Issue Date: January 8, 2018

Resolution No. 2097-18

INTERCONNECTION REQUIREMENTS POLICY

1. Purpose and Scope

A. The purpose of these *Interconnection Requirements* is to establish rules for determining the terms, conditions, technical requirements, processes and charges governing the interconnection of electric generating facilities with a nameplate capacity of no greater than 20 Megawatts to the electric distribution system of Public Utility District No. 1 of Clallam County.

B. These rules govern the terms and conditions under which the Applicant's generating facility will interconnect and operate in parallel with the Utility's electric system. These rules apply only to the physical interconnection of a generating facility to a Utility's electrical system. They do not govern or grant the right to sell, purchase, or deliver any power generated by the Applicant's generating facility.

C. The specifications and requirements herein are intended to mitigate possible adverse impacts caused by a generating facility on Utility equipment and personnel and/or on other Utility customers. These rules are not intended to address protection of the Interconnection Customer's generating facility, facility personnel, or internal load. It is the responsibility of the Interconnection Customer to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect their own facilities, personnel, and loads.

2. Application of Rules

A. These rules include various requirements applicable to the Utility, the Applicant, the Interconnection Customer and the generating facility.

B. These rules modify, if necessary, any existing interconnection rules of the Utility, including but not limited to, rules implementing chapter 80.60 RCW: *Net Metering of Electricity.*

C. These rules do not apply to interconnection of standby or backup generators that are not intended to operate in parallel with a Utility's system. Such generators shall only be interconnected on terms and conditions prescribed by the Utility, negotiated on a case-by-case basis.

3. Definitions

Aggregated Nameplate Capacity – the total AC nameplate capacity of all inverters used to convert the generating facility's output to AC power.

Applicant - any person, corporation, partnership, government agency or other entity applying to interconnect a generating Facility to the Utility's electric system pursuant to these *Interconnection Requirements.* With final approval, interconnection and operation of a facility, the Applicant becomes the Interconnection Customer, unless otherwise approved by the Utility.

Application - the written notice, on a form prescribed by the Utility, completed by the Applicant and submitted to the Utility, which initiates the interconnection process.

Automatic Sectionalizing Device -- equipment which operates to change the topology of the electrical system -- usually in response to abnormal conditions -- *without* operator intervention. Generally this does not include fused cutouts on lateral taps serving a few customers.

Business Day – 8:00 am – 4:30 pm, Monday - Friday, excluding official federal and Washington State holidays.

Certificate of Completion - the form prescribed by the Utility and completed by the Applicant or Interconnection Customer. The *Certificate of Completion* shall include certification by the electrical inspector having jurisdiction over the installation of the generating facility, and indicate completion of the installation and inspection of the interconnection.

Customer-Generator - per RCW 80.60.010, the user of a Net Metering system.

Electric System - all electrical wires, equipment, and other facilities owned or provided by the Utility that are used to distribute electricity to customers.

Engineering, Safety & Reliability Review – A comprehensive evaluation and analysis to evaluate the impact(s) of the proposed interconnected generating facility on the Utility's electrical system, particularly as regards engineering, safety and reliability concerns.

Generating Facility - the source of electricity and all ancillary and interconnection facilities, located on the Applicant's or Interconnection Customer's side of the point of common coupling, which an Applicant requests to interconnect, or which an Interconnection Customer interconnects to the Utility's electric system.

Governing Board - the Board of Commissioners of the Public Utility District No. 1 of Clallam County.

Incomplete Application Period – a period of 60 days during which the Applicant can rectify issues the Utility identified in a *Notice of Incomplete Application.* At its discretion, the Utility may extend this time period.

Initial Operation - the first time the generating facility operates in parallel with the Utility's electric system.

Interconnection - the physical connection of a generating facility to the Utility's electric system to achieve parallel operation.

Interconnection Agreement - an agreement between the Utility and the Interconnection Customer which outlines the interconnection requirements, costs and billing agreements, as well as on-going inspection, maintenance and operational requirements. A fully executed *Interconnection Agreement* is required before the generating facility may generate electricity into and operate in parallel with the Utility's electric system.
Contents of the *Interconnection Agreement* may vary with the tier category of the interconnection.

Interconnection Customer - the person, corporation, partnership, government agency or other entity that has executed an *Interconnection Agreement* with the Utility and: 1) owns a generating facility interconnected to the Utility's electric system; 2) for net-metered facilities, is a Customer-Generator; or (3) is otherwise allowed by law. The Interconnection Customer is responsible for the generating facility and may assign rule compliance responsibility to another party only with the prior express written permission of the Utility.

Interconnection Facilities - the electrical wires, switches and other equipment used to interconnect a generating facility to the Utility's electric system.

Islanding - the condition that occurs when power from the Utility's electric system is no longer present and the generating facility continues exporting energy into the electric system.

Line Section – that portion of the Utility's electric system connected to the generating facility and bounded by Automatic Sectionalizing Devices or the end of the distribution line.

Maximum Available Fault Current – the maximum current available in the event of a short circuit, also known as *short circuit current.*

Model Interconnection Agreement - standardized terms and conditions that govern the interconnection of generating facilities pursuant to these rules. The Utility may establish *Model Interconnection Agreement(s)* which may be modified to accommodate terms and conditions specific to individual interconnections.

Nameplate Capacity - the manufacturer's output rating of the generating facility. For a system that uses an inverter to change DC energy supplied to an AC quantity, the nameplate capacity will be the manufacturer's AC output rating for the inverter(s). The nameplate capacities shall be measured in kilowatts.

Net Metering – per RCW 80.60.010(9): measuring the difference between the electricity supplied by an electric utility and electricity generated by a Customer-Generator over the applicable billing period.

Parallel Operation *or* **Operate in Parallel -** the synchronous operation of a generating facility while interconnected with the Utility's electric system.

Point of Common Coupling - the point where the generating facility's local electric power system connects to the Utility'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 Utility. The point of common coupling is the point of measurement for the Application of Institute of Electrical and Electronics Engineers (IEEE) standard #1547.

Radial Distribution Circuit – a power distribution system with separately wired components that radiate out from a central point; e.g., one power source for a group of customers.

Recloser – a switch or circuit breaker that manually, remotely or automatically closes an electrical circuit after it has been opened by a fault or overload.

Reclosing – the restoration of electrical current by closing a circuit.

Shared Secondary – a utility conductor originating from the secondary side of a transformer and providing power to more than a single service.

Spot Network Distribution System – a power 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 Utility customer(s).

