
PUGET SOUND ENERGY
Electric Tariff G

SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS
(Part of Schedule 80, General Rules And Provisions)

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)
(Part of Schedule 80, General Rules And Provisions)

1) Introduction: Eligible electric generators that are capable of being Interconnected with the Company's Electric System and satisfy the Company's Interconnection requirements shall be Interconnected under the provisions of this Schedule 152. The requirements for Interconnection generally fall into three (3) tiers, as follows:

- Tier 1 includes the requirements for interconnecting the smallest and easiest-to-connect projects;
- Tier 2 includes the requirements for interconnecting mid-sized and mid-complexity projects; and
- Tier 3 includes the requirements for interconnecting larger or more complex projects.

If an Application does not meet the requirements of a particular tier, Interconnection will be subject to the requirements of the next higher tier. Summaries of the Interconnection procedures for each tier are appended to this schedule as Attachments A-1 (for Tier 1), A-2 (for Tier 2), and A-3 (for Tier 3).

This Schedule 152 is based on state laws and rules regulating Electric Service including Washington Administrative Code (WAC) Chapter 480-108 and the Revised Code of Washington (RCW) Chapter 80-60.

The provisions of Schedule 152 apply to all Interconnections, including without limitation Net Metering Interconnections, but the Interconnection Application Process specifically for Net Metering Systems is described in the Electronic Application Process described in Schedule 150.

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2) Attachments: The attachments listed in the table of contents contain additional information, procedures, applications, requirements and agreements and are, by this reference, incorporated into this Schedule 152.

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

3) Definitions: The following capitalized terms used in this schedule have the meanings set forth below. Other terms used in this schedule, whether or not capitalized, have the meanings set forth in Schedule 80 or WAC 480-108.

a. **Agreement** – the Interconnection agreement using one of the forms appended to this Schedule: Attachment I for Tier 1 Interconnections or Attachment J for Tier 2 and Tier 3 Interconnections.

b. **Application** – the notice that the Interconnection Customer provides to the Company to start the Interconnection process. The form of Application for a Generation Facility eligible for Tier 1 is set forth in Attachment B to Schedule 152. The form of Application for a Generating Facility eligible for Tier 2 or Tier 3 is set forth in Attachment C to Schedule 152. Alternatively, in lieu of the submission of a completed Attachment ‘B’ or ‘C’ to Schedule 152, the Interconnection Customer may complete their Application via the Schedule 152 Electronic Application Process described in subsection 6.a.iv in Schedule 152. For Tier 1 or Tier 2 interconnections of Net Metering Systems eligible under Schedule 150 that use UL-listed inverter based technologies, Customers shall use the Electronic Application Process described in Schedule 150. (C)
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c. **Business Day** – Monday through Friday, excluding official federal and state holidays.

d. **Certificate of Completion** – the form that must be completed by the Interconnection Customer’s electrical inspector and accepted by the Company indicating the Interconnection Customer has completed, installed, and inspected the Interconnection. The form of Certificate of Completion is set forth in Attachment H to Schedule 152. The Company may choose not to require a Certificate of Completion if the Interconnection is accomplished under the provisions of Schedule 150.

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

3) Definitions (Continued):

e. Codes and Standards – Include:

- i. All Interconnections must conform to the National Electric Code (NEC); National Electric Safety Code (NESC) and all applicable codes and standards for safe and reliable operation. Among these are 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 Electric Coordinating Council (WECC); American National Standards Institute (ANSI); Underwriters Laboratories (UL) standards; local, state and federal building codes, and any Company's written electric service requirement approved by the Commission. The Company may require verification that an Interconnection Customer has obtained all applicable permit(s) for the equipment installations on its property. (O)
- ii. All safety and operating procedures for Interconnection Facilities must comply 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 manufacture's safety and operating manuals.
- iii. Installations must be in compliance with all applicable power quality standards including IEEE Standard 519 Harmonic Limits, and IEEE Standard 141 Flicker as measured at the PCC.
- iv. Generating Facility must be designed so that when it is Operating In Parallel with the Company's Electric System it shall operate at a power factor within .95 leading and .95 lagging, unless otherwise agreed to in writing by the Company.

f. Company or PSE – Puget Sound Energy

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

3) Definitions (Continued):

- g. **Customer-Generator** – an Interconnection Customer that operates a Generating Facility that operates in parallel with PSE’s Electric System; the term is used throughout Schedule 152 and in Schedules 150 (Net Metering) and 151 (Production Incentive). (C)
| (C)
- h. **Electric System** – all electrical wires, equipment, and other facilities owned by the Company and used to transmit electricity to Customers.
- i. **Generating Facility** – 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 Company’s Electric System. The source of electricity cannot be a source of electricity from another utility. The Generating Facility includes the Customer-owned Interconnection Facilities. (C)
(C)
- j. **Interconnection/Interconnected** – the physical connection of a Generating Facility to the Company’s Electric System enabling Parallel Operation.
- k. **Initial Operation** –the first time the Generating Facility Operates In Parallel with the Company’s Electric System.
- l. **Interconnection Agreement** – an agreement between the Company and the Interconnection Customer, in the form set forth in Attachment I or J, as applicable, that sets forth the Interconnection Customer’s Interconnection requirements, together with obligations of the Interconnection Customer for costs and billing, insurance coverage, and for the performance of ongoing inspections, maintenance, and operational requirements.

