

# Chapter 480-108 WAC

## ELECTRIC COMPANIES—INTERCONNECTION WITH ELECTRIC GENERATORS

### WAC

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**WAC 480-108-001 Purpose and scope.** (1) The purpose of this chapter is two-fold:

(a) Part 1 of this chapter establishes rules for determining the charges, terms and conditions governing the interconnection of customer-owned electric generating facilities with a nameplate generating capacity of no more than 300 kilowatts (kW) to the electric system of an electrical company over which the commission has jurisdiction.

(b) Part 2 of this chapter establishes rules requiring each electrical company to file interconnection service tariffs for interconnection of electric generating facilities with a nameplate generating capacity greater than 300 kW but no more than 20 megawatts (MW) 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 comply with a specified set of requirements set out in WAC 480-108-090.

(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)

(2/15/12)

relating to Net Metering (subsection 11) and Interconnection (subsection 15); and

(c) To promote the purposes of RCW 82.16.120 (effective July 1, 2005).

(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 electrical company's 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.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-001, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-001, filed 3/6/06, effective 4/6/06.]

**WAC 480-108-005 Application of rules.** (1) The rules in this chapter apply to any electrical company that is subject to commission jurisdiction under RCW 80.04.010 and chapter 80.28 RCW. These rules also include various 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.

(5) Disputes that arise under this chapter will be addressed in accordance with chapter 480-07 WAC. Any existing or potential interconnection customer may ask the commission to review the interpretation or application of these rules by an electrical company by making an informal complaint under WAC 480-07-910, Informal complaints, or

by filing a formal complaint under WAC 480-07-370, Pleadings—General.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-005, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-005, filed 3/6/06, effective 4/6/06.]

**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 initiate the interconnection process.

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

**"Certificate of completion"** means the form described in WAC 480-108-050 that must be completed by the interconnection customer and the electrical inspector having jurisdiction over the installation of the facilities indicating completion of installation and inspection of the interconnection. As provided in WAC 480-108-050, the certificate of completion must be reviewed and approved, in writing, by the electrical company before the interconnection customer's generation facility may be connected and operated in parallel with the electrical company's electrical system.

**"Commission"** means the Washington utilities and transportation commission.

**"Electric system"** means all electrical wires, equipment, and other facilities owned by the electrical company that are 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 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 electrical company's 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 arranged such that they collectively feed secondary circuits serving more than one location and more than one electrical company customer.

**"Interconnection customer"** means the person, corporation, partnership, government agency, or other entity that owns and operates a generating facility interconnected or requested to be interconnected to the electrical company's electric system. The interconnection customer may assign to another party responsibility for compliance with the requirements of this rule only with the express written permission of the electrical company.

**"Initial operation"** means the first time the generating facility is in parallel operation 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 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.

**"Model interconnection agreement"** means a written agreement including standardized terms and conditions that govern the interconnection of generating facilities pursuant to 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.

**"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 electrical company's electric system.

**"Point of common coupling"** or **"PCC"** means the point where the generating facility's local electric power system connects to the electrical company's 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, clause 4.

**"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 facilitate the interconnection of the generating facility. System upgrades do not include interconnection facilities.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-010, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-010, filed 3/6/06, effective 4/6/06.]

**Reviser's note:** RCW 34.05.395 requires the use of underlining and deletion marks to indicate amendments to existing rules, and deems ineffec-

tual changes not filed by the agency in this manner. The bracketed material in the above section does not appear to conform to the statutory requirement.

**PART 1: INTERCONNECTION OF GENERATION FACILITIES WITH NAMEPLATE CAPACITY RATING OF 300 kW OR LESS**

**WAC 480-108-015 Scope of Part 1.** The provisions in Part 1 of this chapter apply to interconnections, and to applications to interconnect, customer-owned generating facilities with a nameplate capacity rating of 300 kW or less to an electrical company's electrical system under this chapter.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-015, filed 9/27/07, effective 10/28/07.]

**WAC 480-108-020 Technical standards for interconnection.** (1) General interconnection requirements.

(a) The interconnection of a generating facility with the electrical company's electric system, the modification of a generating facility that is currently interconnected to the electrical company's electric system, or the modification of an existing interconnection must meet all minimum technical specifications applicable, in their most current approved version, as set forth in WAC 480-108-999.

