



Net Metering Interconnection Workbook
for
Customer-Owned Generating Facilities (100 kW or less)

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NET METERING INTERCONNECTION WORKBOOK

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CHAPTER ONE

General Requirements

Introduction

Welcome to Public Utility District No. 2 of Grant County, hereafter referred to as “Grant PUD”.

Note: *Italicized* words are defined in Chapter 3.

It is the *customer’s* responsibility to ensure compliance with the National Electrical Code (NEC), Washington Administrative Code (WAC), 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 and ordinances that apply to the project. The *customer* shall be responsible for obtaining all applicable permit(s) for the equipment installations on their property.

The *customer*, if not knowledgeable in electrical work, should consider using a contractor to install the electrical equipment.

Other workbooks are available with information regarding the installation of electric service and fiber optic cable to permanent single-family, multifamily, and nonresidential commercial buildings, condominium complexes, apartment buildings, mobile home parks, and irrigation sites. These workbooks are available free of charge from Grant PUD’s Local Offices.

Getting Started

Request a “*Net Metering Application*” from EnergyServices@gcpud.org. Upon completing the “*Net Metering Application*”, the Energy Services Group will assist and process your request.

Net Metering Application

The *customer* is required to have available the following information in order to complete a “*Net Metering Application*.” **NOTE: All service connections are subject to Grant PUD’s Customer Service Policies as they are written or as they are amended by Grant PUD’s Board of Commissioners.**

Completing the Net Metering Application

The *Net Metering Application* is comprised of five areas:

1. *Customer* Information
2. Site Sketch
3. Electrical Schematic Drawing
4. Non-refundable Fee
5. Manufacturers Cut-Sheets

When completing the *Net Metering Application*, please type or print legibly. The information on the *Net Metering Application* will include the location of the *Net Metering System* and electrical details. This *application* will be used by Grant PUD to determine which *interconnection* requirements are applicable to the *customer’s* proposed generating facility.

NOTE: All requested information must be provided, or the application may be delayed or returned.

General Conditions

The *Net Metering Application* states the general conditions and requirements and technical specifications for the safe and reliable operation of the interconnected *Net Metering System*, 100 kW or less in capacity, that are intended to generate energy to serve all or a part of the *customer’s* load.

Electrical Generating Systems (100 kW or less)
Any electrical generating facility with an electrical generating capacity of 100 kW or less must comply with these standards to be eligible to connect and operate in parallel with Grant PUD’s distribution system.

Application

Each customer seeking to install and operate an interconnected *Net Metering System* shall complete and submit an *application*, along with the *application* fees, to Grant PUD. Information must be accurate and complete before approval from Grant PUD.

Application Fee

The Net Metering *application* fee shall be submitted with the *application* for an interconnected *Net Metering System*. This fee includes an application review and a typical net meter change out, this fee is non-refundable. Please refer to the “Customer Service Policies Fee Schedule” at www.grantpud.org/rates-fees/#our-rates-scroll for the Net Metering *Application* fee.

Net Metering Interconnection Agreement

Upon approval of an *application*, the customer shall sign a “Net Metering *Interconnection Agreement*”. This agreement shall be signed prior to Grant PUD proceeding.

Application Prioritization

All generation interconnection requests for facilities 100 kW or less will be on a first come first serve bases, provided the customer has accurately completed the *application* and signed a “Net Metering *Interconnection Agreement*”.

Unauthorized Connections

For public and working personnel safety, any Grant PUD non-approved generation interconnections shall be immediately disconnected from Grant PUD’s system.

Dedicated Distribution Transformer

To ensure reliable service to Grant PUD customers, Grant PUD will review the *application* and determine if a dedicated distribution transformer is required. If Grant PUD requires a dedicated distribution transformer, the customer shall pay all costs of the new transformer and related facilities.

Net Metering

Metering for *Net Metering System* as set forth in RCW 80.60: Grant PUD shall install, own and maintain a kilowatt-hour meter, or meters as the installation may determine, capable of registering the bi-directional flow of electricity at the *Point of Common Coupling* at a level of accuracy that meets all applicable

standards, regulations and statutes. The meter(s) may measure such parameters as time of delivery, power factor, voltage and such other parameters as Grant PUD shall deem necessary to monitor the installation. The customer shall provide in the design adequate space per national, state, and local codes for metering equipment. It will be the customer’s responsibility to provide all the interconnection equipment including the current transformer enclosure (if required), meter socket(s), visible and lockable disconnect switch, and junction box(s). All equipment shall be included in the design and shown on the customers supplied drawings prior to requesting Grant PUD approval. Grant PUD will determine if the installation will be compatible with Grant PUD’s distribution system and may or may not approve the Interconnected *Net Metering System*. An approved Grant PUD socket is required to be installed for the meter.