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SCHEDULE 152
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(Part of Schedule 80, General Rules And Provisions)

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3) Definitions (Continued):

- m. **Interconnection Customer** – the person, corporation, partnership, government agency, or other entity that proposes to Interconnect, or has executed an Interconnection Agreement, with the Company. The Interconnection Customer must:
 - i. Own a Generating Facility, or the output thereof, Interconnected or proposed to be Interconnected to the Company's Electric System; or
 - ii. Be a Customer-Generator of net-metered facilities.

The Interconnection Customer is responsible for the Generating Facility, and may assign to another party responsibility for compliance with the requirements of the Agreement and WAC 480-108 only with the express written permission of the Company; such permission shall not be unreasonable withheld. A net metered Interconnection Customer may lease a Generating Facility from, or purchase power from, a third-party owner of an on-site Generating Facility.

- n. **Interconnection Facilities** – the electrical wires, switches, and other equipment owned by either the Company or the Interconnection Customer and used to interconnect a Generating Facility to the Company's existing Electric System. Interconnection Facilities are located between the Generating Facility and the Point of Interconnection. Interconnection Facilities do not include System Upgrades of the Company's Electric System, but do include extension of the Company's Electric System to a PCC requested by the Interconnection Customer or required by the Company.
- o. **Islanding** – the condition that occurs when power from the Company's Electric System is no longer present and the Generating Facility continues exporting Energy onto the Company's Electric System.

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

3) Definitions (Continued):

- p. **kW** – kilowatts, and as sometimes used in this schedule, the Nameplate Capacity of the Generating Facility, as the context may require.
- q. **Minor Modification** – a physical modification to the Company's Electric System, the cost of which aggregates to no more than ten thousand dollars.
- r. **Nameplate Capacity** – for a Generating Facility that uses an inverter to change DC energy to AC energy, the Nameplate Capacity will be the manufacturer's AC output rating for the inverter(s). For DC-to-AC inverters, Nameplate Capacities are measured in kilowatts (kW).
- s. **Net-Metering** – measuring the difference between the electricity supplied by the Company and the electricity generated by a Generating Facility that is fed back to the Company's Electric System over the applicable billing period.
- t. **Network Protectors** – devices installed on a network distribution system designed to detect and interrupt reverse current-flow as quickly as possible, typically within three to six cycles.
- u. **Parallel Operation/Operate in Parallel** – the synchronous operation of a Generating Facility while Interconnected with the Company's Electric System.
- v. **Point of Change of Ownership** or **POCO** – the physical location where the Generating Facility's local electric power system connects to the Company's Electric System. The POCO may be at a unique location (such as when there are both Interconnection Customer-owned and Company-owned Interconnection Facilities) or be the same as the PCC or POI.

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(N)

3) Definitions (Continued):

- w. **Point of Common Coupling** or **PCC** –the point where the Generating Facility's local electric power system connects to the 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 the Company. As provided in WAC 480-108-010 this is the point of measurement for the application of IEEE standard 1547.
- x. **Point of Interconnection** or **POI** – the physical location where the Interconnection Facilities connect to the Company distribution facilities, which are shared with all other of the Company's Customers and the cost of which is paid by all of the Company's Customers.
- y. **Point of Metering** or **POM** – the physical location of the Company's meter. The POM may be at the PCC or the POCO, but is not necessarily the same as the PCC, POCO, or POI.
- z. **System Upgrades** – the additions, modifications, and upgrades to the Company's Electric System on the Company side of the POI necessary (as determined by the Company) to Interconnect the Generating Facility. System Upgrades do not include Interconnection Facilities, but do include, e.g., protection equipment and protection communications (such as, but not limited to, relays and fiber communications) and upgrades to substations and transmission lines.
- aa. **Third-Party Owner** – an entity that owns the Generating Facility and that has entered into a contract with the Interconnection Customer to provide the energy from the Generating Facility to the Interconnection Customer. When a third-party owns a net-metered Generating Facility, the Interconnection Customer shall maintain the Net-Metering relationship with the Company.

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(N)

4) Applicability

- a. **General:** This schedule applies to all Customer-owned electric generators and electric generators, the electrical output of which is Customer-owned, that are capable of being Interconnected with the Company's Electric System and satisfy the Company's Interconnection requirements, 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 Company or any third-party purchaser. All Generating Facilities Interconnected with the Company's Electric System must comply with this Schedule 152 and the applicable attachments.

The following systems and scenarios do not apply to Interconnection under this Schedule 152:

- i. Electric generators of no more than twenty megawatts (20,000 kW) that are designed and used only to provide emergency service to the Customer when electricity is not available from the Company and that Operate in Parallel with the Company's distribution and transmission system for less than one-half second both to and from emergency service,
- ii. Electric generators greater than 20,000 kW,
- iii. Electric generators interconnected to the Company's FERC-jurisdiction transmission system, or
- iv. Electric generators interconnected to the Company's distribution system, the owners of which or of the output thereof intend to sell the electricity on the open market.

All costs of Interconnection shall be paid by the Interconnection Customer.

Any Interconnection that is not authorized by the Company will not be permitted under this tariff.

