



Appendix A

INTERCONNECTION & NET METERING APPLICATION

THIS APPLICATION IS FOR:

- New Net Metering Interconnection
- Installation of Customer Utilized, Grid Connected, Electric Generating Systems of 100 kW or Less

A. APPLICANT INFORMATION (PLEASE PRINT)

APPLICANT NAME	ADDRESS	CITY	STATE	ZIP CODE
DATE	PHONE	EMAIL ADDRESS		

B. ELECTRIC SYSTEM INFORMATION (PLEASE PRINT)

ELECTRIC ACCOUNT NO	INSTALLATION ADDRESS (IF DIFFERENT FROM ABOVE)	EXPECTED SYSTEM OPERATIONAL DATE		
IS THIS SYSTEM CUSTOMER OWNED OR THIRD-PARTY OWNED?				
ENERGY SOURCE (E.G., WIND, SOLAR, FUEL CELL, HYDRO, ETC.)		SITE LOCATION ON PROPERTY		
MANUFACTURER:		TYPE/STYLE:		
Name Plate Data	kW	Volts	Phases () Single Phase () Three Phase	

C. SYSTEM DESIGNER & INSTALLATION CONTRACTOR INFORMATION (IF APPLICABLE)

DESIGN CONSULTANT	ADDRESS	PHONE
INSTALLATION CONTRACTOR	ADDRESS	PHONE

D. INSTALLATION

PROPOSED INSTALLATION DATE

REMEMBER TO:

Submit/Attach a one-line electrical diagram for proposed electrical system, including metering points in relation to Mason County PUD No. 3's electrical system and the Customer's generating system location.

E. Interconnection Compliance & Customer Acknowledgement

- The electrical system referenced above shall meet Mason County PUD No. 3's "Interconnection Standards for Customer-Utilized, Grid Connected Electric Generating Systems of 100 kW or less" in accordance with RCW 80.60.
- Customer shall be solely responsible for obtaining and complying with any and all necessary easements, licenses and permits, or exemptions, as may be required by any federal, state, local statutes, regulations, ordinances or other legal mandates.
- The Customer shall submit documentation to Mason County PUD No. 3 that the system has been inspected and approved by the local permitting agency regarding electrical code requirements.
- Customer shall not commence parallel operation of the generating system until inspection and written approval of the interconnection has been given by Mason County PUD No. 3.
- This Application Form shall be Appendix A to the Mason County PUD No. 3's "Interconnection & Net Metering Agreement."

CUSTOMER SIGNATURE	DATE
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Appendix B
**INTERCONNECTION
STANDARDS**

SERV/Elect/Interc/c
10/19

to Interconnection & Net Metering Agreement

Rules and Regulations for Customer-Utilized Grid Connected Electric Generating Systems of
100 kW or Less

Chapter 1: PURPOSE & SCOPE

This document states the rules and standards for determining the terms, conditions, technical requirements, processes and charges governing the interconnection of electric generating facilities owned by any entity (known herein as the "Customer-Generator") other than Public Utility District 3 of Mason County ("PUD 3" or "PUD") with a maximum generating capacity of less than or equal to 100 kilowatts to the electric system over which the Commission of PUD 3 has jurisdiction.

These standards are intended to be consistent with the requirements of chapter 80.60 of the Revised Code of Washington (RCW), Net Metering of Electricity and to comply with provisions of the Energy Policy Act of 2005.

These standards govern the terms and conditions under which the Customer-Generator's generating facility will interconnect with, and operate in parallel with, the PUD's electric system. These standards apply only to the physical interconnection of a generating facility to the PUD's electrical system. They do not govern the settlement, purchase, or delivery of any power generated by the Customer-Generator's generating facility.

Any electrical generating facility must comply with these standards to be eligible to interconnect and operate in parallel with the PUD's electric system. These standards shall apply to all interconnecting generating facilities that are intended to operate in parallel with the PUD's electric system irrespective of whether the Customer-Generator intends to generate energy to serve all or a part of the Customer-Generator's load; or to sell the output to the PUD or any third party purchaser.

When a Customer-Generator requests interconnection from the PUD, the Customer-Generator shall be responsible for conforming to the rules and regulations that are in effect and on file with the PUD. The PUD will designate a point of contact and publish a telephone number or web site address for this specific purpose.

These rules do not apply to standalone systems of standby or backup generators that are not intended to operate in parallel with the PUD's system. Such interconnections will be negotiated on a case-by-case basis with the PUD and such generators shall only be interconnected on terms and conditions prescribed by the PUD.