Spot Network Protectors – a protective device that monitors the flow of electricity between interconnected systems, disconnecting them automatically should the power begin to flow backwards.

Study Agreement – an Agreement between the Utility and a (typically Tier 3) interconnection Applicant which describes studies required for project approval, their estimated costs and deposit payment(s).

Synchronous Generator – a generator with one or more rotating components that produce AC current.

Third Party Owner - an entity that owns a generating facility located on the premises of an Interconnection Customer and has a contract with that Customer for provision of power from the generating facility. When a third-party owns a generating facility, the Interconnection Customer maintains the entire relationship with the Utility. A Third-Party Owner shall not resell electricity produced from a net-metered generating facility.

Tier Category – one of three categories which outline interconnection parameters for generating facilities up to 20 MW based on capacity and shared characteristics. Initial applicability criteria will determine which tier process the Applicant and Utility will utilize.

Transformer Primary Winding – the coil winding that is directly connected to transformers' input supply.

Utility - Public Utility District No. 1 of Clallam County, which owns and operates the electrical distribution system with which the Applicant seeks to interconnect a generating facility, and with which an Interconnection Customer has an *Interconnection Agreement.*

4. Application for Interconnection

A. A standard Application form shall be posted on the Utility's website and, where practicable, allow for electronic submission.

B. When the Applicant requests interconnection from the Utility, the Applicant shall be responsible for conforming to the rules and regulations that are in effect and on file with the Utility. The Utility will designate a point of contact and publish a telephone number or website address for the purpose of providing information concerning applicable rules and regulations.

C. The Applicant seeking to interconnect a generating facility must fill out and submit, electronically or otherwise, a signed Application form to the Utility. Information must be accurate, complete, and approved by the Utility; however recognition of the Application as complete does not constitute approval to interconnect.

D. If a project is to be installed in a phased manner, the Applicant may choose to submit an Application for approval of the final project size, or may choose to submit Applications at each stage of the project. Each Application will be evaluated based on the nameplate capacity stated on the Application.

   i. If the final project size is applied for and the requirements are met, then the Applicant must notify the Utility as additional units are added.

   ii. If Applications are submitted for different project stages, the project size may not exceed that approved.

E. **Application Processing Charge**. The nonrefundable Interconnection Application Processing Charge is set by the Utility according to facility capacity *(or Tiers under this rule)* and shall be:

   i. Tier 1: $100 for 0 – 25 kW facilities.

   ii. Tier 2: $500 for 26 – 500 kW facilities.

   iii. Tier 3: $1000 for 501 kW – 20 MW facilities.

F. **Non-Discrimination**. All generating facility *Interconnection Applications* pursuant to these *Interconnection Requirements* will be processed by the Utility in a non-discriminatory manner, consistent with other service requests and in a manner that does not delay other service requests.

G. **Application Evaluation**. All generating facility interconnection requests pursuant to these *Interconnection Requirements* will be reviewed by the Utility for compliance with these rules. If the Utility in its sole discretion finds that the Application does not comply with these *Interconnection Requirements*, the Utility may reject the Application. If the Utility rejects the Application, it shall provide the Applicant with written or electronic mail notification stating the reasons for the rejection.

5. Project Tiers and Technical Requirements

Because most Utility distribution systems were not originally designed to interconnect with generating facilities, the impacts of such an interconnection, if not carefully managed, can be detrimental to the safe and reliable operation of the system. For example, when the portion of the Utility system serving the generating facility is de-energized, generating facilities shall not be islanding with other Utility customers, unless specifically permitted by the Utility.

In order to facilitate the interconnection process for both the Applicant and the Utility, these rules classify interconnections based on shared characteristics. As smaller generating facilities with appropriate interconnection technologies are expected to have a much lower impact on the Utility's system, they are typically eligible for expedited processes and standardized interconnection requirements. Larger generating facilities using different generating and interconnection technologies can have more significant impacts on the Utility's system, such that more in-depth review is required and additional technical requirements may apply.

Initial applicability criteria will determine which Tier process an Applicant and Utility will utilize. *Attachment 1* consists of flow chart tests for identifying which Tier Category applies to the generating facility. Application process descriptions, technical requirements, and completion criteria for each Tier are included in the Tier Category information below. Additionally, all facilities must meet the appropriate requirements outlined in Section 9: *General Terms, Conditions, and Technical Specifications*, as well as the rules and standards adopted by reference in Section 11: *Adoption by Reference.* For Tier 3 facilities, additional requirements apply.

Note: *the interconnection requirements listed are for protection of the Utility system. The Applicant and Interconnection Customer are responsible for providing protection for their own equipment.*

6. Tier 1 Criteria, Procedures and Technical Requirements

A. **Tier 1 Applicability:**

Tier 1 processes and technical requirements will apply if the proposed generating facility meets all of the following criteria:

i. Uses inverter-based interconnection equipment which is certified by an independent, nationally recognized testing laboratory to meet the requirements of UL 1741;

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

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

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

v. Other than meter changes, does not require new or upgraded Utility facilities;

vi. If interconnection on a single-phase shared secondary is proposed, the aggregate generating capacity on the shared secondary, including the proposed generating facility, shall not exceed the lesser of the service wire capability or the nameplate of the transformer;

vii. If interconnection on a center tap neutral of a 240 volt service is proposed, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 5 kVA; and

viii. The aggregated nameplate capacity of all interconnected generating facilities *(including that of the*

proposed generating facility) on any line section does not exceed:

a. 15% of the line section annual peak load as most recently measured or calculated for that line section, ***or***

b. 15% of the circuit annual peak load as most recently measured or calculated for the circuit.

B. **Tier 1 Application Process.** The following Application timelines are intended to be consistent with, and not cause delays in, other service request Applications of the Utility.

i. Applicant shall submit a complete Application to the Utility. The Utility will not issue a notice of receipt.

ii. If the Application is incomplete or otherwise deficient, the Utility will issue a *Notic*e of *Incomplete Application,* identifying the area(s) of deficiency.

iii. When a *Notice of Incomplete Application* is sent to the Applicant, the Applicant shall provide a complete Application to the Utility within 60 business days of the *Notice of Incomplete Application*. At its sole discretion, the Utility may grant an extension of the 60 day Incomplete Application Period. An incomplete Application expires at the conclusion of the Incomplete Application Period.

iv. Within one month after a complete Application has been submitted to the Utility, the Utility shall make its best effort to approve, approve *with conditions,* or provide the Applicant with written justification for denying the Application. The Applicant will be notified of any delays due to unforeseen circumstances, customer variance requests, or other incentive program approval requirements.

v. The Applicant has <u>one year</u> from the date of Application approval to interconnect and begin operation of the generating facility. The Application shall expire one year from its date of approval unless the Utility, at its sole discretion, grants an extension in writing.

vi. The Utility may deny the Application for public safety, system reliability or other reasons as stated by the Utility in the *Notice of Denial*. Denied Applications expire on the date of denial by the Utility.

