CHAPTER 480-108 WAC
February 5, 2013, CLEAN DRAFT

Part 1 - Introduction

WAC 480-108-001 Purpose and scope. (1) This chapter establishes rules for:

(a) determining the charges, terms and conditions governing the interconnection of customer-owned electric generating facilities with a nameplate generating capacity of no more than 20 megawatts (MW) to the electric system of an electrical company over which the commission has jurisdiction.

(b) requiring each electrical company to file interconnection service tariffs for interconnection of some electric generating facilities to the electric system of an electrical company over which the commission has jurisdiction. The terms and conditions in such interconnection service tariffs must be either equivalent in all procedural and technical respects with the electrical company's interconnection service offered under its open access transmission tariff approved by the Federal Energy Regulatory Commission, or they must be consistent with this chapter.

(2) These rules are intended:

(a) To be consistent with the requirements of chapter 80.60 RCW, Net metering of electricity;

(b) To comply with Section 1254 of the Energy Policy Act of 2005, Pub. L. No. 109-58 (2005) that amended section 111(d) of the Public Utility Regulatory Policy Act (PURPA) relating to Net Metering (subsection 11) and Interconnection (subsection 15); and

(3) This chapter governs the terms and conditions under which an interconnection customer's generating facility, including without limitation net-metered facilities, will interconnect with, and operate in parallel with, the electric system. This chapter does not govern the settlement, purchase or delivery of any power generated by an interconnection customer's net-metered or production-metered generating facility.

(4) This chapter does not govern interconnection of, or electrical company services to, PURPA qualifying facilities pursuant to chapter 480-107 WAC.

(5) This chapter does not govern standby generators designed and used only to provide power to the customer when the local electric distribution company service is interrupted and that operate in parallel with the electric distribution company for less than 0.5 seconds both to and from emergency service.

(6) The specifications and requirements in these rules are intended to mitigate possible adverse impacts caused by a generating facility on electrical company equipment and personnel and on other customers of the electrical company. They are not intended to address protection of the interconnection customer's generating facility, facility personnel, or internal load. It is the responsibility of the interconnection customer to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect its own facilities, personnel, and loads.

WAC 480-108-005 Application of rules. (1) This chapter applies to any electrical company subject to commission jurisdiction under RCW 80.04.010 and chapter 80.28 RCW. This chapter also includes eligibility and other requirements applicable to existing or potential interconnection customers.

(2) This chapter governs interconnections subject to the jurisdiction of the commission and does not govern interconnections subject to the jurisdiction of the Federal Energy Regulatory Commission.

(3) The tariff provisions filed by electrical companies must conform to these rules. If the commission accepts a tariff that conflicts with these rules, the acceptance does not constitute a waiver of these rules unless the commission specifically approves the variation consistent with WAC 480-100-008.

(4) Electrical companies shall modify existing tariffs, if necessary, to conform to these rules. This includes, but is not limited to, tariffs implementing chapter 80.60 RCW, Net metering of electricity.

WAC 480-108-010 Definitions.

"Application" means the written notice as defined in WAC 480-108-030 that the interconnection customer provides to the electrical company to start the interconnection process.

"Business day" means Monday through Friday excluding official federal and state holidays.

"Certificate of completion" means the form described in WAC 480-108-GGG(2) that must be completed by the interconnection customer's electrical inspector and approved by the electrical company indicating completion of installation and inspection of the interconnection.

"Commission" means the Washington utilities and transportation commission.

"Electric system" means all electrical wires, equipment, and other facilities owned by the electrical company used to

transmit electricity to customers.

"Electrical company" means any public service company, as defined by RCW 80.04.010, engaged in the generation, distribution, sale or furnishing of electricity and subject to the jurisdiction of the commission.

"Generating facility" means a source of electricity owned, or whose electrical output is owned, by the interconnection customer that is located on the interconnection customer's side of the point of common coupling, and all ancillary and appurtenant facilities, including interconnection facilities, which the interconnection customer requests to interconnect to the electric system.

"Grid network distribution system" means electrical service from a distribution system consisting of two or more primary circuits from one or more substations or transmission supply points that collectively feed secondary circuits serving more than one location and more than one electrical company customer.

"Initial operation" means the first time the generating facility operates in parallel with the electric system.

"In-service date" means the date on which the generating facility and any related facilities are complete and ready for service, even if the generating facility is not placed in service on or by that date.

"Interconnection" means the physical connection of a generating facility to the electric system so that parallel operation may occur.

"Interconnection Agreement" means an agreement between a electrical company and the interconnection customer which outlines the interconnection requirements, costs and billing agreements, insurance requirements, and on-going inspection, maintenance and operational requirements.

"Interconnection customer" means the person, corporation, partnership, government agency, or other entity that proposes to interconnect, or has executed an Interconnection Agreement with the electrical company and that: (1) owns a generating facility interconnected to the electric system; (2) is a customer-generator of net-metered facilities, as defined in RCW 80.60.010(2); or (3) is otherwise allowed by law. The interconnection customer is responsible for the generating facility, and may assign to another party responsibility for compliance with the requirements of this rule only with the express written permission of the electrical company. A net metered interconnection customer may lease from, or purchase power from, a third party owner of an on-site generating facility.

"Interconnection facilities" means the electrical wires, switches and other equipment owned by the electrical company or

the interconnection customer and used to interconnect a generating facility to the electric system. Interconnection facilities are located between the generating facility and the point of common coupling. Interconnection facilities do not include system upgrades.

"Islanding" means the condition that occurs when the electrical system is de-energized and the generating facility is exporting energy onto the de-energized electrical system.

"Minor modification" means a physical modification to the electric system with a cost of no more than $10,000.

"Model interconnection agreement" means a written agreement including standard terms and conditions for the interconnection of generating facilities under this chapter. The model interconnection agreement may be modified to accommodate terms and conditions specific to individual interconnections, subject to the conditions set forth in these rules.

"Net metering" means measuring the difference between the electricity supplied by an electrical company and the electricity generated by a generating facility that is fed back to the electrical company over the applicable billing period.

"Nameplate capacity" means the manufacturer's output capacity of the generating facility. For a system that uses an inverter to change DC energy supplied to an AC quantity, the nameplate capacity will be the manufacturer's AC output rating for that inverter.