Note: *Capitalized terms shall have the meaning of the word as defined in Chapter 2, Definitions.*

Chapter 2: DEFINITIONS

The following words and terms shall be understood to have the following meanings when used throughout this document.

Applicant means any person, corporation, partnership, government agency, or other entity applying to interconnect a generating facility to the PUD's electric system pursuant to chapter 80.60.

Application means the written notice provided by the applicant to the PUD that initiates the interconnection process.

Business day means Monday through Friday excluding official federal or Washington State holidays.

Certificate of completion means the form completed by the applicant or Customer-Generator and the electrical inspector having jurisdiction over the installation of the facilities indicating completion of installation and inspection of the interconnection.

Electric system means all electrical wires, equipment, and other facilities owned or provided by the PUD that are used to transmit electricity to customers.

Generating facility means a source of electricity used by the Customer-Generator that is located on the Customer-Generator's premises and the Customer-Generator's side of the point of common coupling, and all facilities ancillary and appurtenant thereto, including interconnection facilities, which the applicant requests to interconnect to the PUD's electric system.

Customer-Generator means a customer that owns and/or uses a generating facility located on the customer's premises which is interconnected to the PUD's electric system. Customer-Generators who use, but do not own, a generating facility located on their premises may be required to provide proof of legal authority to insure that Customer-Generator's generating facility meets all requirements of these standards.

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

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

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

Interconnection Customer means the person, corporation, partnership, government agency, or other entity that has executed an Interconnection Agreement with the PUD **and**: 1. that **owns** a generating facility interconnected to the PUD's electric system; 2. for net-metered facilities, is a Customer-Generator as defined herein, who is both a customer of the PUD **and also the owner** of the generator being interconnected to the PUD's electrical system; **or** 3. is a customer of the PUD who purchases power from, or leases facilities from a Third Party Owner.

Interconnection facilities means the electrical wires, switches and other equipment used to interconnect a generating facility to the electric system.

Maximum generating capacity means the maximum amount of energy that the generator is capable of producing on an instantaneous basis.

Model interconnection agreement means standardized terms and conditions that govern the interconnection of generating facilities pursuant to these standards. The model interconnection agreement may be modified to accommodate terms and conditions specific to individual interconnections, subject to the conditions set forth in these rules.

Net metering has the same meaning as RCW 80.60.010(9) for Customer-Generator owned net metered facilities; and, for generating facilities owned by Third Party Owners, has the meaning as used in these standards and any other rates, terms and conditions adopted by the PUD for third party owned systems.

Network distribution system (grid or spot) means electrical service from a distribution system consisting of two or more primary circuits from one or more substations or transmission supply points arranged such that they collectively feed secondary circuits serving one (a spot network) or more (a grid network) PUD customers.

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

Point of common coupling or **PCC** means the point where the generating facility's local electric power system connects to the PUD'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.

PUD or **PUD 3** means Public Utility District 3 of Mason County, Washington, which owns and operates the electrical distribution system, or the electrical distribution system itself, onto which the Customer-Generator seeks to interconnect a generating facility.

Third Party Owner means an owner of a generating facility, sized approximately equal to or less than the PUD customer's annual load, that sells power from or leases their generating facility to a PUD customer and that has met the requirements for Third Party Owners in these standards, in the Interconnection Agreement executed between the Interconnection Customer and the PUD, and any other rates, terms and conditions applicable to the Third Party Owner as adopted by the PUD.

Chapter 3: TECHNICAL STANDARDS FOR INTERCONNECTION

A) General interconnection requirements

1. Any generating facility desiring to interconnect with the PUD's electric system or modify an existing interconnection must meet all minimum technical specifications applicable, in their most current approved version, as set forth in chapter 80.60 RCW.
2. A generating facility 100 kW or smaller must comply with all requirements from Table 1 that are applicable to the interconnection of that generating facility.