Production Metering

Grant PUD may require separate metering for all customer generated power. This meter, if required, will record the total amount of electricity generated by the facilities and be utilized for statistics, billing, and any interaction required with government agencies. All costs associated with the installation of production metering will be paid by the customer. A Grant PUD approved meter socket is required to be installed for the meter and the customer is responsible for installing a production meter or blank jumper plate. Please refer to the “Approved Residential Meter Sockets” and “Approved Commercial Meter Sockets” document downloads at grantpud.org/services for the Grant PUD approved meter sockets.

Labeling

Labeling shall be installed on equipment by the customer and approved by both Washington State L&I and Grant PUD in accordance with NEC requirements.

Insurance & Liability

As currently set forth for qualifying generation under RCW 80.60, no additional insurance will be necessary. For other generation facilities permitted under these standards but not contained within RCW 80.60, additional insurance and indemnification may be required. Qualifying generation must meet these interconnection standards and maintain compliance with these standards during operation.

Future Modification, Removal or Expansion

Prior to any future modification, removal, or expansion of the *Net Metering System*, the customer will obtain Grant PUD review and approval. Grant PUD reserves the right to require the customer, at the customer's expense, to provide corrections or additions to existing electrical devices in the event of modification of government or industry regulations and standards.

District System Capacity

For the overall safety and protection of Grant PUD's system RCW 80.60 currently limits interconnection of generation for net metering to 4% of Grant PUD's peak demand during 1996. Additionally, *interconnection* of qualified customer-owned generation to individual distribution feeders will be limited to 10% of the feeder's peak capacity. However, it is at the discretion of Grant PUD to determine the capability of adding additional generation facilities to the distribution system.

Customer-Owned Equipment Protection

It is the responsibility of the customer to protect their facilities, loads and equipment and comply with the requirements of all appropriate standards, codes, statutes, and authorities.

Interconnection Costs

Additional costs above and beyond the *application* fee will be determined after the *application* is received. These costs will include any Grant PUD installed equipment and

required testing in order to integrate the *Net Metering Systems*. For example, costs may be incurred for transformers, production meters, special net meter (as determined by the meter shop) and Grant PUD testing, qualification, and approval of non UL 1741 listed equipment.

CHAPTER TWO

Technical Specifications

This chapter sets forth the technical specifications and conditions that must be met to Interconnected *Net Metering Systems*, 100 kW or less, for parallel operation with the distribution system of Grant PUD.

General Interconnection Requirements

1. Any *Net Metering System* desiring to interconnect with Grant PUD's distribution system or modify an existing interconnection must meet all minimum technical specifications applicable, in their most current approved version, as set forth in this chapter.
2. The specifications and requirements listed herein are intended to mitigate possible adverse impacts caused by the *Net Metering System* on Grant PUD equipment and personnel and on other customers of Grant PUD. They are not intended to address protection of the *Net Metering System* itself or its internal load. It is the responsibility of the *Net Metering System* customer to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect themselves and their equipment.
3. The specifications and requirements listed herein shall apply generally to the non-Grant PUD-owned electric generation equipment to which this standard and agreement(s) apply throughout the period encompassing the customer's installation, testing and commissioning, operation, maintenance, decommissioning and removal of said equipment. Grant PUD may verify compliance at any time, with reasonable notice.
4. The customer shall comply with the requirements in Sections 4(a), 4(b) and 4(c). However, at its sole discretion, Grant PUD may approve alternatives that satisfy the intent of, and/or may excuse compliance

with, any specific elements of these requirements.

- a) **Codes and Standards.** The customer 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 shall be responsible for obtaining all applicable permit(s) for the equipment installations on their 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 29, CFR 1910.269, the NEC, Washington Administrative Code (WAC) rules, the Washington Industrial Safety and Health Administration (WISHA) Standard, and equipment manufacturer's safety and operating manuals.
- c) **Power Quality.** Installations will be in compliance with all applicable standards including IEEE Standard 519-1992 Harmonic Limits.

Inverter-Based Interconnection Requirements, as Applicable

- IEEE Standard 1547-2003 Standard for Interconnecting Distributed Resources with Electric Power Systems
- UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems - Equipment must be UL listed.
- IEEE Standard 929-2000, IEEE Recommended Practice for District Interface of Photovoltaic (PV) Systems

Non-Inverter-Based Interconnection Requirements

- The *Application* for such Interconnection may require more detailed Grant PUD review, testing, and approval, at the customer's cost, for the equipment proposed to be installed to ensure compliance with applicable standards including:
 - IEEE Standard 1547-2003, Standard for Interconnecting Distributed Resources with Electric Power Systems
 - ANSI Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.
 - Customers proposing such inter-connection may also be required to submit a power factor mitigation plan for Grant PUD review and approval.