"Network protectors" means devices installed on a spot network distribution system designed to detect and interrupt reverse current-flow (flow out of the network) as quickly as possible, typically within three to six cycles.

"Parallel operation" or **"operate in parallel"** means the synchronous operation of a generating facility while interconnected with an electric system.

"Point of common coupling" or **"PCC"** means the point where the generating facility's local electric power system connects to the electric system, such as the electric power revenue meter or at the location of the equipment designated to interrupt, separate or disconnect the connection between the generating facility and electrical company. The point of common coupling is the point of measurement for the application of IEEE 1547.

"PURPA qualifying facility" means a generating facility that meets the criteria specified by the Federal Energy Regulatory Commission (FERC) in 18 C.F.R. Part 292 Subpart B and that sells power to an electrical company under chapter 480-107 WAC.

"Spot network distribution system" means electrical service from a distribution system consisting of two or more primary

circuits from one or more substations or transmission supply points arranged such that they collectively feed a secondary circuit serving a single location (e.g., a large facility or campus) containing one or more electrical company customers.

"System upgrades" means the additions, modifications and upgrades to the electrical company's electrical system at or beyond the point of common coupling necessary to interconnect the generating facility. System upgrades do not include interconnection facilities.

[NOTE: WAC 480-108-030 is repealed and replaced by WAC 480-108-CCC Application for interconnection.]

NEW WAC 480-108-AAA [FORMERLY WAC 480-108-030] Application for interconnection.

(1) Standard Application. The electrical company must file a standard application form with the commission that potential interconnection customers must use to request interconnection under this chapter. The interconnection customer's request must include the application fee established in section (5) of this section. The electrical company must make the standard application form available on its web site and, unless unreasonably burdensome, allow for electronic submission.

(2) The electrical company must designate a point of contact and publish a telephone number and web site address for the purpose of assisting potential interconnection customers. The electrical company must comply with reasonable requests for information including relevant system studies, interconnection studies, and other materials useful for a potential interconnection customer to understand the circumstances of an interconnection at a particular point on the electric system, to the extent provision of such information does not violate confidentiality provisions of prior electrical company agreements.

(3) When a potential interconnection customer requests interconnection from the electrical company, the potential interconnection customer must conform to the rules and regulations in effect and on file with the electrical company. The potential interconnection customer seeking to interconnect a generating facility under this chapter must fill out and submit, electronically or otherwise, a signed application form to the electrical company. Information on the form must be accurate and complete.

(4) When a project is designed for phased installation, the potential interconnection customer may choose to submit an application for approval of the final project size, or may choose to submit applications at each stage of the project.

Each application will be evaluated based on the nameplate capacity stated on the application.

(a) If the potential interconnection customer applies with a final project size and the electrical company approves the application, then the potential interconnection customer must notify the electrical company as additional units are added.

(b) If a potential interconnection customer submits an application for an individual stage of a project, the potential interconnection customer may not develop the project beyond the size approved.

(5) Application fees. The electrical company must establish a nonrefundable interconnection application fee set according to facility size to be paid by the interconnection customer to the electrical company when the interconnection customer submits its application. The fee, intended to cover the costs of processing the application, will be no greater than:

(a) One hundred dollars for facilities 0 to 25 kilowatts (kW); and

(b) Five hundred dollars for facilities 26 to 500 kW.

(c) One thousand dollars for facilities 500 kW to 20 MW.

(6) Application processing and evaluation procedures, which vary based on the Tier that the interconnection qualifies for, are provided in WAC 480-108-CCC.

PART 2: INTERCONNECTION OF GENERATION FACILITIES WITH NAMEPLATE CAPACITY OF 20 MW OR LESS

WAC 480-108-015 Scope of Part 2. (1) The provisions in Part 2 of this chapter apply to interconnections, and to applications to interconnect, customer-owned generating facilities with a nameplate capacity of 20 MW or less to an electrical company's electrical system under this chapter. Interconnections fall within three categories- Tier 1, 2, and 3, which differ by capacity and complexity. This section defines the applicability and technical standards for these interconnection categories.

(2) This chapter facilitates the interconnection process for both the interconnection customer and the electrical company by classifying interconnections based on shared characteristics. As smaller facilities with appropriate interconnection technologies are expected to have a much lower impact on the electric system, expedited processes and standardized

interconnection requirements are allowed for these interconnections. Larger generating facilities using different generating and interconnection technologies can have significant impacts on the electric system, such that more in-depth review is required and additional technical requirements may apply.

(3) Tiers 1, 2, and 3 listed below contain initial applicability tests that determine which tier process an interconnection customer and electrical company will use, along with process descriptions, technical requirements and completion criteria for each tier. Tier 3 facilities include a set of alternative service tariffs and other requirements. Additionally, all facilities must meet the appropriate requirements of this chapter, and the rules and standards adopted by reference in WAC 480-108-999.

NEW WAC 480-108-BBB Eligibility for tier 1, tier 2, and tier 3 interconnection.

(1) Applicability.

(a) Tier 1. Interconnection of a generating facility will use Tier 1 processes and technical requirements if the proposed generating facility meets all of the following:

(i) Uses inverter-based interconnection equipment;

(ii) Is single phase and has a nameplate capacity of 25 kW or less;

(iii) Is connected through a single phase transformer on a radial distribution circuit;

(iv) Is proposed for interconnection at secondary voltages (600 V class);

(v) Does not require an upgrade to or construction of new electrical company facilities, other than meter changes;

(vi) The aggregate generating capacity on the shared secondary does not exceed the lesser of the service wire capability or the nameplate of the transformer when interconnected on single-phase shared secondary;

(vii) If proposed to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 5 kVA;

(viii) The aggregated nameplate capacity of all interconnected generating facilities, including that of the proposed generating facility, on any line section does not exceed 15 percent of the line section annual peak load as most recently measured or calculated for that line section, or fifteen percent of the circuit annual peak load as most recently measured or calculated for the circuit. A line section is that portion of an electric system connected to the generating

facility and bounded by sectionalizing devices or the end of the distribution line; and

(ix) Is not proposed for interconnection to either a radial distribution circuit, or to a spot network distribution circuit limited to serving one customer.