Table 1 – 100 kW or Smaller

Feature	Single-Phase		Three-Phase	
	*Capacity			
	≤ 50 kW Inverter based	≤ 50 kW Non-inverter based	≤ 100 kW Inverter based	≤ 100 kW Non-inverter based
IEEE 1547 compliant	√	√	√	√
UL 1741 listed	√		√	
Interrupting devices (capable of interrupting maximum available fault current)	√ [8]	√	√ [8]	√
Interconnection disconnect device (manual, lockable, visible, accessible)	[1]	√	√	√
System Protection		√ [3][4][6]		√ [3][4][5][6]
Over-voltage trip	√ [8]	√	√ [8]	√
Under-voltage trip	√ [8]	√	√ [8]	√
Over/Under frequency trip	√ [8]	√	√ [8]	√
Automatic synchronizing check		√		√
Ground over-voltage or over-current trip for PUD system faults				√ [2]
Power factor		√ [7]		√ [7]

Notes:

√ – Required feature (blank = not required)

* Capacity of single or aggregate generation

[1] – PUD may choose to waive this requirement

[2] – May be required by PUD; selection based on grounding system

[3] – No single point of failure shall lead to loss of protection.

[4] – All protective devices shall fully meet the requirements of ANSI C37.90

[5] – PUD will specify the transformer connection.

[6] – It is the Customer-Generator’s responsibility to ensure that their system is effectively grounded as defined by IEEE Std. 142 at the point of common coupling.

[7] – Variance may be allowed based upon specific requirements per PUD review. Charges may be incurred for losses.

[8] - UL 1741 listed equipment provides required protection.

3. Any single or aggregated generating facility with a capacity greater than 50 kW shall require a three-phase interconnection.
4. The specifications and requirements in these rules are intended to mitigate possible adverse impacts caused by a generating facility to PUD 3 equipment and personnel and on other customers of the PUD. They are not intended to address protection of the Interconnection Customer's generating facility, facility personnel, or internal load. It is the responsibility of the Interconnection Customer and/or Third Party Owner to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect its own facilities, personnel, and loads.
5. The specifications and requirements in this section shall apply generally to the Customer-Generator utilized electric generation equipment (or any other facilities or equipment not owned by the PUD) to which this standard and agreement(s) apply throughout the period encompassing the Customer-Generator's installation, testing and commissioning, operation, maintenance, decommissioning and removal of said equipment. The PUD may verify compliance at any time, with reasonable notice.
6. The Customer-Generator shall comply with the requirements in (6)(a), (b) and (c) of this subsection. However, at its sole discretion, the PUD may approve alternatives that satisfy the intent of, and/or may excuse compliance with, any specific elements of these requirements except requirements of local, state and federal requirements.
 - (a) Code and standards. Customer-Generator shall conform to all applicable codes and standards for safe and reliable operation. Among these are the National Electric Code (NEC), National Electric Safety Code (NESC), the Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), and Underwriters Laboratories (UL) standards, and local, state and federal building codes. The Customer-Generator shall be responsible to obtain all applicable permit(s) for the equipment installations on its property.
 - (b) Safety. All safety and operating procedures for joint use equipment shall be in compliance with the Occupational Safety and Health Administration (OSHA) Standard at 29 CFR 1910.269, the NEC, Washington Administrative Code (WAC) rules, the Washington Division of Occupational Safety and Health (DOSH) Standard, and equipment manufacturer's safety and operating manuals.
 - (c) Power quality. Installations will be in compliance with all applicable standards including IEEE Standard 519-Harmonic Limits.
7. Momentary Paralleling of Standby Generators. Protective relays to isolate the generation facility for faults in the PUD's distribution system are not required if the paralleling operation is automatic and designed to take place for less than one hundred milliseconds. Parallel operation of the generation facility with the PUD distribution system shall be prevented when the PUD line is dead or out of phase with the generation

facility. The Customer-Generator must submit the control scheme for automatic paralleling for review and acceptance by the PUD before the generating facility will be allowed to interconnect or test the interconnection.

B) Specific interconnection requirements

1. Customer-Generator shall furnish and install on Customer-Generator's side of the meter, a UL-approved manual safety disconnect switch which shall be capable of fully disconnecting the generating facility from PUD's electric system. The disconnect switch shall be located outdoors adjacent to PUD meters and shall be of the visible break type in a metal enclosure which can be secured by a PUD padlock. The disconnect switch shall be accessible to PUD personnel at all times.
2. The PUD shall have the right to disconnect the generating facility at the disconnect switch under the following circumstances: When necessary to maintain safe electrical operating conditions; if the generating facility does not meet required standards; or if the generating facility at any time adversely affects or endangers any person, the property of any person, the PUD's operation of its electric system or the quality of PUD's service to other customers.
3. Nominal voltage and phase configuration of the generating facility must be compatible to the PUD system at the point of common coupling.
4. Customer-Generator must provide evidence that its generation will never result in reverse current flow through the PUD's network protectors. All instances of interconnection to secondary spot distribution networks shall require review and written pre-approval by PUD. Interconnection to distribution secondary grid networks is not allowed. Closed transition transfer switches are not allowed in secondary network distribution systems.