Specific Interconnection Requirements

- **Visible and Lockable Disconnect Switch**

Customer shall furnish and install on customer's side of the meter a UL approved visible and lockable disconnect switch which shall be capable of fully disconnecting the customer's energy generating equipment from Grant PUD electric service. The disconnect switch shall be located adjacent to Grant PUD meters and shall be of the visible break type in a metal enclosure which can be secured by a padlock. The disconnect switch shall be accessible to Grant PUD personnel at all times.

Grant PUD shall have the right to disconnect the facility at the disconnect switch: when necessary to maintain safe electrical operating conditions; if the facility does not meet required standards; or if the facility at any time adversely affects the Grant PUD's operation of its electrical system or the quality of Grant PUD's service to other customers.

- **Voltage and Phasing**

Nominal voltage and phase configuration of customer generation must be compatible to Grant PUD's system at the *Point of Common Coupling (PCC)*.

Interconnection to Secondary Network Distribution Systems

Customer must provide evidence that their generation will never result in reverse current flow through Grant PUD's Network Protectors. All instances of interconnection to secondary Distribution Networks shall require review and written pre-approval by Grant PUD.

Interconnection to distribution secondary area networks is not allowed. Closed Transition Transfer Switches are not allowed in secondary *Network Distribution Systems* (Distribution Systems with multiple sources of secondary supply).

CHAPTER THREE

Glossary

The following words and terms shall be understood to have the following meanings when used in the General Conditions and Technical Specifications of the Interconnection Standards.

Application: The notice provided by the *customer* to Grant PUD, which initiates the interconnection process.

Customer: Entity who owns and/or operates the *Net Metering System* interconnected to Grant PUD distribution system.

Facility, also referred to as Electrical Generating System (EGS): A source of electricity owned by the *customer* that is located on the *customer's* side of the PCC, and all facilities ancillary and appurtenant thereto, including interconnection equipment, which the *customer* requests to interconnect to Grant PUD's distribution system.

In-Service Date: The date on which the *Net Metering System* modifications (if applicable) are complete and ready for service, even if the *Net Metering System* is not placed in service on or by that date.

Interconnection Agreement: An agreement for interconnection service between the *customer* and Grant PUD. The agreement also includes any amendments or supplements thereto entered into by the *customer* and Grant PUD.

Net Metering: As defined in RCW 80.60.010, means "measuring the difference between the electricity supplied by an electric utility and the electricity generated by a customer-generator that is fed back to the electric utility over the applicable billing period."

Net Metering System: As defined in RCW 80.60.010, means "a fuel cell, a facility that produces electricity and used and useful thermal energy from a common fuel source, or a facility for the production of electrical energy that generates *renewable energy*, and that:

(a) Has an electrical AC generating capacity of not more than one hundred kilowatts;

(b) Is located on the *customer-generator's* premises;

(c) Operates in parallel with the electric utility's transmission and distribution facilities; and