(b) Tier 2. Interconnection of a generating facility will use Tier 2 processes and technical requirements if the proposed generating facility meets all of the following criteria:

(i) It does not qualify for Tier 1 interconnection applicability requirements;

(ii) Has a nameplate capacity of 500 kW or less;

(iii) Is proposed for interconnection to an electric system distribution facility operated at or below 38 kV class;

(iv) Is not a synchronous generator;

(v) If it is proposed to be interconnected on a shared secondary, the aggregate generating capacity on the shared secondary, including the proposed generating facility, must not exceed the lesser of the service wire capability or the nameplate of the transformer;

(vi) The aggregated nameplate capacity of all interconnected generating facilities, including that of the proposed generating facility, on any line section does not exceed fifteen percent of the line section annual peak load as most recently measured or calculated for that line section, or fifteen percent of the circuit annual peak load as most recently measured or calculated for the circuit. A line section is that portion of an electric system connected to the generating facility and bounded by sectionalizing devices or the end of the distribution line;

(vii) Any upgrades required to the electric system must fall within the requirements in subsection (2)(b)(ii) of this section;

(viii) For interconnection of a proposed generating facility to the load side of spot network protectors, the proposed generating facility must utilize an inverter. The aggregate nameplate capacity of all inverter-based systems must not exceed the smaller of five percent of a spot network's maximum load or 50 kW;

(ix) The aggregated nameplate capacity of existing and proposed generating facilities must 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;

(x) The generating facility’s point of interconnection must not be on a circuit where the available short circuit current, with or without the proposed generating facility, exceeds 87.5

percent of the interrupting capability of the electrical company's protective devices and equipment (including substation breakers, fuse cutouts, and line reclosers);

(c) Tier 3. Interconnection of a generating facility will use Tier 3 processes and technical requirements if the proposed generating facility does not qualify for Tier 1 or Tier 2.

(2) Technical Requirements.

(a) Tier 1.

(i) The purpose of the protection required for Tier 1 generating facilities is to prevent islanding and to ensure that inverter output is disconnected when the electric system is de-energized.

(ii) An interrupting device must be provided which is capable of safely interrupting the maximum available fault current (typically the maximum fault current is that supplied by the electrical company).

(iii) The generating facility must operate within the voltage and power factor ranges specified by the electrical company and as allowed by UL Standard 1741.

(iv) Disconnect switch.

(A) Except as provided in subsections C, D, and E of this subsection, the generating facility must include a UL listed AC disconnect switch, accessible to electrical company personnel at any time of the day, that provides a visible break, is lockable in the open position, and is located between the production meter and the sub-panel or other connection to the generating facility.

(B) The electrical company shall have the right to disconnect the generating facility at the disconnect switch to meet electrical company operating safety requirements.

(C) At the electrical company's sole discretion, an interconnection customer installing and operating inverter-based UL 1741 certified systems that are interconnected through a self-contained socket-based meter of 320 amps or less may not be required to install a visible, lockable AC disconnect switch.

(D) To maintain electrical company operating and personnel safety in the absence of an external disconnect switch, the interconnection customer shall agree that the electrical company has the right to disconnect electric service through other means if the generating facility must be physically disconnected for any reason, without liability to the electrical company. These actions to disconnect the generating facility (due to an emergency or maintenance or other condition on the electric system) will result in loss of electrical service to the customer's facility or residence for the duration of time that work is actively in progress. The duration of

outage may be longer than it would otherwise have been with an AC disconnect switch.

(E) In the absence of an external disconnect switch on inverter-based generating facilities, the interconnection customer is required to operate and maintain the inverter in accordance with the manufacturer's guidelines, and retain documentation of commissioning in accordance with the National Electrical Code. In the absence of such documentation the electric company may, with 5 days' notice and at the interconnection customer's expense, test or cause to be tested the inverter to ensure its continued operating and protection capability. The person that tests the inverter shall provide documentation of the results to both the electrical company and the interconnection customer. Should the inverter fail the performance test, the electric company may disconnect the generating facility without notice, and may require the interconnection customer to repair or replace the inverter. The cost of any such repair or replacement required by the electric company shall be the sole responsibility of the interconnection customer.

(b) Tier 2.

(i) In all cases, the interconnection facilities must isolate the generating facility from the electric system as specified by IEEE 1547, and the interconnection agreement. The interconnection customer shall prevent its generating facility equipment from automatically re-energizing the electric system as specified by IEEE 1547, and the interconnection agreement. For inverter-based systems, the interconnecting facility must comply with IEEE 1547, UL 1741 and the interconnection agreement set forth by the electric utility. For non-inverter based systems a separate protection package will be required to meet IEEE 1547 and the interconnection agreement set forth by the electric utility.

(ii) If the generating facility fails to meet the characteristics for Tier 2 applicability, but the electrical company determines that the generating 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 electrical company may offer the interconnection customer a good-faith, non-binding estimate of the costs of such proposed minor modifications. Modifications are considered minor if the total cost of the modifications is under $10,000. If the interconnection customer authorizes the electrical company to proceed with the minor modifications and agrees to pay the entire cost of the modifications, then the electrical company may approve the application using Tier 2

processes and technical requirements.

(iii) For proposed generating facilities 50 kW and greater, three-phase connection may be required by the electric company.

(iv) For three-phase induction generator interconnections, the electrical company may, in its sole discretion, specify that ground fault protection must be provided. Use of ground overvoltage or ground overcurrent elements may be specified, depending on whether the electrical company uses three-wire or effectively grounded four-wire systems.

(v) If the generating facility is single-phase and interconnected on a center tap neutral of a 240 volt service, it must not create an imbalance between the two sides of the 240 volt service of more than 5 kW;

(vi) If the generating facility is proposed for interconnection at primary (greater than 600 V class) distribution voltages, the connection of the transformer(s) used to connect the generating facility to the electric system must be the electrical company's standard connection. This is intended to limit the potential for creating overvoltages on the electric system for a loss of ground during the operating time of functions designed to prevent islanding;

(vii) For primary-voltage connections to three-phase, three-wire systems, the transformer primary windings must be connected phase to phase;

(viii) For primary-voltage connections to three-phase, four-wire systems, the transformer primary windings may be connected phase to neutral.