C) Specifications applicable to all inverter-based interconnections

Any Customer-Generator desiring to interconnect an inverter-based generating facility with the PUD's electric system or modify an existing interconnection must meet the technical specifications, as set forth below. A more recent approved version may supersede specifications on the list below.

1. IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, for system 10 MVa or less.
2. UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems. Equipment must be UL listed.
3. IEEE Standard 929, IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.
4. To protect and ensure the reliability of the PUD's distribution feeder, prevent voltage fluctuations, and prevent possible future costs to other utility customers to upgrade the

PUD's system, the PUD may specify enhanced (smart) inverter characteristics for interconnected facilities.

D) Requirements applicable to all noninverter-based interconnections

Noninverter-based interconnection requests may require more detailed PUD review, testing, and approval, at the Customer-Generator's cost, of the equipment proposed to be installed to ensure compliance with applicable technical specifications, in their most current approved version, including:

1. IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, for systems 10 MVA or less.
2. ANSI Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.
3. Customer-Generators proposing such interconnection may also be required to submit a power factor mitigation plan and/or other studies or plans as appropriate for PUD review and approval.

Chapter 4: Application for Interconnection

1. Application

The Customer-Generator seeking to interconnect a generating facility under these rules must fill out and submit a signed application form to the PUD. Information must be accurate, complete, and approved by the PUD prior to installing the generating facility; however, **approval of the application as complete does not constitute approval to interconnect**. A standard application form shall be made available on the PUD's web site.

If a project is to be installed in a phased-in manner, the Customer Generator may choose to submit 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 rating stated on the application.

- a. If the final project size is applied for and the requirements are met, then the Customer Generator must notify the PUD as additional units are added. Failure to notify the PUD may result in the disconnection of service.
 - b. If applications are submitted for different stages of a project, the size may not be increased beyond that approved.
- ##### 2. Non-Discrimination
- All Customer-Generator interconnection applications pursuant to this chapter will be processed by the PUD in a non-discriminatory manner.
- ##### 3. Application Evaluation

All generation interconnection requests pursuant to this chapter will be reviewed by the PUD for compliance with the rules of this chapter. If the PUD, in its sole discretion, finds that the application does not comply with this chapter, the PUD may reject the application. If the PUD rejects the application, it shall provide the Customer-Generator with written notification stating its reasons for rejecting the application.

Chapter 5: Interconnection Agreements and Costs

1. Once an application is accepted by the PUD as complete, the PUD shall determine if any additional engineering, safety, reliability or other studies are required.
2. If the PUD determines that additional studies are required, the PUD will provide to the Customer-Generator a Study Agreement. The Study Agreement shall include a description of the studies and a good faith estimate of the cost to perform the studies. The Customer-Generator shall have thirty (30) business days to return the completed Study Agreement along with any deposit required by the PUD against the estimated costs.
 - a. Upon completion of the studies, the PUD shall provide the Customer-Generator with the results of the studies, including any additional interim agreements, such as construction agreements, that may be necessary and a cost estimate to complete the interconnection. If the studies determine that the interconnection is denied pursuant to RCW 80.60, the PUD shall provide notice of denial to the applicant and the reasons for the denial.
3. The PUD shall provide an Interconnection Agreement to the Customer-Generator to be completed and executed within thirty (30) days. Along with the completed Interconnection Agreement, the Customer-Generator shall also make a deposit required by the PUD against the estimated costs to complete the interconnection.
 - a. Failure to return completed agreements and required deposits within the time frames specified in subsections 2 and 3 of this section may result in termination of application process by the PUD. Terms and conditions for termination of the Interconnection Agreement shall be contained within such agreement.

Chapter 6: General Terms and Conditions of Interconnection

The general terms and conditions listed in this section shall apply to all generating facilities interconnecting to the PUD under this chapter.

In order to ensure system safety and reliability of interconnected operations, all interconnected generating facilities shall be constructed and operated by Customer-Generator in accordance with these standards and all other applicable federal, state, and local laws and regulations.

1. Required Records

Customer-Generator shall promptly furnish the PUD with copies of 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 PUD from time to time.

2. Unauthorized Connections

For the purposes of public and working personnel safety, any non-approved generation interconnections discovered will be immediately disconnected from the PUD system.