(b) Interconnection of a generation facility with a nameplate capacity rating of 300 kW or less must comply with all applicable requirements in Table 1.

**Table 1. 300 kW Capacity or Less.**

Feature	Single-Phase		Three-Phase	
	< 50 kW Inverter based	< 50 kW Noninverter based	< 300 kW Inverter based	< 300 kW Noninverter based
IEEE 1547 compliant	X	X	X	X
UL 1741 listed	X		X	
Interrupting devices (capable of interrupting maximum available fault current)	X (8)	X	X (8)	X
Interconnection disconnect device (manual, lockable, visible, accessible)	X (1)	X	X	X
System protection		X (3)(4)(6)		X (3)(4)(5)(6)
Over-voltage trip	X (8)	X	X (8)	X
Under-voltage trip	X (8)	X	X (8)	X
Over/under frequency trip	X (8)	X	X (8)	X
Automatic synchronizing check		X		X
Ground over-voltage or over-current trip for utility system faults				X (2)
Power factor		X (7)		X (7)

Notes:

X - Required feature (blank = not required).

(1) - Electrical company may choose to waive this requirement.

(2) - May be required by electrical company; selection based on grounding system.

(3) - No single point of failure shall lead to loss of protection.

(4) - All protective devices shall fully meet the requirements of American National Standards Institute C37.90.

(5) - Electrical company will specify the transformer connection.

(6) - It is the customer's responsibility to ensure that its system is effectively grounded as defined by IEEE Std. 142 at the point of common coupling.

(7) - Variance may be allowed based upon specific requirements per electrical company review. Charges may be incurred for losses.

(8) - UL 1741 listed equipment provides required protection.

(c) Any single or aggregated generating facility with a capacity greater than 50 kW requires a three-phase interconnection.

(d) The specification and 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. The specifications and requirements in this section are not intended to address protection of the generating facility or its internal load, or generating facility personnel. The interconnection customer is responsible for complying with the

requirements of all appropriate standards, codes, statutes, and authorities to protect its own facilities, personnel, and loads.

(e) The specifications and requirements in this section apply generally to the interconnection to an electrical company's electric system of customer-owned and operated electric equipment and any other facilities or equipment not owned by the electrical company to which interconnection agreement(s) apply throughout the period encompassing the interconnection customer's installation, testing and commissioning, operation, maintenance, decommissioning and

removal of equipment. The electrical company may verify compliance at any time, with reasonable notice.

(f) The electrical company may refuse to establish or maintain interconnection with any interconnection customer that fails to comply with the requirements in (f)(i), (ii) and (iii) of this subsection. However, at its sole discretion, the electrical company may approve alternatives that satisfy the intent of, and/or may excuse compliance with, any specific elements of these requirements except local, state and federal building codes.

(i) Code and standards. All interconnections must conform to all applicable codes and standards for safe and reliable operation. Among these are the National Electric Code (NEC); National Electric Safety Code (NESC); the standards of the Institute of Electrical and Electronics Engineers (IEEE); the standards of the North American Electric Reliability Corporation (NERC); the standards of the Western Electricity Coordinating Council (WECC); American National Standards Institute (ANSI); Underwriters Laboratories (UL) standards; local, state and federal building codes, and any electrical company's written electric service requirement approved by the commission. Electrical companies may require verification that an interconnection customer has obtained all applicable permit(s) for the equipment installations on its property.

(ii) Safety. All safety and operating procedures for interconnection facilities must comply with the Occupational Safety and Health Administration (OSHA) Standard at 29 C.F.R. 1910.269, the NEC, Washington Administrative Code (WAC) rules, the Washington Industrial Safety and Health Administration (WISHA) Standard, and equipment manufacturer's safety and operating manuals.

(iii) Power quality. Installations must be in compliance with all applicable standards including, without limitation, IEEE Standard 519 Harmonic Limits, and IEEE Standard 141 Flicker as measured at the PCC.

(2) Specific interconnection requirements.