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

4) Applicability (Continued):

- b. **Tiers:** Each tier has specific requirements and technical requirements that must be met to be eligible to interconnect under that tier. All requirements of this schedule and of WAC 480-108 must be met for an electric generator to qualify for a specific tier and be authorized for Interconnection.
- i. **Tier 1.** The Tier 1 processes and technical requirements will apply if the proposed Generating Facility meets all of the following criteria.
- A. It uses UL 1741 inverter-based interconnection equipment;
 - B. Is single-phase;
 - C. Has a Nameplate Capacity of 25 kW or less;
 - D. Is proposed for Interconnection at Secondary voltages (600 V class);
 - E. Requires no construction or upgrades to the Company's facilities, other than meter changes;
 - F. The aggregated generating capacity on the service wire does not exceed the rated capacity of the service wire;
 - G. The aggregated generating capacity on the transformer Secondary does not exceed the nameplate capacity of the transformer;
 - H. If proposed to be Interconnected on a center tap neutral of a 240-volt service, the Generating Facility's Interconnection shall not create an imbalance between the two sides of the 240-volt service of more than 5 kVA; and
 - I. The aggregated Nameplate Capacity of all Generating Facilities on any line section does not exceed 15% of the line section's annual peak load as most recently measured or calculated for that line section, or 15% of the circuit annual peak load as most recently measured or calculated for the circuit. For the purposes of this subsection:
 - a) "all Generating Facilities" means all Interconnected Generating Facilities, the proposed Generating Facility, and all other proposed Generating Facilities already in the queue referred to in WAC 480-108-030(7) (as such rule may be revised or renumbered from time to time); and
 - b) "line section" means that portion of an electric system connected to the Generating Facility and bounded by sectionalizing devices or the end of the distribution line.

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**SCHEDULE 152
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(N)

4) Applicability (Continued):

b. Tiers (Continued):

- ii. **Tier 2.** The Tier 2 processes and technical requirements will apply if the proposed Generating Facility meets all the following criteria.
 - A. It does not qualify for Tier 1 Interconnection applicability requirements;
 - B. Has a Nameplate Capacity of 500 kW or less;
 - C. Is proposed for Interconnection to an Electric System distribution facility operated at or below 38 kV class;
 - D. Is not a synchronous generator;
 - E. If it is proposed to be Interconnected on a Secondary line with other proposed or existing Generating Facilities, the aggregate generating capacity on the shared Secondary line, including the proposed Generating Facility, must not exceed the lesser of the Secondary wire capability or the nameplate capacity of the transformer;
 - F. The aggregated Nameplate Capacity of all Generating Facilities on any line section does not exceed 15% of the line section's annual peak load as most recently measured or calculated for the line section, or 15% of the circuit annual peak load as most recently measured or calculated for the circuit. For the purposes of this subsection:
 - a) "all Generating Facilities" means all Interconnected Generating Facilities, the proposed Generating Facility, and all other proposed Generating Facilities already in the queue referred to in WAC 480-108-030(7) (as such rule may be revised or renumbered from time to time); and
 - b) "line section" means that portion of an electric system connected to the Generating Facility and bounded by sectionalizing devices or the end of the distribution line.

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

4) Applicability (Continued):

b. Tiers (Continued):

ii. Tier 2. (Continued):

- G. Any upgrades required to the Company's Electric System must fall within the provisions of Technical Requirements for Tier 2, Subsection 5.b.ii., of this Schedule 152; (T)
- H. For Interconnection of a proposed Generating Facility to the load side of spot Network Protectors, the proposed Generating Facility must use an inverter. The aggregate Nameplate Capacity of all inverter-based systems must not exceed the lesser of 5% of a spot network's maximum load or 50 kW;
- I. The aggregated Nameplate Capacity of existing and proposed Generating Facilities must not contribute more than 10% to the distribution circuit's maximum fault current at the point on the Primary voltage distribution line nearest the Point of Interconnection; and
- J. 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% of the interrupting capability of the Company's protective devices and equipment (including substation breakers, fuse cutouts, and line reclosers).

- iii. **Tier 3.** The Tier 3 processes and technical requirements will apply if the proposed Generating Facility does not qualify for Tier 1 or Tier 2.

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(N)

5) Technical Requirements: The following technical requirements must be met for each respective tier. Following reasonable notice, the Company may verify compliance to all applicable codes and Codes and Standards at any time and the Customer Generator will cooperate in such verification.

a. Tier 1

- i. The purpose of the protection required for Tier 1 Generating Facilities is to prevent Islanding and ensure that inverter output is disconnected when the Company's Electric System (or a portion thereof) is de-energized.
- ii. An interrupting device must be provided that is capable of safely interrupting the maximum available fault current (typically the maximum fault current is the fault current supplied by the Company).
- iii. The Generating Facility must operate within the voltage and power factor ranges specified by the Company and as allowed by Underwriters Laboratories (UL) standard 1741.
- iv. Disconnect Switch - The Company shall not require a visible, lockable AC disconnect switch for Interconnection Customers installing and operating an inverter-based UL 1741 certified system Interconnected through a self-contained socket-based meter of 320 amps or less unless the Washington State Department of Labor and Industries requires such a switch. However, if the Interconnection Customer chooses to install visible, lockable AC disconnect switch it shall be UL[®] approved that meets Company requirements for location and type and is capable of fully disconnecting the Generating Facility from the Company's Electric System; or
- v. Permits and Codes - The Interconnection Customer shall obtain all applicable permits and shall comply with all applicable Codes and Standards for safe and reliable operation.

