

CUSTOMER INTERCONNECTION STANDARDS



Interconnection standards and related documents

Table of Contents

	Page
Section 1	Purpose and Scope _____ 3
Section 2	Application of Rules _____ 3
Section 3	Definitions _____ 4
Section 4	Technical Standards for Interconnection _____ 5
Section 5	Application for Interconnection _____ 9
Section 6	Interconnection Agreements and Costs _____ 10
Section 7	General Terms and Conditions of Interconnection _____ 10
Section 8	Certificate of Completion _____ 13
Section 9	Filings _____ 13
Section 10	Adoption by Reference _____ 13
Section 11	Interconnection of Facilities Greater than 300 kW _____ 15
Appendix A	Application for Interconnecting a Generating Facility ____ 16
Appendix B	Generating Facility Certificate of Completion _____ 18
Appendix C	Net Energy Metering Interconnection Agreement _____ 19
Appendix D	Power Purchase Agreement _____ 26
Appendix E	Customer Checklist for Utility Interconnection _____ 29
Exhibit A	Typical Generation Units _____ 30
Exhibit B	Typical One-Line Diagram _____ 31

Section 1 - Purpose and Scope.

- (1) The purpose of this policy is to establish rules and standards for determining the terms and conditions governing the interconnection of electric generating facilities with a maximum generating capacity of less than or equal to 300 kilowatts to the electric system over which the Clark Public Utilities (Utility) has jurisdiction.
- (2) The standards described in sections 1 through 10 of this chapter do not govern interconnection of generating facilities with generating capacities greater than 300 kW, however, section 11 of this chapter outlines a set of principles that the Utility will apply when applicant's generation exceeds 300 kW.
- (3) 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).
- (4) To promote the purposes of Substitute Senate Bill No. 5101, chapter 300, Laws of 2005 (effective July 1, 2005).
- (5) This chapter does not govern standby generators designed and used only to provide power to the customer when the Utility service is interrupted and that operate in parallel with the Utility system for less than 0.5 seconds both to and from emergency service.
- (6) These standards govern the terms and conditions under which the applicant's generating facility will interconnect with, and operate in parallel with, the Utility's electric system. These standards do not govern the settlement, purchase, or delivery of any power generated by the applicant's generating facility.

Section 2 - Application of Rules.

- (1) These rules include various requirements applicable to the Utility, the applicant and the generator.
- (2) 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.

Section 3 – Definitions.

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

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

"Certificate of completion" means the form completed by the applicant or 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 Utility that are used to transmit electricity to customers.

"Generating facility" means a source of electricity owned by the applicant or generator that is located on the applicant'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 Utility's electric system.

"Generator" means the entity that owns and/or operates the generating facility interconnected to the Utility's electric system.

"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 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" means measuring the difference between the electricity supplied by a Utility and the electricity generated by a generating facility over the applicable billing period.

"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) Utility 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 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 IEEE 1547, clause 4.

"System upgrades" means the additions modifications and upgrades to the Utility electrical system at or beyond the point of common coupling necessary to facilitate the interconnection of the generating facility. System Upgrades do not include interconnection facilities.

"Utility" means Clark Public Utilities, which owns and operates the electrical distribution system, or the electrical distribution system itself, onto which the applicant seeks to interconnect a generating facility.

Section 4 – Technical Standards for Interconnection.

(1) General interconnection requirements.

- (a) Any generating facility desiring to interconnect with the Utility'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 this chapter.
- (b) A generator 300 kW or smaller must comply with all requirements from Table 1 that are applicable to the interconnection of that generating facility.

Table 1. 300 kW or Smaller.

	Single-Phase		Three-Phase	
	*Capacity			
<u>Feature</u>	≤ 50 kW Inverter based	≤ 50 kW Non- inverter based	≤ 300 kW Inverter based	≤ 300 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 Utility system faults.				√ [2]
Power factor		√ [7]		√ [7]

Notes:

√ – Required feature (blank = not required)

* Capacity of single or aggregate generation

[1] – Utility may choose to waive this requirement

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

[6] – It is the customers' 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 Utility review. Charges may be incurred for losses.