(a) The electrical company must verify that the interconnection customer has furnished and installed on its side of the meter, a UL-approved safety disconnect switch that can fully disconnect the interconnection customer's generating facility from the electrical company's electric system. The disconnect switch must be located adjacent to electrical company meters and shall be of the visible break type in a metal enclosure that can be secured by a padlock. The disconnect switch must be accessible to electrical company personnel at all times.

(b) The requirement in (a) of this subsection may be waived by the electrical company if the interconnection customer:

(i) Provides interconnection facilities that the interconnection customer can demonstrate, to the satisfaction of electrical company, perform physical disconnection of the generating equipment supply internally; and

(ii) Agrees that its service may be disconnected entirely if generating equipment must be physically disconnected for any reason.

Such waiver granted by the electrical company to the interconnection customer must be explicit and in writing.

(c) The electrical company has the right to disconnect the generating facility at the disconnect switch:

(i) When necessary to maintain safe electrical operating conditions;

(ii) If the generating facility does not meet required standards; or

(iii) If the generating facility at any time adversely affects or endangers any person, the property of any person, the electrical company's operation of its electric system or the quality of electrical company's service to other customers.

(d) Nominal voltage and phase configuration of interconnection customer's generating facility must be compatible with the electrical company's system within generally accepted engineering standards including without limitation IEEE Standards 141 and 519 at the point of common coupling.

(e) The electrical company must verify on the basis of evidence provided by the interconnection customer that a generating facility interconnected to a grid network distribution system or a spot network distribution system will not impair public safety or quality of service to the electrical company's other customers as a result of reverse current flow through the electrical company's network protectors.

(f) All instances of interconnection to spot network distribution systems require review, studies as necessary, and written approval by the electrical company.

(g) All instances of interconnection to grid network distribution systems require review, studies as necessary, and written approval by the electrical company.

(h) Closed transition transfer switches are not allowed in network distribution systems.

(3) Specifications applicable to all inverter-based interconnections. In addition to the requirements contained in subsections (1) and (2) of this section, the interconnection of any inverter-based generating facility with the electrical company's electric system, or the modification of an existing interconnection with an inverter-based generating facility must meet the following additional technical specifications, in their most current approved version:

(a) IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems;

(b) UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems. Equipment must be UL listed; and

(c) IEEE Standard 929, IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.

(4) In addition to the requirements in subsections (2) and (3) of this section, all noninverter-based interconnections and all inverter-based interconnections failing to meet the requirements of subsection (3) of this section may require more detailed electrical company review. The electrical company must demonstrate the need for additional testing and approval of equipment if the same equipment has been tested and approved previously for any of the electrical company's interconnection customers. Electrical companies may require interconnection customers to pay for needed testing and approval of the equipment proposed to be installed to ensure compliance with applicable technical specifications, in their most current approved version, including:

(a) IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, for systems 10 MVA or less; and

(b) ANSI Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.

(5) The electric company may require interconnection customers proposing noninverter-based interconnection to submit a power factor mitigation plan for electrical company review and approval.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-020, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-020, filed 3/6/06, effective 4/6/06.]

#### **WAC 480-108-030 Application for interconnection.**

(1) The electrical company must file a standard form of application with the commission, which the interconnection customer seeking to interconnect a generating facility under Part 1 of this chapter must fill out and submit to the electrical company along with the application fee established according to subsection (4) of this section.

(2) The electrical company will designate a point of contact and publish a telephone number and/or web site address for the unique 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 an interconnection customer to understand the circumstances of an interconnection at a particular point on the electrical company's electric system, to the extent provision of such information does not violate confidentiality provisions of prior electrical company agreements.

(3) Prior to submitting its interconnection request, a potential interconnection customer may ask the electrical company whether and how the proposed interconnection is subject to this chapter. The electrical company must respond within fifteen business days.

(4) 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 kW; and
- (b) Five hundred dollars for facilities 26 to 300 kW.

(5) Interconnection application. The electrical company must stamp all interconnection requests to document the date and time received. The original date and time stamp affixed to the interconnection request will serve as the beginning point for purposes of any timetables in the application and review process.

