

## Chapter 480-108 WAC

### ELECTRIC COMPANIES--INTERCONNECTION WITH ELECTRIC GENERATORS

#### NEW SECTION

**WAC 480-108-001 Purpose and scope.** (1) The purpose of this chapter is to establish rules for determining the terms and conditions governing the interconnection of electric generating facilities with a nameplate generating capacity of not more than 25 kilowatts to the electric system of an electrical company over which the commission has jurisdiction.

(2) These rules are intended to be consistent with the requirements of chapter 80.60 RCW, Net metering of electricity; to partially comply with Section 1254 of the Energy Policy Act of 2005, Pub. L. No. 109-58 (2005); and to promote the purposes of Substitute Senate Bill No. 5101, chapter 300, Laws of 2005 (effective July 1, 2005).

(3) This chapter governs the terms and conditions under which the applicant's generating facility 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 the applicant's generating facility.

#### NEW SECTION

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

(2) 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. Electrical companies shall modify, if necessary, any

existing tariffs, including, but not limited to, tariffs implementing chapter 80.60 RCW, Net metering of electricity, which are currently on file and approved by the commission to conform to these rules.

(3) Disputes that arise under this chapter will be addressed in accordance with chapter 480-07 WAC.

#### NEW SECTION

**WAC 480-108-010 Definitions.** **"Applicant"** means any person, corporation, partnership, government agency, or other entity applying to interconnect a generating facility to the electrical company's electric system pursuant to this chapter.

**"Application"** means the written notice as defined in WAC 480-108-030 provided by the applicant to the electrical company that initiates the interconnection process.

**"Certificate of completion"** means the form as defined in WAC 480-108-050 completed by the applicant or generator and the electrical inspector having jurisdiction over the installation of the facilities 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 or provided 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 which is subject to the jurisdiction of the commission.

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

**"Generator"** means the entity that owns and/or operates the generating facility interconnected to the electrical company's electric system.

**"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 used to interconnect a generating facility to the electric system.

**"Model interconnection agreement"** means 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 distribution system (grid or spot)"** 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 one (a spot network) or more (a grid network) electrical company customers.

**"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.

#### NEW SECTION

**WAC 480-108-020 Technical standards for interconnection.**  
The technical standards listed in this section shall apply to all generating facilities to be interconnected to the electrical company under this chapter.

(1) General interconnection requirements.

(a) Any generating facility desiring to interconnect with the electrical company's electric system or modify an existing interconnection must meet all minimum technical specifications applicable, in their most current approved version, as set forth in this chapter.

(b) The specifications 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. 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.

(c) The specifications and requirements in this section shall apply generally to the nonelectrical company-owned electric generation equipment to which this standard and agreement(s) apply throughout the period encompassing the generator's installation, testing and commissioning, operation, maintenance, decommissioning and removal of said equipment. The electrical company may verify compliance at any time, with reasonable notice.

(d) The generator shall comply with the requirements in (d)(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. Applicant shall 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 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 generator shall be responsible to obtain all applicable permit(s) for the equipment installations on its property.

(ii) 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 Industrial Safety and Health Administration (WISHA) Standard, and equipment manufacturer's safety and operating manuals.

(iii) Power quality. Installations will be in compliance with all applicable standards including IEEE Standard 519-1992 Harmonic Limits.

(2) Specific interconnection requirements.

(a) Applicant shall furnish and install on applicant's side of the meter, a UL-approved safety disconnect switch which shall be capable of fully disconnecting the applicant's generating facility from electrical company's electric system. The disconnect switch shall be located adjacent to electrical company meters and shall be of the visible break type in a metal

enclosure which can be secured by a padlock. The disconnect switch shall 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:

(i) Applicant provides interconnection equipment that applicant can demonstrate, to the satisfaction of electrical company, performs physical disconnection of the generating equipment supply internally; and

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

(c) The electrical company shall have the right to disconnect the generating facility at the disconnect switch under the following circumstances: When necessary to maintain safe electrical operating conditions; if the generating facility does not meet required standards; or 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 applicant's generating facility must be compatible to the electrical company system at the point of common coupling.

(e) Applicant must provide evidence that its generation will never result in reverse current flow through the electrical company's network protectors. All instances of interconnection to secondary spot distribution networks shall require review and written preapproval by electrical company. Interconnection to distribution secondary grid networks is not allowed. Closed transition transfer switches are not allowed in secondary network distribution systems.

(3) Specifications applicable to all inverter-based interconnections. Any inverter-based generating facility desiring to interconnect with the electrical company's electric system or modify an existing interconnection must meet the technical specifications, in their most current approved version, as set forth below.

(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.

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

(4) Requirements applicable to all noninverter-based interconnections. Noninverter-based interconnection requests may require more detailed electrical company review, testing, and approval, at applicant cost, 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.

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

(c) Applicants proposing such interconnection may also be required to submit a power factor mitigation plan for electrical company review and approval.

#### NEW SECTION

**WAC 480-108-030 Application for interconnection.** (1) When an applicant requests interconnection from an electrical company, the applicant shall be responsible for conforming to the rules and regulations that are in effect and on file with the commission. The electric utility will designate a point of contact and publish a telephone number or web site address for this unique purpose. The applicant seeking to interconnect a generating facility under these rules must fill out and submit a signed application form to the electrical company. Information must be accurate, complete, and approved by the electrical company prior to installing the generating facility. The electrical company shall file a form of application with the commission.

(2) Application fees. The electrical company may require a nonrefundable interconnection application fee of no more than one hundred dollars.