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

- (c) Any single or aggregated generating facility 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 generating facility on Utility equipment and personnel and on other customers of the Utility. They are not intended to address protection of the generating facility itself, generating facility personnel, or its internal load. It is the responsibility of the generating facility to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect its own facilities, personnel, and loads.
- (e) The specifications and requirements in this section shall apply generally to the generator-owned electric generation equipment (or any other facilities or equipment not owned by the Utility) 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 Utility may verify compliance at any time, with reasonable notice.
- (f) The generator shall comply with the requirements in (f)(i), (ii) and (iii) of this subsection. However, at its sole discretion, the Utility 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 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 applicant's generating facility from the Utility's electric system. The disconnect switch shall be located adjacent to Utility 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 Utility personnel at all times.

- (b) The requirement in (a) of this subsection may be waived by the Utility if:
 - (i) Applicant provides interconnection equipment that applicant can demonstrate, to the satisfaction of the Utility, 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 Utility 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 Utility's operation of its electric system or the quality of the Utility's service to other customers.
- (d) Nominal voltage and phase configuration of applicant's generating facility must be compatible to the Utility system at the point of common coupling.
- (e) Applicant must provide evidence that its generation will never result in reverse current flow through the Utility's network protectors. All instances of interconnection to secondary spot distribution networks shall require review and written pre-approval by the Utility. Interconnection to distribution secondary grid networks is not allowed. Closed transition transfer switches are not allowed in secondary network distribution systems.

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

In addition to requirements contained in Section 4(1) and 4(2), any inverter-based generating facility desiring to interconnect with the Utility's electric system or modify an existing interconnection must meet the technical specifications, as set forth below. The version of the technical specifications approved by the Commission is specified in Chapter 10. 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.

In addition to the requirements contained in Section 4(1) and 4(2), noninverter-based interconnection requests may require more detailed Utility review, testing, and approval, at applicant cost, of the equipment proposed to be installed to ensure 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.
- (c) Applicants proposing such interconnection may also be required to submit a power factor mitigation plan and/or other studies or plans as appropriate for Utility review and approval.

Section 5 – Application for Interconnection.

- (1) When an 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 web site address for this specific purpose. The applicant seeking to interconnect a generating facility under these rules must fill out and submit a signed application form to the Utility. Information must be accurate, complete, and approved by the Utility prior to installing the generating facility.
- (2) **Application fees.** The nonrefundable interconnection application fee is set by the Utility according to facility size and shall be no greater than:
 - (i) 0 – 25 kW -- \$100
 - (ii) 26 – 300 kW -- \$500
- (3) **Non-Discrimination.** All generation interconnection applications pursuant to this chapter will be processed by the Utility in a non-discriminatory manner.
- (4) **Application evaluation.** All generation interconnection requests pursuant to this chapter will be reviewed by the Utility for compliance with the rules of this chapter. If the Utility in its sole discretion finds that the application does not comply with this chapter, the Utility may reject the application. If the Utility rejects the application, it shall provide the applicant with written notification stating its reasons for rejecting the application.

Section 6 – Interconnection Agreements and Costs.

- (1) Once an application is accepted by the Utility as complete, the Utility shall determine if any additional engineering, safety, reliability or other studies are required.
- (2) If the Utility determines that additional studies are required, the Utility will provide to the applicant or 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 applicant or generator shall have thirty (30) business days to return the completed Study Agreement along with any deposit required by the Utility against the estimated costs.
- (3) Upon completion of the studies, the Utility shall provide the applicant or 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 Utility shall provide notice of denial to the applicant and the reasons for the denial.
- (4) The Utility shall provide an Interconnection Agreement to the applicant to be completed and executed by the applicant within thirty (30) days. Along with the completed Interconnection Agreement, the applicant shall also make a deposit required by the Utility against the estimated costs to complete the interconnection.
- (5) Failure to return completed agreements and required deposits within the time frames specified in subsections (2) and (4) of this section may result in termination of application process by the Utility. Terms and conditions for termination of the Interconnection Agreement shall be contained within such agreement.

Section 7 – General Terms and Conditions of Interconnection.

The general terms and conditions listed in this section shall apply to all generating facilities less than or equal to 300 kW interconnecting to the Utility under this chapter.