(6) Application evaluation. Upon receipt of an interconnection application, the electrical company must notify the interconnection customer within ten business days whether the interconnection request is complete. If the application is not complete, the electrical company must provide a written list detailing all additional information necessary to complete the application. The interconnection customer must supply the necessary information or request an extension of time within ten business days. If the interconnection customer does not provide within ten business days the listed information necessary to complete the application or request an

extension of time, the electrical company may reject the application.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-030, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-030, filed 3/6/06, effective 4/6/06.]

**WAC 480-108-035 Model interconnection agreement, review and acceptance of interconnection agreements and costs.** (1) Each electrical company must file a model form of interconnection agreement for approval by the commission.

(2) Simplified review process. 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 480-108-020 and to determine whether any additional engineering, safety, reliability or other studies are required. The electrical company must notify the interconnection customer of the result of these determinations within thirty business days of when the application is deemed complete.

(3) If the electrical company notifies the interconnection customer that the request complies with the technical requirements established in WAC 480-108-020 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 five 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 execute and return the completed agreement(s) within thirty business days following receipt. 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.

(4) Supplemental review process. If the electrical company determines that additional studies are required to determine the feasibility of the interconnection, the electrical company must notify the interconnection customer within thirty business days of when the application is deemed complete and 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. Within thirty business days after receiving the agreement, the interconnection customer may supply an alternative cost estimate from a third-party qualified to perform the studies required by the electrical company. 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 must execute and return the completed agreement within thirty business days along with any deposit required by the electrical company not to exceed the lower of one thousand dollars, or fifty percent of the estimated study cost.

(5) The electrical company will provide the interconnection customer with the results of the studies conducted under subsection (4) of this section. 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.

(6) If the studies conducted under subsection (4) of this section 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 five 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 execute and return the completed agreement(s) within thirty business days following receipt. 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.

(7) An interconnection customer's failure to execute and return completed agreements and required deposits within the time frames specified in subsections (3), (4) and (6) of this section may result in termination of the application process by the electrical company under terms and conditions stated in such agreements.

(8) The interconnection customer shall be 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 all as required under the charges, terms and conditions stated in the study agreement(s) and interconnection agreement required above.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-035, filed 9/27/07, effective 10/28/07.]

**WAC 480-108-040 General terms and conditions of interconnection.** The general terms and conditions listed in this section shall apply to all interconnections of customer-owned generating facilities with nameplate capacity less than or equal to 300 kW to an electrical company's electric system under Part 1 of this chapter.

(1) Any electrical generating facility with a maximum nameplate capacity rating of 300 kW or less must comply with these rules to be eligible to interconnect and operate in parallel with the electrical company's electric system. The rules under this chapter apply to all interconnection customer-owned generating facilities that are intended to operate in parallel with an electrical company's electric system irrespective 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.

(2) To ensure system safety and reliability of interconnected operations, all interconnected generating facilities must be constructed and operated in accordance with this chapter and all other applicable federal, state, and local laws and regulations.

(3) Prior to initial operation, all interconnection customers must submit a completed certificate of completion to the electrical company, execute an appropriate interconnection agreement and any other agreement(s) required for the dispo-

sition of the generating facility's electric power output as described in WAC 480-108-040(15). The interconnection agreement between the electrical company and the interconnection customer outlines the interconnection standards, cost allocation and billing agreements, and on-going maintenance and operation requirements.

(4) The 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, electrical company access to, or maintenance of the generating facility, as may be reasonably requested by the electrical company from time to time.

(5) For the purposes of public and working personnel safety, the electrical company may immediately disconnect from the electrical company system any nonapproved generation interconnections.

(6) To ensure reliable service to all electrical company customers and to minimize possible problems for other customers, the electrical company will review the need for a dedicated-to-single-customer distribution transformer. If the electrical company requires a dedicated distribution transformer, the interconnection customer must pay all reasonable costs of the new transformer and related facilities in accordance with subsection (13) of this section.

(7) Metering.

(a) Net metering for solar, wind, hydropower fuel cells and facilities that simultaneously produce electricity and useful thermal energy as set forth in chapter 80.60 RCW. The electrical company will install, own and maintain a kilowatt-hour meter, or meters as the installation may determine, capable of registering the bi-directional flow of electricity at the point of common coupling at a level of accuracy that meets all applicable standards, regulations and statutes. The meter(s) may measure such parameters as time of delivery, power factor, voltage and such other parameters as the electrical company specifies. The interconnection customer must provide space for metering equipment. The interconnection customer must provide the current transformer enclosure (if required), meter socket(s) and junction box after the interconnection customer has submitted drawings and equipment specifications for electrical company approval. The electrical company may approve other generating sources for net metering but is not required to do so.