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**SCHEDULE 152
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(N)

5) Technical Requirements (Continued):

b. Tier 2

- i. In all cases, the Interconnection Facilities must isolate the Generating Facility from the Company's Electric System as specified by IEEE 1547 and the Interconnection Agreement. The Interconnection Customer shall prevent its Generating Facility equipment from automatically reenergizing the Company's Electric System as specified by IEEE 1547, UL 1741, and the Interconnection Agreement.
 - A. For inverter-based systems, the Interconnection Facility must comply with IEEE 1547, UL 1741, the Company's equipment placement requirements, and the Interconnection Agreement.
 - B. For non-inverter based systems, a separate protection package will be required to meet IEEE 1547 and the Interconnection Agreement.
- ii. If the Generating Facility fails to meet the characteristics for Tier 2 applicability, but the Company determines that the Generating Facility could be Interconnected safely if Minor Modifications to the Company's transmission or distribution system were made (for example, changing meters, fuses, or relay settings), then the Company may offer the Interconnection Customer a good-faith, nonbinding estimate of the costs of such proposed Minor Modifications. If the Interconnection Customer authorizes the Company to proceed with the Minor Modifications, agrees to pay the entire actual cost of the modifications, and executes a Construction Agreement in the form of Attachment G to this Schedule 152, then the Company may accept the Application using Tier 2 processes and technical requirements.
- iii. For proposed Generating Facilities of 50 kW and greater, the Company may require a three-phase connection.

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(N)

5) Technical Requirements (Continued):

b. Tier 2 (Continued)

- iv. For a three-phase, induction generator Interconnection, the Company may, in its sole determination, specify that the Interconnection Customer provide ground-fault protection. Use of ground overvoltage or ground overcurrent elements is determined by whether the 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 kVA.
- 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 Company's Electric System must be the Company's standard connection. This requirement is intended to limit the potential for creating over-voltages on the Company's 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.

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5) Technical Requirements (Continued):

b. **Tier 2 (Continued)**

ix. **Disconnect switch.**

Except as provided in B., C., and D. of this subsection, the Generating Facility must include a visible, lockable AC disconnect switch installed on the Interconnection Customer's side of the PCC. The disconnect switch must be a UL®-approved visible-break disconnect switch that meets all Codes and Standards including standards of the Washington State Labor and Industries and Company requirements for placement and is capable of fully disconnecting the Generating Facility from the Company's Electric System. All visible-break disconnect switches must be located adjacent to the Company's electric meter(s) or other location specified by the Company and must be accessible to the Company at all times. Such visible-break disconnect switches must have the capability to be locked with a padlock installed by the Company.

- A. The Company shall have the right to disconnect the Generating Facility at a UL-listed disconnect switch to meet the Company's operating safety requirements.
- B. The Company may waive the visible, lockable disconnect switch requirement for an inverter-based system that meets the most currently approved version of IEEE Standard 1547 and UL Standard 1741. Such waiver shall be in writing and signed by an authorized representative of the Company.
- C. To maintain Company operating and personnel safety in the absence of an external disconnect switch, the Company shall have the right to disconnect electric service through other means if the Generating Facility must be physically disconnected for any reason, without liability to the Company. These actions to disconnect the Generating Facility (due to an emergency or maintenance or other condition on the Company's Electric System) will result in loss of electric 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.

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5) Technical Requirements (Continued):b. **Tier 2 (Continued)**ix. **Disconnect switch. (Continued)**

D. Prior to waiving the requirement for a disconnect switch, the Company may require the Interconnection Customer to demonstrate that the Interconnection Facilities perform internal physical disconnection of the Generating Facility to the satisfaction of the Company. In the absence of an external disconnect switch, the Interconnection Customer is required to operate and maintain the inverter in accordance with the manufacturer's guidelines, and retain documentation of commissioning. In the absence of such documentation, the Company may, with five days' notice and at the Interconnection Customer's expense, test or cause to be tested the inverter to ensure its continued operation and protection capability. The person who tests the inverter shall provide documentation of the results to both the Company and the Interconnection Customer. Should the inverter fail the test, the Company may disconnect the Generating Facility, and require the Interconnection Customer to repair or replace the inverter. The cost of any such repair or replacement required by the 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 Company's Electric System as specified by IEEE 1547 and the Interconnection Agreement. The Interconnection Customer shall prevent its Generating Facility equipment from automatically reenergizing the Company's Electric System as specified by IEEE 1547 and the Interconnection Agreement.