3. Dedicated Distribution Transformer

To ensure reliable service to all PUD customers and to minimize possible problems for other customers, the PUD will review the need for a dedicated-to-single-customer distribution transformer. If the PUD requires a dedicated distribution transformer, the Customer-Generator shall pay for all costs of the new transformer and related facilities.

4. Metering

- a. Net metering for fuel cells, facilities that produce electricity and used and usefully thermal energy from a common fuel source, or facilities that use water, wind, solar energy, or biogas from animal waste as a fuel as set forth in chapter 80.60 RCW: The PUD shall install, own, and maintain an advanced kilowatt-hour meter, or meters as the installation may determine, capable of registering the bi-directional flow of electricity at the point of common coupling at a level of accuracy that meets all applicable standards, regulations and statutes. The meter(s) may measure such parameters as time of delivery, demand, power factor, voltage and such other parameters as the PUD shall specify. The Customer-Generator shall provide space for metering equipment. It will be the Customer-Generator's responsibility to provide the current transformer enclosure (if required), meter socket(s) and junction box after the Customer-Generator has submitted drawings and equipment specifications for PUD approval. The PUD may approve other generating sources for net metering but is not required to do so.
- b. Production metering: The PUD may require separate metering for production. This meter will record all generation produced and may be billed separately from any net metering or customer usage metering. All costs associated with the installation of production metering will be paid by the Customer-Generator.

5. Labeling

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

6. Insurance & Liability

No additional insurance will be necessary for a net metered facility that is a qualifying generating facility under chapter 80.60 RCW. A qualifying facility under RCW 80.60 is one that is 100 kW or less; and that uses water, wind, solar energy, or biogas from animal waste as a fuel, fuel cells, or that produces electricity and used and useful thermal energy from a common fuel source. For other generating facilities permitted under these standards but not a qualifying facility under chapter 80.60 RCW, additional insurance, limitations of liability and indemnification may be required by the PUD. If additional insurance is required it is the responsibility of the Customer-Generator to update the PUD of any changes to Customer-Generator's policy.

7. Future Modification or Expansion

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

8. PUD 3 System Capacity

For the overall safety and protection of the PUD system, chapter 80.60 RCW currently limits interconnection of generation for net metering to 4.00% of the PUD's peak demand during 1996. Additionally, interconnection of generating facilities to individual distribution feeders will be limited to 10% of the feeder's peak capacity. However, the PUD may, in its sole discretion, allow additional generation interconnection beyond these stated limits, or, if indicated by engineering, safety or reliability studies, restrict or prohibit new or expanded interconnected generation capacity on any feeder, circuit or network.

9. Customer-Generator Utilized Equipment Protection

It is the responsibility of the Customer-Generator to protect its facilities, loads and equipment and comply with the requirements of all appropriate standards, codes, statutes and authorities.

10. Interconnection Costs

Charges by the PUD to the Customer-Generator in addition to the application fee, if any, will be compensatory and applied as appropriate. Such costs may include, but are not limited to, transformers, production meters, and PUD testing, qualification, and approval of non-UL 1741 listed equipment. The Customer-Generator shall be responsible for any costs associated with any future upgrade or modification to its interconnected system required by modifications in the PUD's electric system.

11. Not Governed by this Section

This section does not govern the settlement, purchase or delivery of any power generated by Customer-Generator's generating facility. The purchase or delivery of

power, including net metering of electricity pursuant to chapter 80.60 RCW, and other services that the Customer-Generator may require will be covered by separate agreement or pursuant to the terms, conditions and rates as may be from time to time approved by the commission. Any such agreement shall be complete prior to initial operation and filed with the PUD.

12. Disconnection

Customer-Generators may disconnect the generating facility at any time; provided that the Customer-Generator provides reasonable advance notice to the PUD.

13. Sale or Transfer of Generating Facility

Customer-Generator shall notify the PUD prior to the sale or transfer of the generating facility, the interconnection facilities or the premises upon which the facilities are located. The Customer-Generator shall not assign its rights or obligations under any agreement entered into pursuant to these rules without the prior written consent of PUD 3, which consent shall not be unreasonably withheld.

Chapter 7: Certificate of Completion

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

Chapter 8: Filings

The PUD shall maintain on file for inspection at its place of business, the charges, terms and conditions for interconnections pursuant to this chapter. Such filing shall include model forms of the following documents and contracts:

1. Application
2. Model interconnection agreement
3. Certificate of completion