

**BIG BEND ELECTRIC COOPERATIVE, INC. (“COOPERATIVE”)
GENERAL STANDARDS FOR THE INTERCONNECTION
OF NET METERING SYSTEMS**

Chapter 1 - Purpose and scope.

(1) The purpose of this chapter is to establish rules for determining the terms and conditions governing the interconnection of Net Metering Systems with an electrical generating capacity of no more than 100 kilowatts to the electric system of the Cooperative.

(2) These rules are intended to be consistent with the requirements of chapter 80.60 RCW, Net Metering of electricity and to comply with provisions of the Energy Policy Act of 2005, Pub. L. No. 109-58 (2005) that amended section 111 (d) of the Public Utility Regulatory Policy Act (PURPA) relating to Net Metering (subsection 11) and Interconnection (subsection 15).

(3) These standards govern the terms and conditions under which the Member-generator's Net Metering System will interconnect with, and operate in parallel with, the Cooperative's electric system. These standards do not govern the settlement, purchase or delivery of any power generated by the Member-generator's Net Metering System.

Chapter 2 - Definitions

"Applicant" means a Cooperative member applying to interconnect a Net Metering System to the Cooperative's electric system pursuant to this chapter.

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

"Cooperative" means Big Bend Electric Cooperative, Inc.

"Electric system" means all electrical wires, equipment, and other facilities owned or provided by the Cooperative that are used to transmit electricity to its members.

"Generating facility" see Net Metering System.

"Initial operation" means the first time the Net Metering System is in Parallel operation with the Electric system.

"In-service date" means the date on which the Net Metering System is complete and ready for service, even if the Net Metering System is not placed in service on or by that date.

"Interconnection" means the physical connection of the Net Metering System to the Electric system so that Parallel operation may occur.

"Interconnection facilities" means the electrical wires, switches and other equipment used to interconnect Net Metering System to the Electric system.

"Maximum generating capacity" means the maximum amount of energy that the Net Metering System is capable of producing on an instantaneous basis.

"Member-generator" means a member of the Cooperative and is the user of the Net Metering System.

"Net Metering" means measuring the difference between the electricity supplied by the Cooperative and the electricity generated by a Member-generator that is fed back to the Cooperative over the applicable billing period.

"Net Metering System" 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:

- a. Uses either water, wind, solar energy, or biogas from animal waste as a fuel;
- b. Has an electrical generating capacity of not more than one hundred kilowatts;
- c. Is located on the Member-generator's premises and for which the Cooperative has, at the time of application as Member-generator, an active account in the Member-generator's name;
- d. Operates in parallel with the Cooperative's transmission and distribution facilities; and
- e. Is intended to offset part or all of the Member-generator's requirements for electricity.

"Parallel operation" or **"operate in parallel"** means the synchronous operation of the Net Metering System while interconnected with the Electric system.

"Point of common coupling" or **"PCC"** means the point where the Net Metering System connects to the 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 Net Metering System and Electric system.

Chapter 3 Technical Standards for Interconnection.

The technical standards listed in this section shall apply to all Net Metering Systems to be interconnected to the Cooperative within the size range indicated.

(1) General interconnection requirements.

(a) Any Net Metering System desiring to interconnect with the Electric system or modify an existing interconnection must meet all minimum technical specifications applicable, in their most current approved version, as set forth in this chapter.

(b) Any Net Metering System desiring to interconnect must comply with all requirements from Table 1.

Table 1. 100 kW or Smaller.

	Single-Phase		Three-Phase	
	*Capacity			
<u>Feature</u>	≤ 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 Cooperative system faults.				√ [2]
Power factor		√ [7]		√ [7]

Notes:

√ – Required feature (blank = not required)

* Capacity of single or aggregate generation

[1] – Cooperative may choose to waive this requirement

[2] – May be required by Cooperative; 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] – Cooperative will specify the transformer connection.

[6] – It is the Members’ 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 Cooperative review. Charges may be incurred for losses.

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

(c) Any Net Metering System with a capacity greater than 50 kW shall require a three-phase interconnection.

(d) The specifications and requirements in this section are intended to mitigate possible adverse impacts caused by the Net Metering System on Cooperative equipment and personnel and on other members of the Cooperative. They are not intended to address protection of the Net Metering System itself, Net Metering System operating personnel, or its internal load. It is the responsibility of the Member-generator to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect its own facilities, personnel, and loads.