C. **Tier 1 Technical and Safety Requirements.** The purpose of safety and technical requirements for Tier 1 generating facilities is to prevent islanding and to ensure that inverter output is disconnected when the source of interconnected Utility electricity is interrupted, de-energized, or disconnected. The generating facility must include the following:

i. **Inverter**
   a. Must be certified by an independent nationally recognized testing laboratory to meet UL 1741 requirements.
   b. Must use undervoltage, overvoltage and over/under frequency elements to detect loss of Utility power and initiate shutdown.

ii. **Interrupting Device**
   a. The generating facility shall include a device capable of safely interrupting the Maximum Available Fault Current *(typically supplied by the Utility).*

iii. **Voltage and Power Factor**
   a. The generating facility must operate within the voltage and power factor ranges specified by the Utility.
   b. At its sole discretion, the Utility may allow variances based on specific requirements, though the

      Interconnection Customer may incur charges due to voltage losses.

iv. **Visible and Lockable Disconnect.** The Utility shall have the right to disconnect the generating facility at the AC disconnect or service disconnect switch in order to fulfill utility operations safety requirements.
   a. The generating facility must include either:
      1) a UL listed AC disconnect switch, ***or***
      2) a service disconnect for the service associated with the generating facility.
   b. The disconnect may be installed on either the customer side, utility side, or be integral to the customer metering equipment (meter base), at customer expense, and must:
      1) be accessible to Utility personnel at all times,
      2) have a visible break,
      3) be lockable in the open position, and
      4) be located within 10 feet of, and at roughly the same grade as, the Utility revenue meter.

v. **Enhanced Inverter and Control.** To protect and ensure the reliability of the distribution feeder, prevent voltage fluctuations, and avoid possible future costs to other Utility customers to upgrade the system, the Utility may, after further review and consideration of system stability and regulatory requirements, specify enhanced inverter characteristics and designate operating parameters for Tier 1 facilities.

a. The Utility may require enhanced inverters, when industry standard protocols for enhanced inverters are developed and enhanced inverters are commercially available, for:
   1) all new interconnections, and, if system stability requires,
   2) retrofitting existing interconnections.
b. The Utility may require the Applicant and Interconnection Customer, at the Applicant and Interconnection Customer's expense, to procure and install communications and/or control equipment at the generating facility necessary:
   1) to enable the generating facility to receive control signals from the Utility, and
   2) for the Utility to remotely disconnect and reconnect the generating facility during any period that the generation facility places the Utility's systems or personnel at risk (e.g., islanding, voltage regulation, stability, reliability, power quality, system protection, etc.).

D. **Tier 1 Completion Process.** If the following requirements are fully met, the interconnection process is deemed complete, the generating facility can begin operation, and the Applicant becomes the Interconnection Customer:

i. The Applicant and the Utility execute an *Interconnection Agreement*;

ii. The Utility received the *Certificate of Completion* showing inspection of the generating facility by the electrical inspector having jurisdiction over the installation;

iii. All documentation demonstrating compliance with these *Interconnection Requirements* has been fully and accurately completed, provided to and accepted by the Utility;

iv. The Utility completes a site verification of proper interconnection and meter installation;

v. All requirements and conditions of the *Interconnection Agreement* have been satisfied and approved by the Utility; and

vi. The Utility has granted permission to proceed with commercial operation.

7. Tier 2 Criteria, Procedures and Technical Requirements

A. **Tier 2 Applicability.** Tier 2 processes and technical requirements will apply if the proposed generating facility meets all of the following criteria:

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

ii. If an inverter is utilized, the inverter must be certified by an independent, nationally recognized testing laboratory to meet the requirements of UL 1741;

iii. It has a nameplate capacity of 500 kW or less;

iv. Is proposed for interconnection to either a radial distribution circuit or a spot network distribution system limited to serving one customer;

v. Is proposed for interconnection to an electric system distribution facility operated at or below 38 kV class

vi. Is not a synchronous generator;

vii. If interconnection on a shared secondary is proposed, the aggregate generating capacity on the shared secondary, including the proposed generating facility, shall not exceed the lesser of the service wire capability or the nameplate of the transformer;

viii. Is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, and its addition shall not create an imbalance of more than 5 kW between the two sides of the 240 volt service;

ix. The aggregated nameplate capacity of all interconnected generating facilities *(including that of the proposed generating facility)* on any line section does not exceed:

   a. 15% of the line section annual peak load as most recently measured or calculated for that line section, or

   b. 15% of the circuit annual peak load as most recently measured or calculated for the circuit;

x. Any upgrades required for the Utility's system must fall under subsection (i) of the *Tier 2 Technical and Safety Requirements* section;

xi. For interconnection of a proposed generating facility to the load side of spot network protectors, the proposed generating facility must utilize an inverter-based equipment package which is certified by an independent, nationally recognized testing laboratory to meet the requirements of UL 1741, and together with the aggregated other inverter-based generating facilities, shall not exceed the smaller of 5% of a spot network distribution system's maximum load or 50 kW;

xii. 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;

xiii. 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 Utility's protective devices and equipment *(e.g., substation breakers, fuse cutouts, line reclosers, etc.);*

xiv. If the generating facility is proposed for interconnection at primary (>600 V class) distribution voltages, the connection of the transformer(s) connecting the generating facility to the Utility system must use the Utility's standard connection(s). This is intended to limit the potential for creating overvoltages on the Utility's system for a loss of ground for the duration of any anti-islanding functions or operations.

   a. For primary-voltage connections to three-phase, three-wire systems, the transformer primary windings must be connected phase to phase.

   b. For primary-voltage connections to three-phase, four-wire systems, the transformer primary windings must be connected effectively grounded, phase to neutral.