(ix) Disconnect switch.

(A) Except as provided in subsections C, D, and E of this subsection, the generating facility must include a UL listed AC disconnect switch, accessible to electrical company personnel at any time of the day, that provides a visible break, is lockable in the open position, and is located between the production meter and the sub-panel or other connection to the generating facility.

(B) The electrical company shall have the right to disconnect the generating facility at the disconnect switch to meet electrical company operating safety requirements.

(C) At the electrical company's sole discretion, an interconnection customer installing and operating inverter-based systems may not be required to install a visible, lockable AC disconnect switch.

(D) To maintain electrical company operating and personnel safety in the absence of an external disconnect switch, the interconnection customer shall agree that the electrical company has the right to disconnect electric service through other means if the generating facility must be

physically disconnected for any reason, without liability to the electrical company. These actions to disconnect the generating facility (due to an emergency or maintenance or other condition on the electric system) will result in loss of electrical service to the customer's facility or residence for the duration of time that work is actively in progress. The duration of outage may be longer than it would otherwise have been with an AC disconnect switch.

(E) In the absence of an external disconnect switch on inverter-based generating facilities, the interconnection customer is required to operate and maintain the inverter in accordance with the manufacturer's guidelines, and retain documentation of commissioning in accordance with the National Electrical Code. In the absence of such documentation the electric company may, with 5 days' notice and at the interconnection customer's expense, test or cause to be tested the inverter to ensure its continued operating and protection capability. The person that tests the inverter shall provide documentation of the results to both the electrical company and the interconnection customer. Should the inverter fail the performance test, the electric company may disconnect the generating facility without notice, and require the interconnection customer to repair or replace the inverter. The cost of any such repair or replacement required by the electric company shall be the sole responsibility of the interconnection customer.

(c) Tier 3.

(i) In all cases, the interconnection facilities must isolate the generating facility from the electric system as specified by IEEE 1547, and the interconnection agreement. The interconnection customer shall prevent its generating facility equipment from automatically re-energizing the electric system as specified by IEEE 1547, and the interconnection agreement. For inverter-based systems, the interconnecting facility must comply with IEEE 1547, UL 1741 and the interconnection agreement set forth by the electric utility. For non-inverter based systems a separate protection package will be required to meet IEEE 1547 and the interconnection agreement set forth by the electric utility.

(ii) The system must be designed to prevent a single point of failure from causing a loss of protective functions. This can be achieved by installing multiple discrete-function relays providing the required functions as a set, or by installing redundant multi-function devices, each of which provides all of the required functions.

(iii) Ground fault protection must be provided, unless waived by the utility in writing. Use of ground overvoltage or

ground overcurrent elements may be specified, depending on whether the utility uses three-wire or effectively grounded four-wire systems.

(iv) Breaker failure detection must be provided, and secondary action initiated in the event that the interconnection breaker fails to clear for the trip condition, consistent with utility practice. This may require installation of dual generator breakers tripped by similar interconnection relays, or a main and backup relay with the same functions and zones of protection, one of which trips the generator breaker and one which trips the main incoming breaker.

(v) System impact studies. The electrical company may require a feasibility, system impact, facilities, or other study as described in WAC 480-108-CCC(3)(c). These studies are intended to quantify the impacts of the generating facility on the electric system, and may include an analysis of power flow, stability, metering, relay/protection, and communications/telemetry. Acceptance of the results of these studies by the interconnection customer is a condition of approval of the application because the studies provide the basis for the detailed technical requirements for interconnection.

[NOTE: WAC 480-108-030 is repealed and replaced by new WAC 480-108-CCC Application for tier-specific interconnection.]

NEW WAC 480-108-CCC Application procedures for tier-specific interconnection.

All generating facility interconnection applications will be processed by the electrical company in a non-discriminatory manner, consistent with other service requests and in a manner that does not delay other service requests. The electrical company must document the date and time that all interconnection requests are received. The timeline for the application review process begins when the interconnection request and application fee are received.

(1) Tier 1.

(a) Notice of receipt. Notice of receipt of an application and application fee shall be sent by the electrical company to the interconnection customer by electronic mail within 5 business days if the interconnection customer provides an electronic mail address; otherwise no notice of receipt will be provided to the interconnection customer.

(b) Notice of complete application.

(i) The electrical company shall notify the interconnection customer if the application is complete or incomplete, if incomplete specifying any deficiencies, within 10 business days after the notice of receipt of application.

(ii) When an electrical company sends a notice of an incomplete application to an interconnection customer, the interconnection customer shall provide a complete application to the electrical company within 60 business days of the notice. The electrical company may, but is not required to, grant an extension in writing. If the interconnection customer fails to complete the application, the application expires at the end of the incomplete application period.

(c) Within 20 business days after a complete application notice is sent to an interconnection customer, the electrical company shall approve, approve with conditions, or deny the application with written justification. If the electrical company anticipates that the interconnection customer will experience voltage irregularity, as described in WAC-480-108-FFF(23)(a), the appropriate notification must be included in the electrical company's letter approving the application. If delays result from unforeseen circumstances, customer variance requests, or other incentive program approval requirements, the customer shall be promptly notified.

(d) An interconnection customer must interconnect and operate the generating facility within one year from the date of approval of the application, or the application expires, unless the electrical company, in its sole discretion, grants an extension in writing.

(2) Tier 2.

(a) Notice of receipt. Notice of receipt of an application and application fee shall be sent by the electrical company to the interconnection customer by electronic mail within 5 business days if the interconnection customer provides an electronic mail address; otherwise no notice of receipt will be provided to the interconnection customer.

(b) Notice of complete application.

(i) The electrical company shall notify the interconnection customer if the application is complete or incomplete, if incomplete specifying any deficiencies, within 20 business days after notice of receipt of application.

(ii) When an electrical company sends a notice of an incomplete application to an interconnection customer, the

interconnection customer shall provide a complete application to the electrical company within 60 business days of the notice. The electrical company may, but is not required to, grant an extension in writing. If the interconnection customer fails to complete the application, the application expires at the end of the incomplete application period.