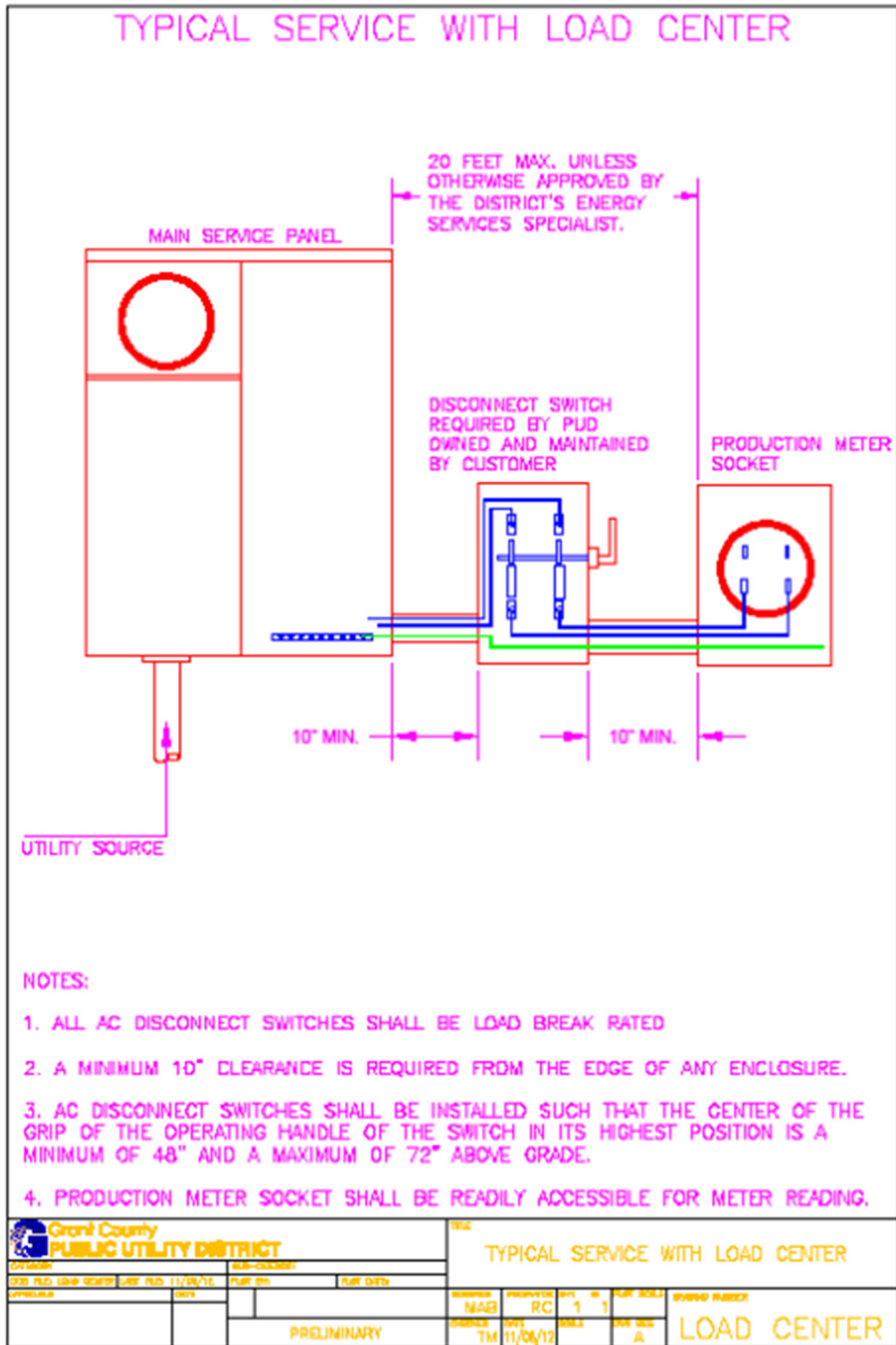
(d) Is intended primarily to offset part or all of the *customer-generator's* requirements for electricity.

Network Distribution System (Area or Spot): Electrical service from a distribution system consisting of one 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 (an area network) Grant PUD *customers*.

Point of Common Coupling (PCC): The point where the *customer's* local electric power system connects to Grant PUD's distribution 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 *customer* and Grant PUD. See Grant PUD for the location at a particular *customer* site.

Renewable Energy: As defined by RCW 80.60.010, means "the energy generated by a facility that uses water, wind, solar energy, or biogas from animal waste as a fuel.

Electrical Schematic Drawing Example



Contact Numbers

Grant County PUD

Service Expediter	766-2501
Energy Services – 312 West Third Avenue, Moses Lake	766-2512
Customer Service Call Center.....	766-2505
Grant County PUD Toll Free Number.....	1-800-422-3199

State & County Government

WA Department of Labor and Industries - 3001 W. Broadway, Moses Lake	764-6900
WA Department of Labor and Industries Electrical Inspection (24 hour) Line.....	764-6966
Grant County Building Department – 264 W Division Ave, Ephrata.....	754-2011 ext. 3001

City and Town Government

Town of Coulee City - 501 Main Street West.....	632-5331
Town of Electric City - 10 Western Avenue	633-1510
City of Ephrata - 121 Alder S.W.	754-4601
City of George - 102 Richmond Avenue.....	785-5081
City of Grand Coulee - 306 Midway Avenue.....	633-1150
Town of Hartline – 941 Willard St.....	639-2606
Town of Krupp (Marlin) - 293 Urquhart Avenue N.	345-2466
City of Mattawa - 521 Government Road.....	932-4037
City of Moses Lake – 401 S Balsam Street	764-3701
City of Quincy - 104 B Southwest.....	787-3523
City of Royal City – 445 Camelia Street N.E.	346-2263
City of Warden – 121 S Main St	349-2326
City of Wilson Creek – 254 Railroad St.....	345-2531