- (1) Any electrical generating facility must comply with these rules to be eligible to interconnect and operate in parallel with the Utility's electric system. These standards shall apply to all interconnecting generating facilities that are intended to operate in parallel with the Utility's electric system irrespective of whether the applicant intends 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.
- (2) In order to ensure system safety and reliability of interconnected operations, all interconnected generating facilities shall be constructed and operated by generator in accordance with these standards and all other applicable federal, state, and local laws and regulations.
- (3) Prior to initial operation, all generators must submit a completed certificate of completion to the Utility, execute an appropriate Interconnection Agreement and any other agreement(s) required for the disposition of the generating facility's electric power output. The Interconnection Agreement between the Utility and generator outlines the interconnection

standards, cost allocation and billing agreements, and on-going maintenance and operation requirements.

- (4) Applicant or generator shall promptly furnish the Utility with copies of such plans, specifications, records, and other information relating to the generating facility or the ownership, operation, use, or maintenance of the generating facility, as may be reasonably requested by the Utility from time to time.
- (5) For the purposes of public and working personnel safety, any non-approved generation interconnections discovered will be immediately disconnected from the Utility system.
- (6) To ensure reliable service to all Utility customers and to minimize possible problems for other customers, the Utility will review the need for a dedicated-to-single-customer distribution transformer. If the Utility requires a dedicated distribution transformer, the applicant or generator shall pay for all costs of the new transformer and related facilities.
- (7) Metering.
 - (a) **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 Utility 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 Utility 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 Utility approval. The Utility may approve other generating sources for net metering but is not required to do so.
 - (b) **Production metering**: The Utility may require separate metering, including metering capable of being remotely accessed, 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 applicant.
- (8) Common labeling furnished or approved by the Utility 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.
- (9) 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 Utility.

- (10) Prior to any future modification or expansion of the generating facility, the generator will obtain Utility review and approval. The Utility 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.
- (11) For the overall safety and protection of the Utility system, chapter 80.60 RCW currently limits interconnection of generation for net metering to 0.25 percent of the Utility's peak demand during 1996, and, beginning in 2014, to 0.50 percent of the Utility's peak demand during 1996. Additionally, interconnection of generating facilities to individual distribution feeders will be limited to 10-percent of the feeder's peak capacity. However, the Utility 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.
- (12) It is the responsibility of the generator to protect its facilities, loads and equipment and comply with the requirements of all appropriate standards, codes, statutes and authorities.
- (13) Charges by the Utility to the applicant or 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 Utility testing, qualification, and approval of non-UL 1741 listed equipment. The generator 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.
- (14) This section does not govern the settlement, purchase or delivery of any power generated by applicant'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 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 commission. Any such agreement shall be complete prior to initial operation.
- (15) Generator may disconnect the generating facility at any time; provided that the generator provides reasonable advance notice to the Utility.
- (16) Generator 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 generator 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.

Section 8 – 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 Utility's electric system. Generator shall provide the Utility written certification that the generating facility has been installed and inspected in compliance with the local building and/or electrical codes. The Utility must review and approve in writing the certificate of completion, before the interconnection customer's generating facility may be operated in parallel with the Utility's electrical system. The Utility shall not unreasonably withhold such approval, but shall have the right to inspect and test the interconnection facilities in accordance with IEEE 1547.1 prior to parallel operation.

Section 9 – Filings

- (1) The Utility 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:
 - (a) Application.
 - (b) Interconnection agreement.
 - (c) Certificate of completion.

Section 10 – Adoption by Reference.

In this chapter, 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 this chapter, and availability of the resources are as follows:

- (1) The National Electrical Code is published by the National Fire Protection Association (NFPA).
 - (a) The Utility adopts the version published in 2005.
 - (b) 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).
 - (a) The Utility adopts the version published in 2002.
 - (b) 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.
 - (a) The Utility adopts the most recent version adopted by IEEE.
 - (b) 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.
 - (a) The Utility adopts the version published in 2000.
 - (b) 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.
 - (a) The Utility adopts the version published in 2005.
 - (b) 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.
 - (a) The Utility adopts the version published in 1992.
 - (b) 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.
 - (a) The Utility adopts the version published in 2005.
 - (b) 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.
 - (a) The Utility adopts the version published in 1994.
 - (b) 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.
 - (a) The Utility adopts the version in effect on March 1, 2006.
 - (b) 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>.