B. **Tier 2 Application Process.** The following Application timelines are intended to be consistent with, and not cause delays in, other service request Applications of the Utility.

i. Applicant shall submit a complete Application to the Utility. The Utility will not issue a notice of receipt.

ii. If the Application is incomplete or otherwise deficient, the Utility will issue a *Notice of Incomplete Application*, identifying the areas of deficiency.

iii. When a *Notice of Incomplete Application* is sent to the Applicant, the Applicant shall provide a complete Application to the Utility within 60 business days of the *Notice of Incomplete Application*. At its sole discretion, the Utility may grant an extension of the 60 day Incomplete Application Period. An Application expires at the conclusion of the Incomplete Application Period.

iv. Within two months after a complete Application is submitted to the Utility, the Utility shall make its best effort to approve, approve *with conditions,* or provide the Applicant with written justification for denying the Application. The Applicant will be notified of any delays due to unforeseen circumstances, customer variance requests, or other incentive program approval requirements.

v. The Applicant has one year from the date of Application approval to interconnect and begin operation of the generating facility. The Application shall expire one year from its date of approval, unless the Utility at its sole discretion, grants an extension in writing.

vi. The Utility may deny the Application for public safety, system reliability or other reasons as stated by the Utility in the *Notice of Denial*. Denied Applications expire on the date of denial by the Utility.

C. **Tier 2 Technical and Safety Requirements.** In all cases, the interconnection facilities must isolate the generating facility from the Utility's electric system when Utility power is interrupted, de-energized and/or disconnected, e.g., before any reclosing (automatic or manual) takes place. The Interconnection Customer shall prevent its generating facility equipment from automatically re-energizing the electric system. For inverter- based systems, this requirement is satisfied by compliance with UL 1741 requirements. For non-inverter based systems, a separate protection package will be required to meet IEEE 1547 requirements.

i. **Modifications.** If the generating facility fails to meet Tier 2 criteria, but the Utility determines that the generating facility could be interconnected safely with minor modifications to the transmission or distribution system *(e.g., changing meters, fuses, or relay settings)*, then the Utility may offer the Applicant a good-faith, non-binding estimate of the costs of such proposed minor modifications.

a. If the Applicant agrees to pay the entire cost of the modifications and authorizes the Utility to make them, then the Utility may approve the Application using Tier 2 processes and technical requirements.

b. Construction of facilities by the Utility on its own system shall not be required to accommodate the Tier 2 generating facility.

ii. **Three-phase Connection:** required for proposed generating facilities of 50 kW and greater.

iii. **Three-phase Induction Generator interconnections.** The Utility may, at its sole discretion, specify that ground fault protection must be provided. Use of ground overvoltage or ground overcurrent elements may be specified, depending on whether the Utility uses three-wire or effectively grounded four-wire systems.

iv. **Inverter.** The Interconnection Customer shall:

a. operate and maintain the inverter in accordance with the manufacturer's guidelines,

b. annually test the performance of the inverter, and

c. retain documentation demonstrating compliance.

1) To ensure continuous operations and protection capability of the inverter, the Interconnection Customer shall, in the absence of such documentation, and at the Interconnection Customer's expense, allow the Utility at its sole discretion, to either test the inverter, or require that the inverter be tested. Should the inverter fail the performance test the Utility may:

A) disconnect the generating facility without notice;

B) require replacement of the inverter and/or installation of a visible lockable AC disconnect switch accessible to Utility personnel; and

C) charge the Interconnection Customer for any reconnection and other Utility costs.

v. **Visible and Lockable Disconnect.** The Utility shall have the right to disconnect the generating facility at the AC disconnect or service disconnect switch in order to fulfill Utility operations safety requirements.

a. The generating facility must include either:

1) a UL listed AC disconnect switch; ***or***

2) a service disconnect for the service associated with the generating facility.

b. The disconnect may be installed on either the customer side, utility side, or be integral to the customer metering equipment (meter base), at customer expense, and must:

1) be accessible to Utility personnel at all times,

2) have a visible break,

3) be lockable in the open position, and

4) be located within 10 feet of, and at roughly the same grade as, the Utility point of metering.

vi. **Enhanced Inverter and Control:** to protect and ensure the reliability of the distribution feeder, prevent voltage fluctuations, and avoid possible future costs to other Utility customers to upgrade the system, the Utility may, after further review and

consideration of system stability and regulatory requirements, specify enhanced inverter characteristics and designate operating parameters for Tier 2 facilities.

a. The Utility may require enhanced inverters, when industry standard protocols for enhanced inverters are developed and enhanced inverters are commercially available, for:
   1) all new interconnections, and
   2) retrofitting existing interconnections.
b. The Utility may require the Applicant and Interconnection Customer, at the Applicant and Interconnection Customer's expense, to procure and install communications and/or control equipment at the generating facility necessary:
   1) to enable the generating facility to receive control signals from the Utility, and
   2) for the Utility to remotely disconnect and reconnect the generating facility during any period that the generation facility places the Utility's systems or personnel at risk (e.g., islanding, voltage regulation, stability, reliability, power quality, system protection, etc.).

D. **Tier 2 Completion Process:** if the following requirements are fully met, the interconnection process is deemed complete; the generating facility can begin operation; and the Applicant becomes an Interconnection Customer:

i. The Applicant and the Utility execute an *Interconnection Agreement*;

ii. The Utility received the *Certificate of Completion* showing inspection of the generating facility by the electrical inspector having jurisdiction over the installation;

iii. All documentation demonstrating compliance with the technical requirements for interconnection has been fully and accurately completed, provided to and accepted by the Utility;

iv. All required agreements with the Balancing Authority having jurisdiction, and all agreements covering the provision of any ancillary services, and/or the purchase, sale or transport of electricity have been completed and signed by all parties;

v. The Utility completes a site verification of proper interconnection and meter installation;

vi. All requirements and conditions of the *Interconnection Agreement* have been satisfied and approved by the Utility; and

vii. The Utility has granted permission to proceed with commercial operation.

8. Tier 3 Criteria, Procedures and Technical Requirements

The Tier 3 Application, Approval and Completion Processes and Technical requirements are necessarily different from Tiers 1 and 2 due to the unique and more complex characteristics of these generating facilities and associated interconnection requirements. Neither the Applicant nor the Utility should expect streamlining or certainty in the timelines associated with these processes. However, both should expect to apply due diligence and good faith in arriving at project approval.

A. **Tier 3 Applicability.** The Utility and Applicant will use Tier 3 processes and requirements to interconnect a generating facility if the proposed generating facility does not qualify for Tier 1 or Tier 2.