(c) Within 30 business days after a complete application notice is sent to an interconnection customer, the electrical company shall approve, approve with conditions, or deny the application with written justification. If the electrical company anticipates that the interconnection customer will experience voltage irregularity, as described in WAC-480-108-FFF(23)(a), the appropriate notification must be included in the application approval. If delays result due to unforeseen circumstances, customer variance requests, or incentive program approval requirements, the interconnection customer shall be promptly notified.

(d) An interconnection customer must interconnect and operate the generating facility within one year from the date of approval of the application, or the application expires, unless the electrical company, in its sole discretion, grants an extension in writing.

(3) Tier 3.

(a) Notice of receipt. Notice of receipt of an application and application fee shall be sent by the electrical company to the interconnection customer by electronic mail within 10 business days if the interconnection customer provides an electronic mail address; otherwise no notice of receipt will be provided to the interconnection customer.

(b) Notice of complete application.

(i) The electrical company shall notify the interconnection customer if the application is complete or incomplete, if incomplete specifying any deficiencies, within 30 business days after notice of receipt of application.

(ii) When an electrical company sends a notice of an incomplete application to an interconnection customer, the interconnection customer shall provide a complete application to the electrical company within 75 business days of the notice. The electrical company may, but is not required to, grant an extension in writing. If the interconnection customer fails to complete the application, the application expires at the end of the incomplete application period.

(c) Technical review and additional studies.

(i) Technical review. Once an application is accepted by the electrical company as complete, the electrical company will review the application to determine if the interconnection request complies with the technical standards established in WAC 480-108-BBB and to determine whether any additional engineering, safety, reliability or other studies are required. If the electrical company determines that additional studies are required, the electrical company must provide the interconnection customer a form of agreement that includes a description of what studies are required and a good faith estimate of the cost and time necessary to perform the studies. The electrical company must notify the interconnection customer of the result of these determinations within 30 business days of when the application is deemed complete, as described in subsection (b) of this section. If the electrical company anticipates that the interconnection customer will experience voltage irregularity, as described in WAC-480-108-FFF(23)(a), the appropriate notification must be included in the notification described in this subsection. The interconnection customer may request that studies be combined.

(ii) Approval with no additional studies. If the electrical company notifies the interconnection customer that the request complies with the technical requirements established in WAC 480-108-BBB and no additional studies are required to determine the feasibility of the interconnection, the electrical company must offer the interconnection customer an executable interconnection agreement within 5 business days of such notification. The electrical company also will provide any additional interim agreements, such as construction agreements, that may be necessary and a good faith estimate of the cost and time necessary to complete the interconnection. The interconnection customer must simultaneously pay any deposit required by the electrical company, not to exceed fifty percent of the estimated costs to complete the interconnection.

(iii) Cost of additional studies and upgrades.

(A) The interconnection customer is responsible for all reasonable costs incurred by the electrical company to study the proposed interconnection and to design, construct, operate and maintain any required interconnection facilities or system upgrades.

(B) Cost disputes. Within thirty business days after receiving a notice that additional studies are required, as described in subsection (i) of this section, the interconnection customer may supply an alternative cost estimate from a third-party qualified to perform the studies required by the electrical company.

(C) Study agreement and deposit. After the

electrical company and the interconnection customer agree on the estimated cost of the required studies and the identity of parties to perform the required studies, the interconnection customer and electrical company must execute an agreement describing these studies and any deposit to be paid to the electrical company. The deposit is not to exceed the lower of 1,000 dollars, or 50 percent of the estimated study cost. After a study agreement is executed, the electrical company shall make its best effort to complete the required studies, consistent with time requirements for the studies and other service requests of a similar magnitude.

(iv) Denial after additional studies. The electrical company will provide the interconnection customer with the results of the studies conducted this subsection. If the studies determine that the interconnection is not feasible, the electrical company will provide notice of denial to the interconnection customer and the reasons for the denial.

(v) Modification after additional studies. Based on the results of the studies, the electrical company and interconnection customer may agree to modify the previously complete application without penalty to the interconnection customer. A modified application shall be considered an approved final application.

(vi) Approval after additional studies. If the studies determine that the interconnection is feasible, the electrical company will notify the interconnection customer and provide an executable interconnection agreement to the interconnection customer within 5 business days of such notification. The electrical company also will provide any additional interim agreements, such as construction agreements, that may be necessary and a good faith estimate of the cost and time necessary to complete the interconnection.

(vii) An interconnection customer's failure to execute and return completed agreements and required deposits within the time frames specified in this section may result in termination of the application process by the electrical company under terms and conditions stated in such agreements.

(d) Other than modifications to the complete application described in subsection (3)(c)(v) of this section, changes by the interconnection customer to a previously approved completed application will be considered a new application and shall be accompanied by a new application fee. Denied applications expire on the date of denial.

(e) An interconnection customer must execute an Interconnection Agreement, and simultaneously pay any deposit required by the electrical company not to exceed 50 percent of

the estimated costs to complete the interconnection, within 60 days from the date of approval of the final application. An interconnection customer must begin operation of the generating facility within 2 years of the effective date of the Interconnection Agreement, or both the application and subsequent Interconnection Agreement expire. At the electrical company's discretion, an extension may be granted in writing.

NEW WAC 480-108-DDD Interconnection service tariffs [Formerly WAC 480-108-080 Interconnection service tariffs and WAC 480-108-090 Alternative interconnection service tariff.]

(1) Within 60 days of the effective date of this rule, each electrical company over which the commission has jurisdiction must file an interconnection service tariff for interconnections consistent with this chapter.

(2) Interconnection service includes only the terms and conditions that govern physical interconnection to the electrical company's delivery system and does not include sale or transmission of power by the interconnecting customer or retail service to the interconnecting customer.

(3) **Tier 3 tariff requirements.** Tariffs that govern the interconnection of Tier 3 generating facilities under this chapter must either:

(a) offer service equivalent in all procedural and technical respects to the interconnection service the electrical company offers under the small generator interconnection provisions of its open access transmission tariff as approved by the Federal Energy Regulatory Commission (FERC); or

(b) comply with the terms of an "alternative interconnection service tariff" described in section (5).