Section 11 – Interconnection of Facilities Greater than 300 kW.

- (1) Sections 1 through 10 of this chapter shall not apply to the interconnection of facilities greater than 300 kW.
- (2) The following principles shall be considered by the Utility when evaluating applications for such interconnections:
 - (a) All interconnection customers shall be treated in a non-discriminatory and non-preferential manner.
 - (b) The Utility shall review all interconnection to maintain safe, adequate and reliable electric service to its retail electric customers.
 - (c) The Utility shall evaluate the cumulative effect on circuits and load pockets.
 - (d) Interconnection customers shall bear the costs of interconnection, operation and maintenance.
 - (e) Interconnection service does not include retail electric or other services.
 - (f) The Utility shall establish, and amend as necessary to maintain the safe and reliable operation of its system, operating, system design, and maintenance requirements.
 - (g) Any requirements should not restrict the Utility from developing timelines that allow the Utility and interconnection customer to engage in discussions regarding study results and design options.
 - (h) Technical requirements for all interconnections shall comply with IEEE, NESC, NEC and other safety and reliability standards.
 - (i) All interconnecting generation that may impact the Bulk Electric System, as defined by the Western Electricity Coordinating Council, will require joint studies of the new facilities and their impacts on all interconnected transmission systems.
Interconnecting customers shall bear the costs of all associated joint studies.

APPENDIX A

Application for Interconnecting a Generating Facility

This Application is considered complete when it provides all applicable and correct information required below. Additional information to evaluate the Application may be required.

Processing Fee

A non-refundable processing fee of \$100 (25kW or less) or \$500 (over 25kW) must accompany this Application.

Interconnection Customer

Name: _____

Contact Person: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Contact (if different from Interconnection Customer)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Owner of the facility (include % ownership by any electric utility): _____

Generating Facility Information

Location (if different from above): _____

Electric Service Company: _____

Account Number: _____

Inverter Manufacturer: _____ Model: _____

Nameplate Rating: _____ (kW) _____ (kVA) _____ (AC Volts)

Single-Phase _____ Three-Phase _____

System Design Capacity: _____ (kW) _____ (kVA)

Prime Mover: Photovoltaic ___ Reciprocating Engine ___ Fuel Cell ___ Turbine ___ Other ___

Energy Source: Solar ___ Wind ___ Hydro ___ Diesel ___ Natural Gas ___ Fuel Oil ___

Other (describe) _____

Is the equipment UL1741 Listed? Yes ___ No ___

If Yes, attach manufacturer's cut-sheet showing UL1741 listing

Estimated Installation Date: _____ Estimated In-Service Date: _____

List components of the Generating Facility equipment package that are currently certified:

Equipment Type	Certifying Entity
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree to abide by the Terms and Conditions for Interconnecting an Inverter-Based Small Generating Facility No Larger than 300 kW and return the Certificate of Completion when the Small Generating Facility has been installed.

Signed: _____

Title: _____ Date: _____

(For Utility Use Only)

Contingent Approval to Interconnect the Generating Facility

Interconnection of the Generating Facility is approved contingent upon the Terms and Conditions for Interconnecting an Inverter-Based Generating Facility No Larger than 300 kW and return of the Certificate of Completion.

Utility Representative: _____

Title: _____ Date: _____

Application ID number: _____

Utility waives inspection/witness test? Yes ___ No ___

APPENDIX B

Generating Facility Certificate of Completion

Is the Generating Facility owner-installed? Yes _____ No _____

Interconnection Customer:

Contact Person: _____

Address: _____

Location of the Generating Facility (if different from above):

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Electrician: _____

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

License number: _____

Date Approval to Install Facility granted by the Utility: _____

Application ID number: _____

Inspection:

The Generating Facility has been installed and inspected in compliance with the local building/ electrical code of _____

Signed (Local electrical wiring inspector, or attach signed electrical inspection):

Print Name: _____

Date: _____

APPENDIX C

Net Energy Metering Interconnection Agreement

Customer Owned Fuel Cell, Solar, Wind, Biogas, Combined Heat and Power or Hydropower Electric Generating Facilities of 300 Kilowatts or Less