B. **Tier 3 Application Process.** The following Application timelines are intended to be consistent with, and not cause delays in, other service request Applications to the Utility.

i. Applicant shall submit a complete Application to the Utility. The Utility will not issue a notice of receipt.

ii. If the Application is incomplete or otherwise deficient, the Utility will issue a *Notice of Incomplete Application*, identifying the areas of deficiency.

iii. When a *Notice of Incomplete Application* is sent to an Applicant, the Applicant shall provide a complete Application to the Utility within 60 business days of the *Notice of Incomplete Application.* At its sole discretion, the Utility may grant an extension of the 60 day Incomplete Application Period. The Application expires at the conclusion of the Incomplete Application Period.

iv. Within three months after a complete Application is submitted to the Utility, the Utility shall make its

best effort to approve, approve *with conditions*, or provide the Applicant with written justification for denying the Application. The Applicant will be notified of any delays due to unforeseen circumstances, customer variance requests, or other incentive program approval requirements.

v. The Applicant has two years from the date of Application approval to interconnect and begin operation of the generating facility. The Application shall expire two years from its date of approval, unless the Utility at its sole discretion, grants an extension in writing.

vi. The Utility may deny the Application for public safety, system reliability or other reasons as stated by the Utility in the *Notice of Denial*. Denied applications expire on the date of denial by the Utility.

C. **Tier 3 Technical and Safety Requirements.** In all cases, the interconnection facilities must isolate the generating facility from the Utility's electric system when Utility power is interrupted, de-energized and/or disconnected, e.g., before any reclosing (automatic or manual) takes place. The Interconnection Customer shall prevent its generating facility equipment from automatically re-energizing the electric system.

i. **System Design:** must be such that no single point of failure shall lead to loss of protective functions. This can be achieved by:

   a. installing multiple discrete-function relays to provide the required functions as a set, or

   b. installing redundant multi-function devices, each of which provides all of the required functions.

ii. **Ground Fault Protection:** must be provided, unless waived by the Utility in writing.

   a. Use of ground overvoltage or ground overcurrent elements may be specified, depending on whether the Utility uses three-wire or effectively grounded four-wire systems.

iii. **Breaker Failure Detection.** Consistent with Utility practice, breaker failure detection must be provided and secondary action initiated in the event that the interconnection breaker fails to clear for the trip condition. This may require installation of:

   a. dual generator breakers tripped by similar interconnection relays, or

   b. 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.

iv. **Study & Analysis.** The Utility will evaluate the Application and may require, at the Applicant's expense, any of the studies listed below prior to final approval of the Application. As study results and analyses will provide the basis for the detailed technical requirements for interconnection, Applicant's acceptance of the findings will be required as a condition of final approval of the Application. Additional studies, beyond those listed below, may be necessary as determined by the Utility (*Note: the Applicant may request that studies be combined.*):

   a. Feasibility Study,

   b. System Impact Study, or

   c. Facilities Study.

d. These studies are intended to quantify the impacts of the generating facility on the Utility system, and may include analysis of the following:
    1) Power Flow,
    2) Stability,
    3) Voltage Regulation,
    4) Metering,
    5) Relay/Protection, and
    6) Communications/Telemetry.

D. **Tier 3 Technical Review and Additional Studies**

i. **Technical Review.** Once the Utility accepts the Application as complete, the Utility will conduct a technical review to determine compliance with these Tier 3 technical standards, and whether any additional Engineering, Safety, Reliability Review or other studies will be required.

ii. **Notification.** The Utility will notify the Applicant of the result of these determinations within 30 business days of when the Application is deemed complete.

iii. **Approval: *No Additional Feasibility Studies Required.*** If the Utility determines that the proposal complies with Tier 3 technical requirements and requires no additional studies to determine the feasibility of the interconnection, the Utility will notify the Applicant and provide the following:
    a. an executable *Interconnection Agreement* within 60 business days of such notification,
    b. any additional interim agreements that may be necessary, e.g., construction agreements, and
    c. a good faith estimate of the cost and time necessary to complete the interconnection.

iv. **Non-Approval: *Additional Feasibility Studies Required.*** If the Utility determines that additional studies are required, the Utility will provide the Applicant with the following:
    a. a *Study Agreement* that includes a description of what studies are required
        1) The Applicant may request that studies be combined.
    b. a good faith estimate of the cost and time necessary to perform the studies.

v. **Cost of Additional Studies and System Upgrades**
    a. **Cost Allocation.** The Applicant is responsible for the following:
        1) all reasonable costs incurred by the Utility to:
            a) study the proposed interconnection, and
            b) design and construct any required interconnection facilities or system upgrades
        2) all reasonable ongoing operation and maintenance costs for facilities added to the electric system that are dedicated to that Interconnection Customer's use, and

3) meeting the credit requirements of the Utility prior to the start of construction.

b. **Cost Disputes.** Within 30 business days after receiving a notice that additional studies are required, as described in this subsection, the Applicant may supply an alternative cost estimate from a third-party who is currently officially qualified to perform the studies required by the Utility.

c. **Deposit and Study Agreement.** After the Utility and the Applicant agree on the estimated cost of the required studies and identify the parties to perform them, the Applicant and Utility will execute a *Study Agreement* describing these studies and corresponding deposit payment(s) to the Utility.

1) The deposit is not to exceed the lower of $1,000, *or* 50-percent of the estimated cost of the studies.
2) After the *Study Agreement* is executed, the Utility will make its best effort to complete the studies in keeping with the studies' time requirements and other service requests of a similar magnitude.

vi. **Denial After Additional Studies.** The Utility will provide the Applicant with the results of the studies conducted under this subsection.

a. If the studies determine that the interconnection is not feasible, the Utility will issue a *Notice of Denial* to the Applicant, noting the expiration of the Application and reasons for the denial.

vii. **Modification After Additional Studies.** The Utility will provide the Applicant with the results of the studies conducted under this subsection. Based on those results, the Utility and the Applicant may agree to modify the previously complete Application without penalty to the Applicant. A Utility approved modified Application under this subsection shall be considered an approved final Application.

a. Other than Utility Approved modifications to the complete Application described in this subsection, changes by the Applicant or Interconnection Customer to a previously approved completed Application will be considered a new Application and shall be accompanied by a new application fee.

viii. **Approval Pending Additional Studies**. If the required studies determine that the interconnection is feasible, the Utility will notify the Applicant of that determination.

a. If no system upgrades are required, the Utility will provide an executable *Interconnection Agreement* to the Applicant within 5 business days of such notification.

b. If system upgrades are required, the Utility will provide the Applicant with:

1) an executable *Interconnection Agreement* within 15 business days,
2) any additional interim agreements that may be necessary, e.g., construction agreements,
3) a good faith estimate of the cost and time necessary to complete the interconnection.

ix. **Incomplete Agreement Process.** An Applicant's failure to execute and return completed agreements and required deposits within the time frames specified in this section or by the Utility, may result in termination of the application process by the Utility under the terms and conditions specified in such agreements.

x. **Agreement Process Deadline.** Within 30 business days of the date of Utility approval of the final Application, the Applicant must execute and return the *Interconnection Agreement* with the required deposit which shall not exceed 50-percent of the estimated costs to complete the interconnection.

a. At the Utility's discretion, an extension may be granted in writing.