(e) The specifications and requirements in this section shall apply generally to the Net Metering System (equipment not owned by the Cooperative) to which this standard and agreement(s) apply throughout the period encompassing the generator's installation, testing and commissioning, operation, maintenance, decommissioning and removal of said equipment. The Cooperative may verify compliance at any time, with reasonable notice.

(f) The Member-generator shall comply with the requirements in (f)(i), (ii) and (iii) of this subsection. However, at its sole discretion, the Cooperative may approve alternatives that satisfy the intent of, and/or may excuse compliance with, any specific elements of these requirements except local, state and federal building codes.

(i) **Code and standards.** Applicant shall conform to all applicable codes and standards for safe and reliable operation. Among these are the National Electric Code (NEC), National Electric Safety Code (NESC), the Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), and Underwriters Laboratories (UL) standards, and local, state and federal building codes. The Member-generator shall be responsible to obtain all applicable permit(s) for the equipment installations on its property.

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

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

(2) Specific interconnection requirements.

(a) Applicant shall furnish and install on applicant's side of the meter, a UL-approved safety disconnect switch which shall be capable of fully disconnecting the Net Metering System from the Electric system. The disconnect switch shall be located adjacent to Cooperative 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 Cooperative personnel at all times.

(b) The requirement in (a) of this subsection may be waived by the Cooperative if:

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

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

(c) The Cooperative shall have the right to disconnect the Net Metering System at the disconnect switch under the following circumstances: When necessary to maintain safe electrical operating conditions; if the Net Metering System does not meet required standards; or if the Net Metering System at any time adversely affects or endangers any person, the property of any person, the Cooperative's operation of its Electric system or the quality of Cooperative's service to other members.

(d) Nominal voltage and phase configuration of the Net Metering System must be compatible to the Cooperative Electric system at the Point of common coupling.

(3) Specifications applicable to all inverter-based interconnections.

Any inverter-based Net Metering System desiring to interconnect with the Cooperative'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.

(a) IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, for systems 10 MVA or less.

(b) UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems. Equipment must be UL listed.

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

(4) Requirements applicable to all noninverter-based interconnections.

Noninverter-based interconnection requests require compliance with applicable technical specifications, in their most current approved version, including:

(a) IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, for systems 10 MVA or less.

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

Chapter 4 Application for Interconnection

(1) When an Applicant requests interconnection from the Cooperative, the Applicant shall be responsible for conforming to the rules and regulations that are in effect and on file with the Cooperative. The Cooperative will designate a point of contact for this specific purpose. The applicant seeking to interconnect a Net Metering System under these rules must fill out and submit a signed application form to the Cooperative. Information must be accurate, complete, and approved by the Cooperative prior to installing the Net Metering System.

(2) **Application fees.** The Cooperative shall charge a non-refundable Net Metering Application Fee, see Policy #172, Miscellaneous Charges.

(3) **Non-Discrimination.** All Net Metering applications will be processed by the Cooperative in a first-come first-served manner.

(4) **Application evaluation.** All Net Metering applications will be reviewed by the Cooperative for compliance with the rules of this policy. If the Cooperative in its sole discretion finds that the application does not comply with this policy, the Cooperative may reject the application. If the Cooperative rejects the application, it shall provide the applicant with written

notification stating its reasons for rejecting the application.

(5) Once an application is accepted by the Cooperative as complete, the Cooperative shall determine if any additional engineering, safety, reliability or other studies are required.

Chapter 5 General Terms and Conditions of Interconnection

The general terms and conditions listed in this section shall apply to all Net Metering Systems interconnecting to the Cooperative under this chapter.

(1) Any Net Metering System must comply with these rules to be eligible to interconnect and operate in parallel with the Cooperative's Electric system. These standards shall apply to all Net Metering Systems that are intended to operate in parallel with the Cooperative's Electric system.

(2) In order to ensure system safety and reliability of interconnected operations, all Net Metering Systems shall be constructed and operated by the Member-generator in accordance with these standards and all other applicable federal, state, and local laws and regulations.

(3) Prior to Initial Operation, all Member-generators must submit a completed electrical inspection permit to the Cooperative, execute an appropriate Interconnection & Net Metering Agreement and any other agreement(s) required for the disposition of the Net Metering System's electric power output. The Interconnection & Net Metering Agreement between the Cooperative and Member-generator outlines the interconnection standards, cost allocation and billing agreements, and on-going maintenance and operation requirements.