(b) Production metering: The electrical company may require separate metering, including, if necessary for safety or reliability, metering capable of being remotely accessed, for production. This meter will record all generation produced and may be billed separately from any net metering or customer usage metering. Costs associated with production metering will be paid by the interconnection customer.

(8) Common labeling furnished or approved by the electrical company and in accordance with NEC requirements must be posted on the meter base, disconnects, and transformers informing working personnel that generation is operating at or is located on the premises.

(9) As currently set forth for qualifying generation under chapter 80.60 RCW (net metering), no additional insurance will be necessary for interconnections that qualify for net metering. For generation other than qualifying generation under chapter 80.60 RCW, additional insurance, limitations

of liability and indemnification may be required by the electrical company.

(10) The electrical company must review and approve any future modification or expansion of an interconnected generating facility. The electrical company may require the interconnection customer to provide and pay for corrections or additions to existing interconnection facilities if government or industry regulations and standards are modified. The electric company must notify the interconnection customer in writing of any such requirement. The electrical company may terminate interconnection service if the interconnection customer does not within thirty business days of the date of the notice arrange with the electrical company a mutually agreed schedule to comply with such requirements.

(11) For the overall safety and protection of the electrical company system, chapter 80.60 RCW limits interconnection of generation for net metering to .25 percent of the electrical company's peak demand during 1996 and, beginning in 2014, to .50 percent of the electrical company's peak demand during 1996. Additionally, interconnection of generating facilities for net metering to individual distribution feeders is limited to 10 percent of the feeder's peak capacity. The electrical company also may restrict or prohibit new or expanded interconnected generation capacity on any feeder, circuit or network if engineering, safety or reliability studies establish a need for restriction or prohibition.

(12) The interconnection customer is responsible for protecting its facilities, loads and equipment and complying with the requirements of all appropriate standards, codes, statutes and authorities.

(13) 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. Such charges may include, but are not limited to, the cost of engineering studies; the cost of transformers, production meters, and electrical company testing; the cost of qualification, and approval of non-UL 1741 listed equipment; the cost of interconnection facilities, and the cost of any required system upgrades. 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, its studies performed under WAC 480-108-065, or other evidence that an interconnection will provide quantifiable benefits to the electrical company's other customers, electrical company charges to the interconnection customer will include all costs made necessary by the requested interconnection service. 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 amount to the interconnection customer.

(14) The interconnection customer is responsible for costs associated with future upgrades or modification to its generating facility or interconnection facilities made necessary by modifications the electrical company makes to its electric system.

(15) This section does not govern the settlement, purchase or delivery of any power generated by the interconnection customer's generating facility. The purchase or delivery of power, including net metering of electricity pursuant to chapter 80.60 RCW, power purchases and sales to PURPA qualifying facilities pursuant to chapter 480-107 WAC, 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. Any such agreement shall be completed prior to initial operation and filed with the commission.

(16) The interconnection customer may disconnect the generating facility at any time after providing reasonable advance notice to the electrical company.

(17) The electrical company must require an interconnection customer to provide notice of the sale or transfer of the interconnection customer's generating facility, interconnection facilities or the premises upon which the interconnection facilities are located. To continue interconnection service to a new owner, the electrical company must require the new owner to execute a new interconnection agreement.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-040, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-040, filed 3/6/06, effective 4/6/06.]

**WAC 480-108-050 Certificate of completion.** Interconnection customers must obtain an electrical permit and pass electrical inspection for all generating and interconnection facilities before they can be connected or operated in parallel with the electrical company's electric system. The electrical company must receive written certification from the interconnection customer that the generating facility has been installed and inspected in compliance with the local building and/or electrical codes. The electrical company must review and approve in writing the certificate of completion, before the interconnection customer's generating facility may be operated in parallel with the electrical company's electric system. The electrical company shall not unreasonably withhold such approval, but shall have the right to inspect and test the interconnection facilities in accordance with IEEE 1547.1 prior to parallel operation.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-050, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-050, filed 3/6/06, effective 4/6/06.]