E. **Tier 3 Completion Process.**

If the following requirements are fully met, the interconnection process shall be deemed complete; the generating facility can begin operation, and the Applicant becomes an Interconnection Customer:

i. The Applicant and the Utility execute an *Interconnection Agreement*;

ii. The Utility received the *Certificate of Completion* showing inspection of the generating facility by the electrical inspector having jurisdiction over the installation;

iii. All documentation demonstrating compliance with the technical requirements for interconnection has been fully and accurately completed, provided to, and accepted by the Utility;

iv. All required agreements with the Balancing Authority having jurisdiction and all agreements covering the purchase, sale or transport of electricity and provision of any ancillary services have been completed and signed by all parties;

v. The Utility completes a site verification of proper interconnection and meter installation;

vi. All requirements and conditions of the *Interconnection Agreement* have been satisfied and approved by the Utility;

vii. The Utility has granted permission to proceed with commercial operation; and

xi. The Interconnection Customer begins operation of the generating facility within 2 years of the effective date of the *Interconnection Agreement*.

a. If the generating facility fails to begin operations within the specified timeframe, both the Application and subsequent *Interconnection Agreement* shall expire.

1) At the Utility's discretion, an extension may be granted in writing.

9. General Terms, Conditions and Technical Requirements for All Interconnections.

The terms, conditions, and technical requirements in this section shall apply to the Applicant and Interconnection Customer and the generating facility throughout the generating facility's installation, testing, commissioning, operation, maintenance, decommissioning, and removal. The Utility may verify compliance at any time, with reasonable notice.

A. All electrical generating facilities must comply with these Requirements to be eligible to interconnect and operate in parallel with the Utility's electric system.

B. Any generating facility proposing to be interconnected with the Utility'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 as set forth in the appropriate Tier, this Section and the regulations and standards adopted by reference in Section 11.

C. These *Interconnection Requirements* are intended to mitigate possible adverse impacts caused by the generating facility on Utility equipment and personnel and on other customers of the Utility.

D. These *Interconnection Requirements* are not intended to address protection of the generating facility itself, generating facility personnel, or its internal load.

E. It is the responsibility of the Interconnection Customer to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect its own facilities, personnel, and loads.

F. The Applicant and Interconnection Customer shall comply with, and are responsible for, the generating facility meeting the following requirements (i), ii), (iii) and (iv) of this subsection.

i. **Modes of Compliance.** The Utility, at its sole discretion, may approve, in writing, alternatives that satisfy the intent of, and/or excuse compliance with, specific elements of these requirements, except local, state and federal regulations, and building codes.

ii. **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.

   a. The Interconnection Customer shall be responsible for obtaining all applicable permit(s) for the generating facility equipment installations on its property.

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

iv. **Power Quality**. Installations will be in compliance with all applicable standards including IEEE Standard 519 Harmonic Limits, or the Utility's more stringent harmonic requirements.

G. These specifications and standards shall apply to all interconnecting generating facilities that are intended to operate in parallel with the Utility's electric system irrespective of the Applicant's intent to generate energy to serve all or a part of the Applicant's load, or to sell the output to the Utility or any third party purchaser.

   i. In the case where the *Interconnection Agreement* does not constitute an agreement with the Utility to purchase or deliver output from the generating facility, the Interconnection Customer is responsible for separately making all necessary agreements for the purchase, sale, and/or transport of Utility electricity.

H. In order to ensure system safety and reliability of interconnected operations, all interconnected generating facilities shall be constructed, operated and maintained by the Interconnection Customer in accordance with:

   i. these rules,

   ii. the *Interconnection Agreement*,

   iii. the applicable manufacturer's recommended maintenance schedule and operating requirements,

   iv. good Utility practice, and

   v. all other applicable federal, state, and local laws, regulations and codes.

I. Prior to Initial Operation, all Interconnection Customers must submit a completed *Certificate of Completion* to the Utility and execute an appropriate *Interconnection Agreement* with the Utility.

   i. The Agreement outlines the interconnection standards, cost allocation and billing agreements, insurance requirements, and on-going maintenance and operation requirements.

J. Separate agreements may be required with the Utility, the Balancing Area Authority or transmission provider, or other party, but not necessarily with the Utility. Such agreements include power purchase, sale, delivery and scheduling of output from the generating facility, integration or other ancillary services.

   i. All required agreements must be fully executed prior to Initial Operation of the generating facility.

K. As may be reasonably requested by the Utility from time to time, the Applicant or Interconnection Customer shall promptly furnish the Utility with copies of plans, specifications, records, and other information relating to the generating facility, as well as its ownership, operation, use, or maintenance.

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

M. To ensure reliable service to and minimize possible problems for all Utility customers, the Utility will review the need for upgrades to its system, including a dedicated transformer. If the generating facility requires Utility upgrades, the Applicant or Interconnection Customer shall pay for all costs of those upgrades.

N. The Utility may require, and will provide its rationale in writing, for a transfer trip system or an equivalent protective function for a generating facility, that cannot:

   i. detect distribution system faults (both line-to-line and line-to-ground) and clear such faults within two seconds; or

   ii. de-energize the Utility's distribution system within two seconds after detecting the formation of an unintended island.

O. Net Metering for facilities as set forth in chapter 80.60 RCW: the Utility shall install, own and maintain a kilowatt-hour meter or meters (as the Utility 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 Utility shall reasonably require.

   i. The Applicant shall provide space for metering equipment.

   ii. After the Applicant has submitted drawings and equipment specifications for Utility approval, it will be the Applicant's responsibility to provide, as required, the current transformer enclosure, meter socket(s) and junction box.

   iii. The Utility may approve other generating sources for Net Metering but is not required to do so.

P. **Production Metering**. The Utility may require separate metering for production.

   i. This meter will record all generation produced and may be billed separately from any Net Metering or customer usage metering.

   ii. All costs associated with the installation of production metering will be paid by the Applicant.

Q. Common Labeling shall be required to inform working personnel that the generating facility is operating at or is located on the premises. The labeling shall be:

   i. at the Interconnection Customer's expense,

   ii. as furnished or approved by the Utility,

   iii. in accordance with NEC requirements, and

   iv. must be posted on meter base, disconnects, and transformers.