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

5) Technical Requirements (Continued):

c. **Tier 3 (Continued)**

i. (Continued)

- A. For inverter-based systems, the Interconnection Facilities must comply with IEEE 1547, UL 1741, Codes and Standards, and the Interconnection Agreement.
 - B. For non-inverter based systems, a separate protection package will be required to meet the specifications of IEEE 1547 and the Interconnection Agreement.
- ii. The system must be designed to prevent a single point of failure from causing a loss of protective functions. This design can be achieved by installing multiple discrete-function relays providing the required functions as a set, or by installing redundant multifunction devices, each of which provides all of the required functions.
- iii. The Interconnection Customer must provide ground fault protection unless waived by the Company in writing. The Company may specify either ground overvoltage or ground overcurrent elements, depending on whether the Company uses three-wire or effectively grounded four-wire systems.
- iv. The Interconnection Customer must provide breaker failure detection and initiate secondary action in the event that the Interconnection breaker fails to clear for the trip condition, consistent with industry and Company practices. These protective mechanisms may require the Interconnection Customer to install 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.

(N)

(N)

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Electric Tariff G**

SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

(N)

5) Technical Requirements (Continued):

c. Tier 3 (Continued)

v. **Interconnection studies.** The Company may require a feasibility, system impact, facilities, or other study as described in WAC 480-108-030(10)(c). These studies are intended to quantify the impacts of the Generating Facility on the Company's Electric System, and may include an analysis of power flow, stability, metering, relay/protection, and communications/telemetry. The Interconnection Customer must accept the results of these studies as a condition of acceptance of the Application because the studies provide the basis for the detailed technical requirements and costs for Interconnection. When studies are required, the Interconnection Customer must enter into an agreement for each required study. The agreement for a feasibility study will be in the form set forth in Attachment D to this Schedule 152. The agreement for a system impact study will be in the form set forth in Attachment E to this Schedule 152. The agreement for a facilities study will be in the form set forth in Attachment F to this Schedule 152.

6) Application For Interconnection: WAC 480-108-030 provides specific rights, responsibilities, and timelines regarding the Application for Interconnection. All Customer-owned electric generators and electric generators, the electrical output of which is Customer-owned, that are capable of being Interconnected with the Company's Electric System can only be Interconnected: under the provisions contained in this Schedule 152, under the applicable rules contained in WAC 480-108, and following execution of an Interconnection Agreement between the Interconnection Customer and the Company. All Applications must be complete and accurate and signed by the Interconnection Customer.

(N)

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

6) Application For Interconnection (Continued):

a. **Standard Application.** An electric Customer must first submit a complete and accurate Interconnection Application to the Company. Standard Applications for Interconnection are included as attachments to, or described in, Schedules 91, 150, and 152 of this tariff as follows: (N)
(N)

i. **Tier 1:** Each Interconnection Customer must have entered into an Agreement or must enter into the Company's current Interconnection Agreement. The Interconnection Agreement may be modified to accommodate terms and conditions specific to individual Interconnections, subject to the conditions set forth in this Schedule 152 and in WAC 480-108.

If the Interconnection Customer desires to participate in the Company's Net Metering and/or production metering programs (see Schedules 150 and 151, respectively), the Interconnection Customer shall complete the Electronic Application Process described in Schedule 150, as applicable. If the Interconnection Customer does not intend to participate in the Net Metering program, the Interconnection Customer must submit a completed Application through the Electronic Application Process described in subsection 6.a.iv, or in the form set forth in Attachment B to this Schedule 152 and must enter into an Interconnection Agreement in the form set forth in Attachment I to this Schedule 152. (N)
(N)

ii. **Tier 2:** If the Interconnection Customer desires to participate in the Company's Net Metering and/or production metering programs (and is eligible to participate), the Interconnection Customer shall complete the Application Process described in the Electronic Application Process described in Schedule 150. If the Interconnection Customer does not intend to participate in the Net Metering program, the Interconnection Customer must submit a completed Application through the Electronic Application Process described in subsection 6.a.iv, or in form set forth in Attachment C to this Schedule 152 and must enter into an Interconnection Agreement in the form set forth in Attachment J to this Schedule 152 (or in such other form as may be acceptable to the Company) prior to Interconnection. (N)
(N)

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**PUGET SOUND ENERGY
Electric Tariff G**

SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

6) Application For Interconnection (Continued):

a. Standard Application (Continued).

iii. **Tier 3:** If the Interconnection Customer desires to participate in the Company's Net Metering and/or production metering programs (and is eligible to participate), or does not intend to participate in the Net Metering program, the Interconnection Customer must submit a completed Application through the Electronic Application Process described in subsection 6.a.iv, or in the form set forth in Attachment C to this Schedule 152 and must enter into an Interconnection Agreement in the form set forth in Attachment J to this Schedule 152 (or in such other form as may be acceptable to the Company) prior to Interconnection.

(N)

(N)

iv. **Electronic Application Process:** A Customer may complete their Schedule 152 Application via this Electronic Application Process in lieu of the Attachments B and C as described in this subsection. The Electronic Application Process and step-by-step instructions are available at www.pse.com/distributedrenewables. This Electronic Application Process is an alternative process with the same requirements as in Attachments B and C to Schedule 152. The subsection 6.a.iv Electronic Application Process will include the following information and requirements:

(K) (N)

A. Contact Information:

- 1.1. Interconnection Customer name, address, email, and phone number
- 1.2. Applicant/installer/developer name, address, email, and phone number
- 1.3. Billable party responsible for Interconnection study costs name, address, email, and phone number

(N)

(K)

(K) Transferred to Sheet No. 152-T2

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)
(Part of Schedule 80, General Rules And Provisions)

(N)

6) Application For Interconnection (Continued):

a. Standard Application (Continued).

iv. Electronic Application Process (Continued)

B. Application Fee

- 1.1. See Subsection 6.c for the application fee for proposed Interconnection based on the Nameplate Capacity of the Generating Facility
- 1.2. To expedite the application approval process, inverter-based systems less than 500 kW (see subsection 4.b.ii.) have the option to submit a study deposit at the same time the application fee is submitted.