(4) **FERC Small Generator Interconnection Agreements.** For purposes of this section, "small generator interconnection provisions" means the procedural and technical requirements established by the FERC in Standardization of Small Generator Interconnection Agreements and Procedures, Order No. 2006, 70 FR 34190 (June 13, 2005), FERC Stats. & Regs. ¶ 31,180 (2005) (Order No. 2006), order on reh'g, Order No. 2006-A, 70 FR 71760 (Nov. 30, 2005), FERC Stats. & Regs. ¶ 31,196 (2005), order on clarif'n, Order No. 2006-B, 71 FR 42587 (July 27, 2006), FERC Stats. & Regs. ¶ 61,046 (2006). "Small generator interconnection provisions" does not include the 10 kW inverter process required under the above-listed FERC regulations.

(5) **Tier 3 alternative interconnection service tariff.** If an electrical company demonstrates that the small generator interconnection provisions will impair service adequacy, reliability or safety or will otherwise be incompatible with its

electric system, the electrical company may file a Tier 3 alternative interconnection service tariff. An alternative interconnection service tariff must meet the following requirements:

(a) All interconnection customers with generating facilities with nameplate capacity greater than 500 kW but no more than 20 MW must be treated equally without undue discrimination or preference.

(b) Electric companies must ensure that interconnection service will not impair safe, adequate and reliable electric service to its retail electric customers.

(c) Technical requirements for all interconnections must comply with IEEE, NESC, NEC, North American Electric Reliability Corporation, Western Electricity Coordinating Council and other applicable safety and reliability standards.

(d) Charges by the electrical company to the interconnection customer in addition to the application fee, if any, must be cost-based and consistent with generally accepted engineering practices. Unless an electrical company demonstrates by reference to its integrated resource plan prepared pursuant to WAC 480-100-238, its conservation targets pursuant to RCW 19.285.040, the studies it performs under WAC 480-108-120, or other evidence that an interconnection will provide quantifiable benefits to the electrical company's other customers, an interconnecting customer must pay all costs made necessary by the requested interconnection service. Such costs include, but are not limited to, the cost of engineering studies, upgrades to the electric system made necessary by the interconnection, metering and insurance. If an electrical company demonstrates that an interconnection will produce quantifiable benefits for the electrical company's other customers, it may incur a portion of these costs for commission consideration for recovery in its general rates commensurate with such benefits. If after consideration of any costs approved by the commission for recovery in general rates the remaining costs are less than any amounts paid by the interconnection customer, the electrical company must refund the excess to the interconnection customer.

(e) Interconnection customers must be responsible for all operation, maintenance and code compliance for facilities and equipment on the customer's side of the point of common coupling.

(f) Interconnection service tariffs must describe:

(i) The process, timelines and cost of feasibility and facility impact studies the electrical company may require before allowing interconnection.

(ii) The prioritization or other processes by which the

electrical company will manage multiple requests for interconnection service.

(g) Interconnection service tariffs must state:

(i) Specific time frames for electrical companies to respond to interconnection applications.

(ii) Specific time frames for interconnection customers to respond to study and interconnection agreements offered by the electrical company. Time frames must be adequate for the electrical company and the interconnection customer to have adequate opportunity to examine engineering studies and project design options.

(h) The electrical company must make knowledgeable personnel available to answer questions regarding applicability of the interconnection service tariff and otherwise provide assistance to a customer seeking interconnection service. The electrical company must comply with reasonable requests for information including relevant system studies, interconnection studies, and other materials useful for an interconnection customer to understand the circumstances of an interconnection at a particular point on the electric system, to the extent provision of such information does not violate confidentiality provisions of prior electrical company agreements.

[NOTE: WAC 480-108-035 is repealed and its terms are now found in WAC 480-108-CCC(3)(c)]

[NOTE: WAC 480-108-040 is repealed.]

Part 3 – General Terms and Conditions for Interconnections

NEW WAC 480-108-FFF General terms and conditions of interconnection.

(1) The terms, conditions, and technical requirements in this section apply to the interconnection customer and generating facility throughout the generating facility's installation, testing, commissioning, operation, maintenance, decommissioning and removal. The electrical company may verify compliance at any time, with reasonable notice.

(2) Any generating facility proposing to be interconnected with the electric system or any proposed change to a generating facility that requires modification of an existing interconnection agreement must meet all applicable terms, conditions, and technical requirements set forth in this chapter, including the regulations and standards adopted by reference in WAC 480-108-999.

(3) The terms, conditions and technical requirements in this section are intended to mitigate possible adverse impacts caused by the generating facility on electrical company equipment and personnel and on other customers of the electrical company. They are not intended to address protection of the generating facility itself, generating facility personnel, or its internal load. It is the responsibility of the generating facility to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect its own facilities, personnel, and loads.

(4) The interconnection customer shall comply with and must ensure its generating facility meets the requirements in subsections (a), (b), and (c) of this section. However, at its sole discretion, the electrical company may approve, in writing, alternatives that satisfy the intent of, or may excuse compliance with, any specific elements of these requirements except local, state and federal building codes.

(a) Codes and standards. These include the National Electric Code (NEC), National Electric Safety Code (NESC), the Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), and Underwriters Laboratories (UL) standards, and local, state and federal building codes. The interconnection customer shall be responsible for obtaining all applicable permit(s) for the equipment installations on its property.

(b) Safety. All safety and operating procedures for joint use equipment shall be in compliance with the Occupational Safety and Health Administration (OSHA) Standard at 29 CFR 1910.269, the NEC, Washington Administrative Code (WAC) rules, the Washington Division of Occupational Safety and Health (DOSH) Standard, and equipment manufacturer's safety and operating manuals.

(c) Power quality. Installations will be in compliance with all applicable standards including IEEE Standard 519 Harmonic Limits, or more stringent harmonic requirements of the electrical company that have been approved by the Commission.

(5) Any electrical generating facility must comply with this chapter to be eligible to interconnect and operate in parallel with the electric system. These specifications and standards shall apply to all interconnecting generating facilities that are intended to operate in parallel with the electric system regardless of whether the interconnection customer intends to generate energy to serve all or a part of the interconnection customer's load; or to sell the output to the electrical company or any third party purchaser.