R. Insurance

i. The Utility will not require additional insurance for a net metered facility that is a qualifying generating facility under chapter 80.60 RCW.

ii. Additional insurance, limitations of liability and indemnification may be required by the Utility for other generating facilities permitted under these standards, which do not qualify under RCW chapter 80.60.

S. Prior to any future modification or expansion of the generating facility, the Interconnection Customer will obtain Utility review and approval. The Utility reserves the right to require the Interconnection Customer, at the Interconnection Customer's sole expense, to provide corrections or additions to existing electrical devices in the event of modification of government or industry regulations and standards, or major changes in the Utility's electric system which impact the interconnection.

T. Chapter 80.60 RCW, *Net Metering of Electricity,* allows a Utility to limit interconnection of generation for Net Metering to 0.50% beginning January 1, 2014. If indicated by an Engineering, Safety or Reliability Review, the Utility may restrict or prohibit new or expanded interconnected net metered generation capacity, and/or the number of net metered customers on any feeder, circuit or network.

Having exceeded the cumulative net metering requirements of RCW 80.60.020, the District shall credit excess kilowatt-hours described in RCW 80.60.030(3)(b) at the effective wholesale energy rate for all net meter applications submitted after February 1, 2018. The basis for the wholesale rate or multiplier shall be updated annually, go into effect February 1, 2018, and be based on the preceding year's billed Power Purchase costs divided by total kilowatt-hours sold.

U. In addition to the Application fee (if any), Utility charges to the Applicant or Interconnection Customer will be compensatory and applied as appropriate. Such costs may include, but are not limited to, transformers and production meters, as well as Utility testing, qualification, studies and approval of non-UL 1741 listed equipment. The Interconnection Customer shall be responsible for any costs associated with any future upgrade or modification to its interconnected system required by modifications in the Utility's electric system.

V. This section does not govern the settlement, purchase, sale or delivery of any power generated by the Applicant's generating facility. The purchase, sale 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 Governing Board. Any such agreement shall be complete and filed with the Utility prior to Initial Operation.

W. The Interconnection Customer may disconnect the generating facility at any time, provided that the Interconnection Customer gives reasonable advance notice to the Utility.

X. The Interconnection Customer shall notify the Utility 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 Intercon-nection Customer shall not assign its rights or obligations under any agreement entered into pursuant to these rules without the prior written consent of the Utility, which consent shall not be unreasonably withheld.

Y. All generating facilities must have an electrical permit and pass electrical inspection before they can be connected or operated in parallel with the Utility's electric system. The Applicant shall provide written certification to the Utility that the generating facility has been installed and inspected in compliance with the local building and/or electrical codes.

Z. If the Interconnection Customer is not the owner of the real property on which the generating facility is located,

i. the Interconnection Customer shall indemnify the Utility for all risks to the owner of the real property, including disconnection of service, and

ii. the Interconnection Customer shall obtain all legal rights and easements requested by the Utility for the Utility to access, install, own, maintain, operate or remove its equipment and the disconnect switch, if installed, on the real property where the generating facility is located, at no cost to the Utility.

AA. If the interconnected generating facility is owned by a Third Party Owner,

i. the Third Party Owner or Interconnection Customer shall indemnify and hold harmless the Utility for all risks associated with the facility being interconnected to the Utility's system, including liability for the Utility disconnecting the facility, and

ii. the Interconnection Customer executing the *Interconnection Agreement* shall obtain all legal rights and easements requested by the Utility for the Utility to access, install, own, maintain, operate, replace or remove its equipment, and installing the disconnect switch, on the real property where the generating facility is located or on the generating facility itself, at no cost to the Utility.

10. Filings

The Utility shall maintain on file for inspection at its place of business, the charges, terms and conditions for interconnections pursuant to these *Interconnection Requirements*. Such filing shall include model forms of the following documents and contracts:

A. Application,

B. Model Interconnection Agreement, and

C. Sample *Certificate of Completion* (electrical inspector's form may be used).

11. Adoption by Reference

The Utility adopts by reference all or portions of regulations and standards identified below. They are available for inspection at the Utility's office or as otherwise indicated. The publications, effective date, references within these *Interconnection Requirements*, and availability of the resources are as follows:

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

i. The Utility adopts the version published in 2005; latest is 2011.

ii. The National Electrical Code is a copyrighted document.

iii. Copies are available from the NFPA at 1 Batterymarch Park, Quincy, Massachusetts, 02169 or at http://www.nfpa.org.

B. National Electric Safety Code (NESC).

i. The Utility adopts the version published in 2002; latest is 2012.

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

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

i. The Utility adopts the most recent version adopted by IEEE; latest is 2008.

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

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

i. The Utility adopts the most recent version; latest is 2005.

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

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

i. The Utility adopts the version published in 1992.

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

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

   i. The Utility adopts the version published in 2005; UL has made it virtually impossible to determine publication dates.

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

G. Occupational Safety and Health Administration (OSHA) Standard at 29 CFR 1910.269.

   i. 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.

H. Washington Division of Occupational Safety and Health (DOSH) Standard, chapter 296-155 WAC.

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

I. American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE) Standard C62.92, IEEE guide for the Application of neutral grounding in electrical Utility systems.

   i. The Utility adopts the version published in 2000.