**WAC 480-108-055 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 application by making an informal complaint under WAC 480-07-910, or by filing a formal complaint under WAC 480-07-370.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-055, filed 9/27/07, effective 10/28/07.]

**WAC 480-108-060 Required filings—Exceptions.** (1)

By January 31, 2008, 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 Part 1 of this chapter. Such filing must include model forms of the following documents and contracts:

- (a) Application;
- (b) Interconnection agreement;
- (c) Feasibility study agreement;
- (d) Construction agreement; and
- (e) Certificate of completion.

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

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-060, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-060, filed 3/6/06, effective 4/6/06.]

**WAC 480-108-065 Cumulative effects of interconnections with a nameplate capacity rating of 300 kW or less.** Electrical companies will evaluate on an ongoing basis, but not less than once every five years, the cumulative effect, including benefits to its other customers, of interconnections made under Part 1 of this chapter on its electric system and will retain appropriate records of its evaluations.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-065, filed 9/27/07, effective 10/28/07.]

**PART 2: INTERCONNECTION OF GENERATION FACILITIES WITH NAMEPLATE CAPACITY RATING GREATER THAN 300 KW BUT NO MORE THAN 20 MW**

**WAC 480-108-070 Scope of Part 2.** Part 2 of this chapter applies to interconnections of, and applications to interconnect customer-owned generating facilities with a nameplate capacity rating of greater than 300 kW but no more than 20 MW to an electrical company's electric system under this chapter.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-070, filed 9/27/07, effective 10/28/07.]

**WAC 480-108-080 Interconnection service tariffs.**

(1) No later than January 31, 2008, each electrical company over which the commission has jurisdiction must file an interconnection service tariff for facilities with nameplate generating capacity greater than 300 kW but no more than 20 MW.

(2) Interconnection service tariffs must 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).

(3) For purposes of Part 2 of this chapter, "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 34100 (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.

(4) 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.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-080, filed 9/27/07, effective 10/28/07.]

**WAC 480-108-090 Alternative interconnection service tariff.** (1) 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 no later than January 31, 2008, an alternative to the interconnection service tariff required in WAC 480-108-080.

(2) An interconnection service tariff filed under this section must meet the following requirements.

(a) All interconnection customers with generating facilities with nameplate capacity greater than 300 kW but no more than 20 MW must be treated equally without undue discrimination or preference.

(b) Electrical 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 Electric 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 utility facilities 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 electrical company's electric system, to the extent provision of such information does not violate confidentiality provisions of prior electrical company agreements.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-090, filed 9/27/07, effective 10/28/07.]

**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.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-100, filed 9/27/07, effective 10/28/07.]

**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 Part 2 of this 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.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-110, filed 9/27/07, effective 10/28/07.]

**WAC 480-108-120 Cumulative effects of interconnections with a nameplate capacity rating greater than 300 kW but no more than 20 MW.** Electrical companies will evaluate on an ongoing basis, but not less than once every five years, the cumulative effect, including benefits to its other customers, of interconnections made under Part 2 of this chapter on its electric system and will retain appropriate records of its evaluations.

[Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-120, filed 9/27/07, effective 10/28/07.]

**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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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 480-108-020.

(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>.

[Statutory Authority: RCW 80.01.040, 80.04.160, 81.04.160, and 34.05.353. 12-05-063 (Docket A-111722, General Order R-564), § 480-108-999, filed 2/15/12, effective 3/17/12; 11-04-041 (Docket A-101466, General Order R-562), § 480-108-999, filed 1/25/11, effective 2/25/11; 10-03-044 (Docket A-091124, General Order R-557), § 480-108-999, filed 1/14/10, effective 2/14/10; 09-01-171 (Docket A-081419, General Order R-554), § 480-108-999, filed 12/23/08, effective 1/23/09. Statutory Authority: RCW 80.01.040 and 80.04.160. 07-20-059 (Docket UE-060649, General Order 545), § 480-108-999, filed 9/27/07, effective 10/28/07; 06-07-017 (Docket No. UE-051106, General Order No. R-528), § 480-108-999, filed 3/6/06, effective 4/6/06.]