(6) In order to ensure system safety and reliability of interconnected operations, all interconnected generating

facilities shall be constructed, operated and maintained by the interconnection customer in accordance with these rules, with the Interconnection Agreement, with the applicable manufacturer's recommended maintenance schedule and operating requirements, good electric company practice, and all other applicable federal, state, and local laws and regulations.

(7) This section does not govern the settlement, purchase, sale, transmission or delivery of any power generated by interconnection customer's generating facility. The purchase, sale or delivery of power, including net metered electricity pursuant to chapter 80.60 RCW, and other services that the interconnection customer may require will be covered by separate agreement or pursuant to the terms, conditions and rates as may be from time to time approved by the Commission. Separate agreements may be required with the electrical company, the Balancing Area Authority or transmission provider, or other party but not necessarily with the electrical company. Any such agreement shall be complete prior to initial operation.

(8) Interconnection customer shall promptly furnish the electrical company with copies of such plans, specifications, records, and other information relating to the generating facility or the ownership, operation, use, or maintenance of the generating facility, as may be reasonably requested by the electrical company from time to time.

(9) For the purposes of public and working personnel safety, any non-approved generating facility interconnections discovered will be immediately disconnected from the electric system without any liability to the electrical company. Such disconnection of non-approved interconnection may result in disconnection of electric service to customers of the electrical company other than the owner of the generating facility.

(10) To ensure reliable service to all electrical company customers and to minimize possible problems for other customers, the electrical company may review the need for upgrades to its system, including a dedicated transformer. If the electrical company notifies the interconnection customer that upgrades are required before or at the time of application approval, the interconnection customer shall pay for all costs of those upgrades, except where inconsistent with these rules.

(11) The electrical company may require, and if it so requires will provide its reasoning in writing, a transfer trip system or an equivalent protective function for a generating facility, that cannot: Detect distribution system faults (both line-to-line and line-to-ground) and clear such faults within time and operating parameters found in IEEE 1547 Tables 1 and 2; or detect the formation of an unintended island and cease to energize the electric system within two seconds.

(12) Metering.

(a) Net metering. The electrical company shall install, own, and maintain a kilowatt-hour meter or meters capable of registering the bi-directional flow of electricity at the point of common coupling. The meters shall meet or exceed all applicable accuracy standards. The meters may measure parameters including the time of delivery, power factor, and voltage. The interconnection customer shall provide space for metering equipment. The interconnection customer must provide the current transformer enclosure (if required), meter socket(s) and junction box after the electrical company approves the interconnection customer's drawings and equipment specifications.

(b) Production metering. The electrical company may require separate metering for production. This meter will record all generation produced and may be billed separately from any net metering or customer usage metering. All costs associated with the installation of production metering will be paid by the interconnection customer.

(13) Labeling. The interconnection customer must post common labeling, furnished or approved by the electrical company and in accordance with NEC requirements, on the meter base, disconnects, and transformers informing working personnel that a generating facility is operating at or is located on the premises.

(14) Insurance. No additional insurance is necessary for a generating facility under 100 kW.

(15) Future modification. An interconnection customer must obtain electrical company approval before any future modification or expansion of a generating facility. The electrical company may require the interconnection customer, at the interconnection customer's expense, to provide corrections or additions to existing electrical devices in the event of modification of government or industry regulations and standards, or major changes in the electric system which impacts the interconnection.

(16) Chapter 80.60 RCW limits the total capacity of generation for net metering. However, the electrical company may restrict or prohibit new or expanded net metered systems on any feeder, circuit or network if the restriction is supported by engineering, safety, or reliability studies.

(17) Cost allocation. Charges by the electrical company to the interconnection customer in addition to the application fee, if any, will be compensatory and applied as appropriate. Such costs may include, but are not limited to, transformers, production meters, and electrical company testing, qualification, studies and approval of non-UL 1741 listed

equipment. The interconnection customer shall be responsible for any costs associated with any future upgrade or modification to its interconnected system required by modifications in the electric system.

(18) Advance notice of disconnection. The interconnection customer may disconnect the generating facility at any time; provided that the interconnection customer provides reasonable advance notice to the electrical company.

(20) Sale and assignment. The interconnection customer shall notify the electrical company prior to the sale or transfer of the generating facility, the interconnection facilities or the premises upon which the facilities are located. The interconnection customer shall not assign its rights or obligations under any agreement entered into pursuant to these rules without the prior written consent of electrical company; such consent shall not be unreasonably withheld.

(21) If the interconnection customer is a different entity than the owner of the real property on which the generating facility is located, the interconnection customer shall indemnify the electrical company for all risks to the owner of the real property, including disconnection of service. In addition, the interconnection customer shall obtain all legal rights and easements requested by the electrical company for the electrical company to access, install, own, maintain, operate or remove its equipment and the disconnect switch, if installed, on the real property where the generating facility is located, at no cost to the electrical company.

(22) Inverters. If an inverter is utilized, the inverter must be certified by an independent, nationally recognized testing laboratory to meet the requirements of UL 1741. Inverters certified to meet the requirements of UL 1741 must use undervoltage, overvoltage, and over/under frequency elements to detect loss of electrical company power and initiate shutdown.

(23) Notification of anticipated voltage irregularities.

(a) The electrical company must examine, through engineering estimates or testing, the typical distribution system circuit voltage for a proposed interconnection to determine if the voltage is likely to routinely be at or within two volts of the upper or lower nominal voltage range limit of plus or minus five percent. If the voltage is expected to be routinely at or within two volts of the upper or lower limits of the nominal range, the electrical company must notify the interconnection customer in writing within the timelines described in WAC 480-108-CCC(1)(c), (2)(c), and (3)(c). This notification must explain the implications of the anticipated voltage irregularity and how this may limit the ability of a generating facility to export power to the electric system at

the proposed location.

(b) If the high or low voltage condition can be remedied by adjusting existing voltage regulation equipment without degrading service quality to other customers, the electrical company shall implement such adjustments and advise the interconnection customer of the expected timeline. For Tier 1 systems, minor modifications to the electric system to provide voltages that allow power to be transferred from the generating facility to the electric system, such as adding voltage control equipment to existing circuits, shall be expensed to distribution system operating accounts. For Tier 2 and Tier 3 systems, any required voltage control systems shall be paid by the interconnection customer.