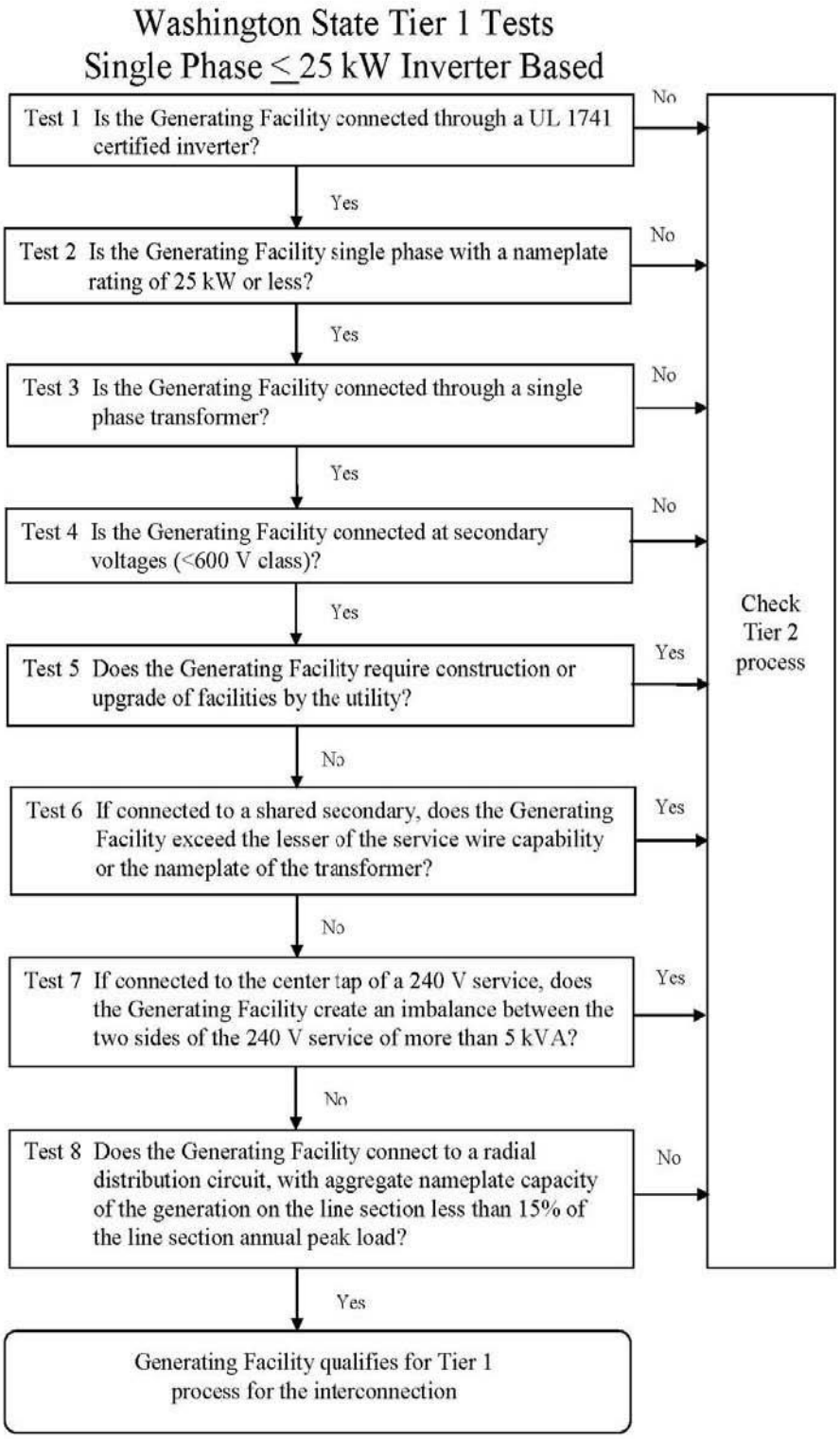
   ii. Copies of IEEE Standard C62.92 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

J. Institute of Electrical and Electronics Engineers (IEEE) Standard 1453, IEEE Recommended Practice for Measurement and Limits of Voltage Fluctuations and Associated Light Flicker on AC Power Systems

   i. The Utility adopts the version published in 2008.

   ii. Copies of IEEE Standard 1453 are available from the Institute of Electrical and Electronics Engineers at http://www.ieee.org/web/standards/home.

Attachment 1



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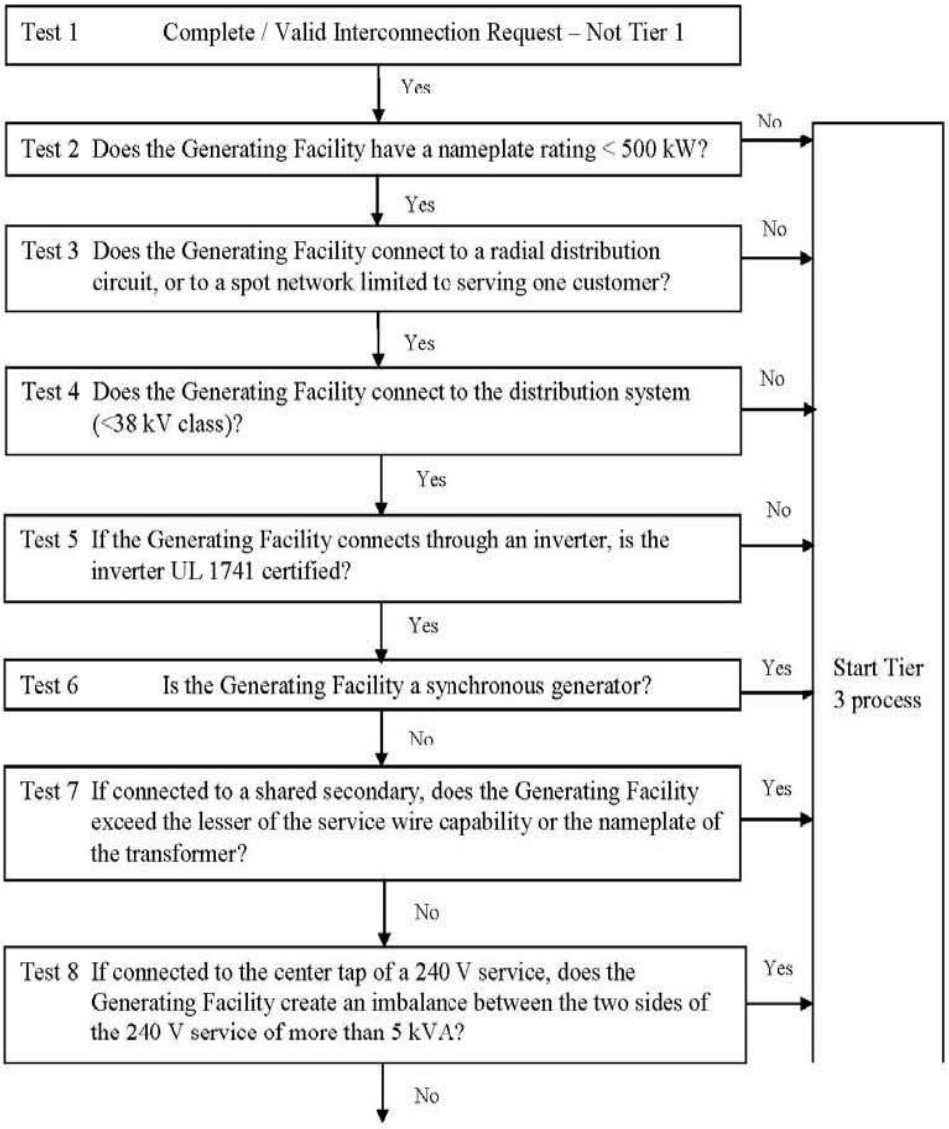

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Washington State Tier 2 Tests
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