C. Proposed Generating Facility Information

- 1.1. Project name
- 1.2. Project location
- 1.3. Method of generation
- 1.4. Generator equipment specifications
- 1.5. Customer-owned transformer specifications, if applicable
- 1.6. Electrical schematic of all generators, inverters, points of disconnection, designated point of interconnection, load centers, meters, storage and transfer switches on a one or three line electrical diagram.
- 1.7. Project site plan
- 1.8. An hourly projection of power production in KW AC for a typical year (also known as an "8760") in spreadsheet format.
- 1.9. Description of site control

D. Signed Interconnection Customer accepting of the terms of Schedule 152 and requirements of WAC Chapter 480-108.

(N)

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

(N)

6) Application For Interconnection (Continued):

a. Standard Application (Continued).

iv. Electronic Application Process (Continued)

- B. The Company will review application and respond with either a request for revisions/corrections or consider the application complete. Once the application is complete, the Company will notify the customer regarding the required studies, study agreements, and study deposits.
- C. The Company is available to assist by telephone with the completion of applications for any Customers unable to utilize the online application.
- D. The Customer or agent acting on behalf of the customer must submit the required study agreement(s) and study deposit.

(N)

b. Timeline – Process. The process and timeline for each tier is described in the attachments to this Schedule 152 as follows:

(M)

- i. **Tier 1:** The process and timeline is provided in Attachment A-1.
- ii. **Tier 2:** The process and timeline is provided in Attachment A-2.
- iii. **Tier 3:** The process and timeline is provided in Attachment A-3.

c. Application Fees. Each Application for Interconnection under Schedule 152 shall be accompanied by payment of a non-refundable, non-transferable application fee for proposed Interconnection based on the Nameplate Capacity of the Generating Facility as follows:

- i. **UL 1741 Inverter-based 0 to 100 kW and Net-Metered:** \$0.00 (Interconnected pursuant to Schedule 150)
- ii. **0 to 25 kW:** \$100.00 (Not Net Metered under to Schedule 150)
- iii. **Over 25 kW to 500 kW:** \$500.00 (Not Net Metered under to Schedule 150)
- iv. **Over 500 kW to 20,000 kW (20 MW):** \$1,000.00 (Not Net Metered under to Schedule 150)
- v. **Pre-Application Site Assessment Fee:** \$300

(M)

(M) Transferred from Sheet 152-T

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)
(Part of Schedule 80, General Rules And Provisions)

(N)

6) Application For Interconnection (Continued):

c. Application Fees (Continued).

Additional fees may apply if an Interconnection Customer needs to apply for another tier or if studies are required.

If an Application is withdrawn, the application fee will be applied to a re-Application if submitted within 30 Business Days following withdrawal and such re-Application is for the same location.

d. Phased installation. When a project is designed for phased installation, the Interconnection Customer may choose to submit an Application for the final project size, or may choose to submit Applications at each phase of the project. Each Application will be evaluated based on the Nameplate Capacity stated on the Application. If separate Applications are submitted for each phase of a project, a separate application fee is required for each phase of the project.

i. If the Interconnection Customer applies with a final phased-in project size and the Company accepts the Application, then the Interconnection Customer must notify the Company as additional units are added.

ii. If an Interconnection Customer submits an Application for an individual phase of a project, the Interconnection Customer may not develop the project beyond the size specified in such Application.

e. Pre-Application Site Assessment Fee. When an Interconnection Customer requests an assessment of multiple locations for the site of connection to the Company's Electric System for a Generating Facility, the Company may charge the Pre-Application Site Assessment Fee for each individual site assessment.

f. PSE Point of Contact for Interconnection. Attachment K to this Schedule 152 provides contact information for questions and information requests.

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

6) Application For Interconnection (Continued):

- g. **Nondiscriminatory Processing.** All Generating Facility Interconnection Applications will be processed and evaluated by the Company in a nondiscriminatory manner, consistent with other service requests and in a manner that does not delay other service requests.

7. General Terms And Conditions Of Interconnection:

- a. The terms, conditions, and technical requirements provided in this section of Schedule 152 apply to the Interconnection Customer and Generating Facility throughout the Generating Facility's installation, testing, commissioning, operation, maintenance, decommissioning, and removal. The Company may verify compliance at any time, with reasonable notice.
- b. Any Generating Facility proposed for Interconnection with the Company's 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 Schedule 152 and WAC 480-108, including the regulations and standards adopted by reference in WAC 480-108-999.
- c. The terms, conditions, and technical requirements in this Schedule 152 are intended to mitigate possible adverse impacts caused by the Generating Facility on Company equipment, facilities and personnel and on other Customers of the Company. They are not intended to address the protection of the Generating Facility itself, Generating Facility personnel, or its internal load. It is the responsibility of the owner 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.

