection agreement on respondent, respondent may file a motion requesting the Commission dismiss the petition for arbitration with prejudice. The Commission may grant such motion if the petitioner's failure to timely prepare and serve the interconnection agreement was the result of inexcusable neglect on the part of petitioner.

(15) The public utility and the applicant may agree to hire an outside arbitrator rather than file a petition with the Commission. The public utility and the applicant must share equally the costs of an outside arbitrator unless they mutually agree to a different payment arrangement.

Statutory/Other Authority: ORS 756
Statutes/Other Implemented: ORS 756.040 & 756.500

History:
PUC 10-2009, f. & cert. ef. 8-26-09

~~860-082-0085~~

860-082-0085
Complaints for Enforcement

(1) This rule specifies the procedure for a public utility, an interconnection customer, or an applicant to file a complaint for the enforcement of an interconnection agreement. Filing dates for enforcement complaint proceedings are calculated and enforced per OAR 860-001-0150.

(2) At least 10 days prior to filing a complaint for enforcement, complainant must give written notice to defendant and the Commission that complainant intends to file a complaint for enforcement. The notice must identify the provisions in the agreement that complainant alleges were or are being violated and the specific acts or failure to act that caused or are causing the violation, and whether complainant anticipates requesting temporary or injunctive relief. On the same day the notice is filed with the Commission, complainant must serve a copy of the notice on defendant's authorized representative, attorney of record, or designated agent for service of process. Complainant must also serve the notice on all persons designated in the interconnection agreement to receive notices;

(3) A complaint for enforcement must:

(a) Contain a statement of specific facts demonstrating that the complainant conferred with defendant in good faith to resolve the dispute, and that despite those efforts the parties failed to resolve the dispute;

(b) Include a copy of the written notice, required by section (2), indicating that the complainant intends to file a complaint for enforcement;

(c) Include a copy of the interconnection agreement or the portion of the agreement that the complainant contends that defendant violated or is violating. If a copy of the entire agreement is provided, complainant must specify the provisions at issue;

(d) Contain a statement of the facts or law demonstrating defendant's failure to comply with the interconnection agreement and complainant's entitlement to relief. The statement must indicate that the remedy sought is consistent with the dispute resolution provisions in the agreement, if any. Statements of facts must be supported by written testimony with affidavits made by persons competent to testify and having personal knowledge of the relevant facts. Statements of law must be supported by appropriate citations. If exhibits are attached to the affidavits, the affidavits must contain the foundation for the exhibits;

(e) Designate up to three persons to receive copies of pleadings and documents;

(f) Include an executive summary, filed as a separate document not to exceed 8 pages, outlining the issues and relief requested; and

(g) Include any motions for affirmative relief, filed as a separate document and clearly marked. Nothing in this subsection precludes complainant from filing a motion subsequent to the filing of

the complaint if the motion is based upon facts or circumstances unknown or unavailable to complainant at the time the complaint was filed.

(4) On the same day the complaint is filed with the Commission, complainant must serve a copy of the complaint on defendant's authorized representative, attorney of record, or designated agent for service of process. Service may be by telephonic facsimile, electronic mail, or overnight mail, but the complaint must arrive at defendant's location on the same day the complaint is filed with the Commission. Service by facsimile or electronic mail must be followed by a physical copy of the complaint the next day by overnight delivery.

(5) Within 10 business days after service of the complaint, defendant may file an answer with the Commission. Any allegations raised in the complaint and not addressed in the answer are deemed admitted. The answer must:

(a) Contain a statement of specific facts demonstrating that the defendant conferred with complainant in good faith to resolve the dispute and that despite those efforts the parties failed to resolve the dispute;

(b) Respond to each allegation in the complaint and set forth all affirmative defenses;

(c) Contain a statement of the facts or law supporting defendant's position. Statements of facts must be supported by written testimony with affidavits made by persons competent to testify and having personal knowledge of the relevant facts. Statements of law must be supported by appropriate citations. If exhibits are attached to the affidavits, then the affidavits must contain the foundation for the exhibits; and

(d) Designate up to three persons to receive copies of other pleadings and documents.

(6) On the same day as the answer is filed, the defendant must also file its response to any motion filed by complainant and its motions for affirmative relief. Each response and each motion must be filed as a separate filing. Nothing in this section precludes defendant from filing a motion subsequent to the filing of the answer if the motion is based upon facts or circumstances unknown or unavailable to defendant at the time the answer was filed.

(7) On the same day the answer is filed with the Commission, the defendant must serve a copy of the answer to the complainant's authorized representative, attorney of record, or designated agent for service of process.

(8) Complainant must file a reply to an answer that contains affirmative defenses within 5 business days after the answer is filed. On the same day the reply is filed with the Commission, complainant must serve a copy of the reply to defendant's authorized representative, attorney of record, or designated agent for service of process.

(9) A cross-complaint or counterclaim must be answered within the 10-business day time frame allowed for answers to complaints.

(10) The Commission will conduct a conference regarding each complaint for enforcement of an interconnection agreement.

(a) The administrative law judge (ALJ) schedules a conference within 5 business days after the answer is filed, to be held as soon as practicable. At the discretion of the ALJ, the conference may be conducted by telephone.

(b) Based on the complaint and the answer, all supporting documents filed by the parties, and the parties' oral statements at the conference, the ALJ determines whether the issues raised in the complaint can be determined on the pleadings and submissions without further proceedings or whether further proceedings are necessary. If further proceedings are necessary, the ALJ establishes a procedural schedule. Nothing in this subsection is intended to prohibit the bifurcation of issues where appropriate.

(c) In determining whether further proceedings are necessary, the ALJ must consider, at a minimum, the positions of the parties, the need to clarify evidence through the examination of witnesses, the complexity of the issues, the need for prompt resolution, and the completeness of the information presented.

(d) The ALJ may make oral rulings on the record during the conference on all matters relevant to the conduct of the proceeding.

(11) A party may file with the complaint or answer a request for discovery, stating the matters to be inquired into and their relationship to matters directly at issue.

(12) When warranted by the facts, the complainant or defendant may file a motion requesting that an expedited procedure be used. The moving party must file a proposed expedited procedural schedule along with its motion. The ALJ must schedule a conference to be held as soon as practicable to determine whether an expedited schedule is warranted.

(a) The ALJ will consider whether the issues raised in the complaint or answer involve a risk of imminent, irrevocable harm to a party or to the public interest.

(b) If a determination is made that an expedited procedure is warranted, the ALJ will establish a procedure that ensures a prompt resolution of the merits of the dispute, consistent with due process and other relevant considerations. The ALJ will consider, but is not bound by, the moving party’s proposed expedited procedural schedule.

(c) In general, the ALJ will not entertain a motion for expedited procedure where the dispute solely involves the payment of money.