(4) Applicant shall promptly furnish the Cooperative with copies of such plans, specifications, records, and other information relating to the Net Metering System and the ownership, operation, use, or maintenance of the Net Metering System, as may be reasonably requested by the Cooperative from time to time.

(5) Net metering for fuel cells, facilities that produce electricity and used and useful 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 Cooperative shall install, own and maintain a kilowatt-hour meter, or meters as the installation may determine, capable of registering the bi-directional flow of electricity at the point of common coupling at a level of accuracy that meets all applicable standards, regulations and statutes. The meter(s) may measure such parameters as time of delivery, power factor, voltage and such other parameters as the Cooperative shall specify. The applicant shall provide space for metering equipment. It will be the applicant's responsibility to provide the current transformer enclosure (if required), meter socket(s) and junction box after the applicant has submitted drawings and equipment specifications for Cooperative approval. The Cooperative may approve other generating sources for net metering but is not required to do so.

(6) Common labeling furnished or approved by the Cooperative 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.

(7) No additional insurance will be necessary for a Net Metering System that is a qualifying generating facility under chapter 80.60 RCW.

(8) Prior to any future modification or expansion of a Net Metering System, the Member-generator will obtain Cooperative review and approval. The Cooperative reserves the right to require the Member-generator to provide corrections or additions to existing electrical devices in the event of modification of government or industry regulations and standards.

(9) For the overall safety and protection of the Cooperative system, chapter 80.60 RCW currently limits interconnection of generation for net metering to 0.25% of the Cooperative's peak demand during 1996 (which increases to 0.50% on January 1, 2014). Additionally, interconnection of Net Metering Systems to individual distribution feeders may be limited by the Cooperative. However, the Cooperative may, in its sole discretion, allow additional Net Metering System interconnection beyond these stated limits, or, if indicated by engineering, safety or reliability studies, restrict or prohibit new or expanded Net Metering System capacity on any feeder, or circuit.

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

(11) Member-generator may disconnect the Net Metering System at any time; provided that the Member-generator provides reasonable advance notice to the Cooperative.

(12) Member-generator shall notify the Cooperative prior to the sale or transfer of the Net Metering Systems, or the premises upon which the Net Metering System is located. The Member-generator shall not assign its rights or obligations under any agreement entered into pursuant to these rules without the prior written consent of Cooperative, which consent shall not be unreasonably withheld.

Chapter 6 – Electrical Inspection.

All Net Metering Systems must obtain an electrical permit and pass electrical inspection before they can be connected or operated in parallel with the Cooperative's Electric system. Member-generator shall provide to Cooperative written certification that the Net Metering System has been installed and inspected in compliance with the local building and/or electrical codes.

Chapter 7 - Adoption by Reference.

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

(1) The National Electrical Code is published by the National Fire Protection Association (NFPA). The National Electrical Code is a copyrighted document. Copies are available from the NFPA at 1 Batterymarch Park, Quincy, Massachusetts, 02169 or at internet address <http://www.nfpa.org>.

(2) National Electric Safety Code (NESC). Copies of the National Electric Safety Code are available from the Institute of Electrical and Electronics Engineers at <http://standards.ieee.org/nesc>.

(3) Institute of Electrical and Electronics Engineers (IEEE) Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems. Copies of IEEE Standard 1547 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

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

available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

(5) American National Standards Institute (ANSI) Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus. Copies of IEEE Standard C37.90 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

(6) Institute of Electrical and Electronics Engineers (IEEE) Standard 519, Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems. Copies of IEEE Standard 519 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

(7) Underwriters Laboratories (UL), including UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems. UL Standard 1741 is available from Underwriters Laboratory at <http://www.ul.com>.

(8) Occupational Safety and Health Administration (OSHA) Standard at 29 CFR 1910.269. Copies of Title 29 Code of Federal Regulations are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>, and from various third-party vendors.

(9) Washington Division of Occupational Safety and Health (DOSH) Standard, chapter 296-155 WAC. The DOSH Standard is available from the Washington Department of Labor and Industries at P.O. Box 44000, Olympia, WA 98504-4000, or at internet address <http://www.lni.wa.gov>.