(N)

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

7. General Terms And Conditions Of Interconnection (Continued):

- d. The Interconnection Customer shall comply with and must ensure that its Generating Facility meets the requirements set forth in clauses i, ii, and iii of this subsection. However, in its sole discretion, the Company may accept, in writing, alternatives that satisfy the intent of, or waive compliance with, any specific elements of these requirements except local, state, and federal building codes. Such acceptance from the Company must be in writing signed by a person authorized to make such a decision.
- i. **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.
- 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 C.F.R. 1910.269, the NEC, Washington Administrative Code (WAC) rules, the Washington Division of Occupational Safety and Health (DOSH) standard, and equipment manufacturers' safety and operating manuals.
- iii. **Power quality.** Installations will be in compliance with all applicable standards including IEEE standard 519 Harmonic Limits or more stringent harmonic requirements of the Company that have been approved or accepted by the Washington Utilities and Transportation Commission.

(N)

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

7. General Terms And Conditions Of Interconnection (Continued):

- e. In order to ensure system safety and the 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 manufacturers' recommended maintenance schedules and operating requirements, with good electric company practice, and with all other applicable federal, state, and local laws and regulations.
- f. This Schedule 152 and WAC Chapter 480-108 do not govern the settlement, purchase, sale, transmission, or delivery of any power generated by Interconnection Customer's Generating Facility.
- g. An Interconnection Customer shall promptly furnish the 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 Company from time to time.
- h. **Disconnection.**
 - i. **Disconnection by Interconnection Customer.** The Interconnection Customer may disconnect the Generating Facility at any time, provided that the Interconnection Customer provides reasonable advance notice to the Company to enable the Company to prepare for such disconnection.
 - ii. **Disconnection by the Company.** The Company shall have the right to disconnect any Generating Facility from the Company's Electric System under the following circumstances: (1) to maintain electrical operating conditions, (2) if the Generating Facility does not meet applicable Codes and Standards, (3) for circumstances described in WAC 480-100-128, (4) if the Generating Facility at any time adversely affects or endangers any person, the property of any person, the operation of the Company's Electric System, or the quality of service to any other Customer, (5) for refusing the Company the right to inspect the Generating System, or (6) for Interconnection without the Company's written authorization.

(N)

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)
(Part of Schedule 80, General Rules And Provisions)

(N)

7. General Terms And Conditions Of Interconnection (Continued):

h. Disconnection (Continued).

ii. Disconnection by the Company (Continued).

- A. **Notice.** The Company shall provide reasonable advance notice to an Interconnection Customer before any scheduled disconnection, or reasonable notice after an unscheduled disconnection.
- B. **Unauthorized Interconnection.** For the purposes of public and working personnel safety, any Generating Facility not authorized for Interconnection will be immediately disconnected from the Company's Electric System.
- C. **Temporary Disconnection – No Disconnect Switch.** To maintain the Company's operating and personnel safety, if no disconnect switch for the Generating Facility is present disconnection will result in temporary disconnection of electric service to the Interconnection Customer if the Generating Facility must be physically disconnected for any reason. The disconnection of the Generating Facility (e.g., due to an emergency, maintenance, or other condition on the Company's Electric System) will result in loss of electrical service to the Customer's facility or residence and the duration of such an outage may be extensive.
- D. **Reconnection Charge.** The Company may charge a reconnection fee as provided in Schedule 80, Section 18, Connection and Reconnection Charges, of the Company's tariff.
- E. **Other Actions.** Should the Company disconnect the Generating Facility due to safety considerations, it is understood that electric service will be disconnected without notice as provided in WAC 480-100-128(2) and that such disconnection is without liability to the Company.

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

7. General Terms And Conditions Of Interconnection (Continued):

h. Disconnection (Continued).

ii. Disconnection by the Company (Continued).

F. No Disconnect Switch. If no disconnect switch is present, disconnection may involve (1) removal of the Interconnection Customer's electric service meter and loss of electrical service from the Company, which may cause wear and tear on the Interconnection Customer's meter base; (2) disconnection of the service line connecting the Interconnection Customer; or (3) disconnection of the transformer providing service to the Interconnection Customer which may result in disconnection of other Customers. In addition, the outage for the Interconnection Customer and Customers served from the same transformer (if physical disconnection is made at the transformer) may be extensive.

i. Upgrades. To ensure reliable service to all Customers of the Company and to minimize possible problems for other Customers, the Company may review the need for upgrades to its system on account of an Interconnection, including, without limitation, a dedicated transformer. If, before an Application is accepted, the Company notifies the Interconnection Customer that upgrades are required, the Interconnection Customer shall pay for all costs of those upgrades, except to the extent inconsistent with WAC Chapter 480-108.

j. Trip Protection. The Company may require a transfer trip system or an equivalent protective function for a Generating Facility that cannot (A) 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 (B) detect the formation of an unintended island and cease to energize the Company's Electric System within two seconds. If the Company requires such a protective function, it will provide its reasoning to the Interconnection Customer in writing.

(N)

(N)

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)
(Part of Schedule 80, General Rules And Provisions)

(N)

7. General Terms And Conditions Of Interconnection (Continued):

k. Metering.