(3) Application prioritization. All generation interconnection requests pursuant to this chapter will be prioritized by the electrical company in the same manner as any new load requests. Preference will not be given to either request type. The electrical company will process the application and provide interconnection in a time frame consistent with the average of other service connections.

(4) Application evaluation. All generation interconnection requests pursuant to this chapter will be reviewed by the utility for compliance with the rules of this chapter. If the utility in its sole discretion finds that the application does not comply with this chapter, the utility may reject the application. If the utility rejects the application, it shall provide the applicant with written notification stating its reasons for rejecting the application.

NEW SECTION

**WAC 480-108-040 General terms and conditions of interconnection.** The general terms and conditions listed in this section shall apply to all generating facilities interconnecting to the electrical company under this chapter.

(1) Any electrical generating facility with a maximum electrical generating capacity of 25 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 shall apply to all interconnecting generating facilities that are intended to operate in parallel with an electrical company's electric system irrespective of whether the applicant intends to generate energy to serve all or a part of the applicant's load; or to sell the output to the electrical company or any third party purchaser.

(2) In order to ensure system safety and reliability of interconnected operations, all interconnected generating facilities shall be constructed and operated by generator in accordance with this chapter and all other applicable federal, state, and local laws and regulations.

(3) Prior to initial operation, all generators must submit a completed certificate of completion to the electrical company, execute an appropriate interconnection agreement and any other agreement(s) required for the disposition of the generating facility's electric power output as described in WAC 480-108-040(14). The interconnection agreement between the electrical company and generator outlines the interconnection standards, cost allocation and billing agreements, and on-going maintenance and operation requirements.

(4) Applicant or generator 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.

(5) For the purposes of public and working personnel safety, any nonapproved generation interconnections discovered will be immediately disconnected from the electrical company system.

(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. Interconnecting

generating facilities under 25 kW may require a separate transformer. If the electrical company requires a dedicated distribution transformer, the applicant or generator shall pay for all costs of the new transformer and related facilities.

(7) Metering.

(a) Net metering for solar, wind, hydropower and fuel cells as set forth in chapter 80.60 RCW: The electrical company shall 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 shall specify. The applicant shall provide space for metering equipment. It will be the applicant's responsibility to provide the current transformer enclosure (if required), meter socket(s) and junction box after the applicant 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 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 applicant.

(8) Common labeling furnished or approved by the electrical company and in accordance with NEC requirements must be posted on 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, for solar, wind, hydro or fuel cells, no additional insurance will be necessary. For other generating facilities permitted under these standards but not contained within chapter 80.60 RCW, additional insurance, limitations of liability and indemnification may be required by the electrical company.

(10) Prior to any future modification or expansion of the generating facility, the generator will obtain electrical company review and approval. The electrical company reserves the right to require the generator, at the generator's expense, to provide corrections or additions to existing electrical devices in the event of modification of government or industry regulations and standards.

(11) For the overall safety and protection of the electrical company system, chapter 80.60 RCW currently limits interconnection of generation for net metering to 0.1% of the



electrical company's peak demand during 1996. Additionally, interconnection of generating facilities to individual distribution feeders will be limited to 10% of the feeder's peak capacity. However, the electrical company may, in its sole discretion, allow additional generation interconnection beyond these stated limits.

(12) It is the responsibility of the generator to protect its facilities, loads and equipment and comply with the requirements of all appropriate standards, codes, statutes and authorities.

(13) Charges by the electrical company to the applicant or generator 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, and approval of non-UL 1741 listed equipment. The generator shall be responsible for any costs associated with any future upgrade or modification to its interconnected system required by modifications in the electrical company's electric system.

(14) This section does not govern the settlement, purchase or delivery of any power generated by applicant's generating facility. The purchase or delivery of power, including net metering of electricity pursuant to chapter 80.60 RCW, and other services that the applicant 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 complete prior to initial operation and filed with the commission.

(15) Generator may disconnect the generating facility at any time; provided, that the generator provide reasonable advance notice to the electrical company.

(16) Generator 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 applicant or generator shall not assign its rights or obligations under any agreement entered into pursuant to these rules without the prior written consent of electrical company, which consent shall not be unreasonably withheld.

NEW SECTION

**WAC 480-108-050 Certificate of completion.** All generating facilities must obtain an electrical permit and pass electrical inspection before they can be connected or operated in parallel with the electrical company's electric system. Generator shall provide to electrical company written certification that the generating facility has been installed and inspected in compliance with the local building and/or electrical codes.

NEW SECTION

**WAC 480-108-060 Required filings--Exceptions.** (1) The electrical company shall file, 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 this chapter. Such filing shall include model forms of the following documents and contracts:

- (a) Application.
- (b) Model interconnection agreement.
- (c) Certificate of completion.

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

NEW SECTION

**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 version published in 2005.
- (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 Electric Safety Code (NESC).

(a) The commission adopts the version published in 2002.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of the National Electric 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.

(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) Institute of Electrical and Electronics Engineers (IEEE) Standard 929, Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.

(a) The commission adopts the version published in 2000.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of IEEE Standard 929 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

(5) 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>.

(6) 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 1992.

(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>.

(7) Underwriters Laboratories (UL), including UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems.

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

(b) This publication is referenced in WAC 480-108-020.

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

(8) Occupational Safety and Health Administration (OSHA)

Standard at 29 CFR 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.

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

(a) The commission adopts the version in effect on March 1, 2006.

(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>.