[NOTE: WAC 480-108-050 is repealed and replaced by WAC 480-108-GGG Completion of the interconnection process.]

WAC 480-108-GGG Completion of interconnection process. The interconnection process is complete, the generating facility can begin operation when:

(1) The interconnection customer and the electric company execute an interconnection agreement;

(2) The interconnection customer provides, and the electrical company issues written approval for, a certificate of completion demonstrating:

(a) the receipt of any required electrical and building permits, and installation in compliance with electrical and local building codes;

(b) installation in compliance with the technical requirements for interconnection in this chapter;

(c) inspection and approval of the system by the electrical inspector having jurisdiction over the installation;

(3) All required agreements with the balancing area authority having jurisdiction, and all agreements covering the purchase, sale or transport of electricity and provision of any ancillary services have been completed and signed by all parties;

(4) Witness test. If required by the electrical company, a representative of the electrical company witnesses and approves the operation of the generating facility in accordance with the requirements of this chapter; and

(5) All requirements and conditions of the interconnection agreement have been satisfied and permission granted by the electrical company to proceed with commercial operation.

[NOTE: WAC 480-108-055 has been repealed and the language combined with that in WAC 480-108-100]

[NOTE: WAC 480-108-060 has been repealed and the language combined with that in WAC 480-108-110.]

[NOTE: WAC 480-108-065 has been repealed and the language combined with that in WAC 480-108-120.]

[NOTE: WAC 480-108-070 has been repealed.]

[NOTE: WAC 480-108-080 has been repealed and the language amended in WAC 480-108-DDD, Tier 3 Interconnection service tariffs]

[NOTE: WAC 480-108-090 has been repealed and the language amended in WAC 480-108-DDD Interconnection Service Tariffs]

WAC 480-108-100 Dispute resolution. An interconnection customer may ask the commission to review an electrical company's study costs, interconnection facility costs, system upgrade costs, deposit requirements, assignment of costs to the interconnection customer or an electrical company's processing, termination, denial or rejection of an interconnection application by making an informal complaint under WAC 480-07-910, or by filing a formal complaint under WAC 480-07-370.

WAC 480-108-110 Required filings--Exceptions. (1) The electrical company must file for commission approval, as part of its tariff, and maintain on file for inspection at its place of business, the charges, terms and conditions for interconnections pursuant to chapter. Such filing must include model forms of the following documents and contracts:

(a) Application;
(b) Feasibility Study Agreement;
(c) System Impact Study Agreement;
(d) Facilities Study Agreement;
(e) Construction Agreement;
(f) Interconnection Agreement; and
(g) Certificate of Completion.

(2) The commission may grant such exceptions to these rules as may be appropriate in individual cases.

WAC 480-108-120 Cumulative effects of interconnections with a nameplate capacity greater than 500 kW but no more than 20 MW. Electrical companies will evaluate on an ongoing basis,

but not less than once every 5 years, the cumulative effect, including benefits to its other customers, of interconnections made under this chapter on its electric system and will retain appropriate records of its evaluations.

WAC 480-108-999 Adoption by reference. In this chapter, the commission adopts by reference all or portions of regulations and standards identified below. They are available for inspection at the commission branch of the Washington state library or as otherwise indicated. The publications, effective date, references within this chapter, and availability of the resources are as follows:

(1) The National Electrical Code is published by the National Fire Protection Association (NFPA).

(a) The commission adopts the 2011 edition.

(b) This publication is referenced in WAC 480-108-BBB.

(c) The National Electrical Code is a copyrighted document. Copies are available from the NFPA at 1 Batterymarch Park, Quincy, Massachusetts, 02169 or at internet address http://www.nfpa.org.

(2) National Electrical Safety Code (NESC).

(a) The commission adopts the 2012 edition.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of the National Electrical Safety Code are available from the Institute of Electrical and Electronics Engineers at http://standards.ieee.org/nesc.

(3) Institute of Electrical and Electronics Engineers (IEEE) Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems.

(a) The commission adopts the version published in 2003 and reaffirmed in 2008.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of IEEE Standard 1547 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

(4) American National Standards Institute (ANSI) Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.

(a) The commission adopts the version published in 2005.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of IEEE Standard C37.90 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

(5) Institute of Electrical and Electronics Engineers (IEEE) Standard 519, Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.

(a) The commission adopts the version published in 2004.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of IEEE Standard 519 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

(6) Institute of Electrical and Electronics Engineers (IEEE) Standard 141, Recommended Practice for Electric Power Distribution for Industrial Plants.

(a) The commission adopts the version published in 1994 and reaffirmed in 1999.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of IEEE Standard 141 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

(7) Institute of Electrical and Electronics Engineers (IEEE) Standard 142, Recommended Practice for Grounding of Industrial and Commercial Power Systems.

(a) The commission adopts the version published in 2007.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of IEEE Standard 142 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

(8) Underwriters Laboratories (UL), including UL Standard 1741, Inverters, Converters, Controllers and Interconnection Systems Equipment for Use with Distributed Energy Resources.

(a) The commission adopts the version published in 2010.

(b) This publication is referenced in WAC 480-108-BBB.

(c) UL Standard 1741 is available from Underwriters Laboratory at http://www.ul.com.

(9) Occupational Safety and Health Administration (OSHA) Standard at 29 C.F.R. 1910.269.

(a) The commission adopts the version published in 1994.

(b) This publication is referenced in WAC 480-108-BBB.

(c) Copies of Title 29 Code of Federal Regulations are available from the U.S. Government Online Bookstore, http://bookstore.gpo.gov/, and from various third-party vendors.

(10) Washington Industrial Safety and Health Administration (WISHA) Standard, chapter 296-155 WAC.

(a) The commission adopts the version in effect on September 1, 2010.

(b) This publication is referenced in WAC 480-108-BBB.

(c) The WISHA Standard is available from the Washington Department of Labor and Industries at P.O. Box 44000, Olympia, WA 98504-4000, or at internet address http://www.lni.wa.gov.