- i. **Net-Metering.** The 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, which shall meet or exceed all applicable accuracy standards, may measure electrical parameters including the time of delivery, power factor, and voltage. The Interconnection Customer shall provide space for metering equipment. The Interconnection Customer must also provide the current transformer enclosure (if required), meter socket(s), and junction box after the Company accepts the Interconnection Customer's drawings and equipment specifications.
- ii. **Production metering.** The Company may require separate metering for production. This meter will record all electricity 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.
- iii. **Point of Metering.** The Company shall determine the appropriate type of metering. For Secondary voltage metering, the Company shall install the metering in a meter base provided, installed at the POM, owned, and maintained by the Interconnection Customer. The metering shall be compensated to the Primary voltage side of the transformer. For Primary voltage metering, the Company shall install all metering equipment at the Interconnection Customer's expense. Primary voltage metering shall be owned and maintained by the Company. All costs associated with meter installation, metering for purposes of selling electricity to the Company, and meter communications shall be paid by the Interconnection Customer.

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)
(Part of Schedule 80, General Rules And Provisions)

(N)

7. General Terms And Conditions Of Interconnection (Continued):

- m. **Labeling.** The Interconnection Customer must post common labeling, furnished or authorized by the Company and in accordance with NEC (National Electric Code) requirements, on the meter base, disconnects, and transformers informing working personnel that a Generating Facility is operating at or is located on the Premises.
- n. **Insurance.** The Company may require additional insurance, limitations of liability, and indemnification prior to Interconnection for Generating Facilities of 100 kW or larger. No additional insurance related to Interconnection will be required for a Generating Facility with a Nameplate Capacity less than 100 kW.
- o. **Modification – Generating Facility.** An Interconnection Customer must obtain authorization from the Company before modifying or expanding a Generating Facility. The 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 changes to government or industry regulations and standards, or changes in the Company's Electric System that impact the Interconnection.
- p. **Modification – Company's Electric System.** The Company may from time to time upgrade or otherwise modify its Electric System. Such upgrades or modifications may require changes to the Generating Facility, or Interconnection Facilities, the costs of which shall be paid by the Interconnection Customer.

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SCHEDULE 152
INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

7. General Terms And Conditions Of Interconnection (Continued):

- q. **Cost Allocation.** Charges by the Company to the Interconnection Customer in addition to the application fee, if any, will be for actual costs and will be applied as appropriate. Such costs may include, but are not limited to, the Company's costs of transformers, production meters, ownership, testing, qualification, studies, design, construction, and acceptance of non-UL 1741 listed equipment. The Interconnection Customer shall be responsible for any costs associated with any upgrade or modification to its Interconnected system (including Company-owned Interconnection Facilities dedicated to the Interconnection Customer's use) that is necessary due to modifications in the Company's Electric System. The Interconnection Customer shall also be responsible for all costs incurred by the Company operate, and maintain any required Interconnection Facilities dedicated to the Interconnection Customer's use.
- r. **Sale and Assignment.** The Interconnection Customer shall notify the Company prior to the sale or transfer of the Generating Facility, the Interconnection Facilities, or the Premises upon which the Interconnection Facilities are located. The Interconnection Customer shall not assign any of its rights or obligations under any agreement pursuant to this Schedule 152 or WAC Chapter 480-108 rules without the prior written consent of the Company. Such consent shall not be unreasonably withheld.
- s. **Legal Rights - Indemnification.** The Interconnection Customer shall obtain all legal rights and easements requested by the Company for the Company to access, install, own, maintain, operate, and remove its equipment and the disconnect switch, if installed, on the real property where the Generating Facility is located, at no cost to the Company. For an Interconnection Customer entering into an Interconnection Agreement attached to this Schedule 152, 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 Company from and against all risks, liabilities to the owner of the real property, including those related to disconnection of service.

(N)

(N)

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SCHEDULE 152

INTERCONNECTION WITH ELECTRIC GENERATORS (Continued)

(Part of Schedule 80, General Rules And Provisions)

7. General Terms And Conditions Of Interconnection (Continued):

- t. **Inverters.** If an inverter is used, 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 under voltage, overvoltage, and over/under frequency elements to detect loss of Company power and initiate shutdown.
- u. **Taxes.** The Interconnection Customer shall pay or reimburse to the Company all applicable taxes, including, but not limited to, federal income taxes, state and local excise taxes, state sales taxes, and state and local fees.

8. Other Interconnections: The provisions of this Schedule 152 do not apply to Interconnection Customers who enter into Interconnection agreements subject to Federal Energy Regulatory Commission (FERC) jurisdiction or to Interconnection Customers who operate Public Utilities Regulatory Policy Act (PURPA) qualifying facilities subject to the provisions of Chapter 480-107 WAC and enter into agreements with the Company regarding Interconnection under Schedule 91. The provisions of this Schedule 152 do not apply to Interconnection Customers that Interconnect with the Company's Electric System in compliance with Schedule 80, Section 33, Interconnection with Generators for Emergency Service, of this tariff.

9. General Rules and Provisions: Service under this schedule is subject to the General Rules and Provisions (Schedule 80) contained in this tariff. As provided in Section 32 of Schedule 80, this Schedule 152 is incorporated into the General Rules and Provisions.

(N)

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