This Net Energy Metering Interconnection Agreement is executed in duplicate this _____ day of _____, 20__ between _____ (hereinafter referred to as "Customer"), and Clark Public Utilities, (hereinafter referred to as "Utility"). Both parties, who may be herein further referred to collectively as "Parties" and individually as "Party", agree as follows:

1. CUSTOMER ELECTRIC GENERATING FACILITY

- (a) Customer has elected, in accordance with RCW 80.60 et seq., to operate either a net energy metered fuel cell, facility that produces electricity and used and useful thermal energy from a common fuel source, or a facility that uses water, wind, solar energy, or biogas from animal waste as a fuel as set forth in chapter 80.60 RCW with a generating capacity of not more than three hundred (300) kilowatts, in parallel with the Utility's transmission and distribution facilities. The customer's electric generating facility (generating facility) is intended to offset either part or all of the Customer's electrical requirements.
- (b) The Utility will not provide wheeling for Customer as generation from the net metering electrical generating facility will only be applied to consumption at the location of said electrical generating facility.
- (c) Customer's Application for Net Metered Electrical Generation, including the location of the electrical generating installation facility and details on the electrical generating unit(s) is hereby incorporated into this agreement as Attachment A.
- (d) The installation is identified by the Utility with the following designators: Transformer No. (feeder and phase) _____, Customer Utility Account No. _____.
- (e) A separate agreement shall be entered into for each Customer's electrical service location(s).
- (f) The electrical generating system facility used by the Customer shall be located on the Customer's premises. It shall include all equipment necessary to meet applicable safety, power quality, and Interconnection requirements established by the National Electrical Code (Articles 690 and 705), National Electrical Safety Code, the Institute of Electrical and Electronics Engineers, Underwriters Laboratories, and the Utility's Net Metering Interconnection Standards, as set forth in Attachment B, which is attached hereto.

- (g) The Utility shall have the sole authority to determine which Interconnection requirements set forth herein are applicable to Customer's proposed generating facility.

2. PAYMENT FOR NET ENERGY

- (a) The Utility shall measure the net electricity produced or consumed by the Customer during each billing period, in accordance with normal metering practices.
- (b) If the electricity supplied by the Utility exceeds the electricity generated by the Customer during the billing period, or any portion thereof, then the Customer shall be billed for the net electricity supplied by the Utility together with the appropriate customer charge paid by other customers of the Utility in the same rate class.
- (c) If the electricity generated by the Customer during the billing period, or any portion thereof, exceeds the electricity supplied by the Utility, then the Customer shall be:
 - (i) billed for the appropriate customer service charge as other customers of the Utility in the same rate class; and
 - (ii) credited for the net excess kilowatt-hours generated during the billing period, with this kilowatt-hour credit appearing on Customer's bill for the following billing period.
- (d) On March 31 of each calendar year, any remaining unused kilowatt-hour credit accumulated by the Customer during the previous year shall be paid to the customer at the current Utility Avoided Cost energy rate.
- (e) Customer shall pay any amount owing for electric service provided by the Utility in accordance with applicable rates and policies. Nothing in this Section 2 shall limit the Utility's rights under applicable Rate Schedules, City Ordinances, Customer Service Policies, and General Provisions.

3. INTERRUPTION OR REDUCTION OF DELIVERIES

- (a) The Utility may require Customer to interrupt or reduce deliveries as follows:
 - (i) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or part of its system; or
 - (ii) if it determines that curtailment, interruption, or reduction is necessary because of emergencies, force or compliance with prudent electrical practices.
- (b) Whenever possible, the Utility shall give Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required.

- (c) Notwithstanding any other provision of this Agreement, if at any time the Utility determines that either:
 - (i) the generating facility may endanger Utility personnel, or
 - (ii) the continued operation of Customer's generating facility may endanger the integrity of the Utility's electric system, then the Utility shall have the right to temporarily or permanently disconnect Customer's generating facility from the Utility's electric system. Customer's generating facility shall remain disconnected until such time as the Utility is satisfied that the condition(s) referenced in (a) of (b) of this section 3.3 have been corrected.

4. INTERCONNECTION

- (a) Customer shall deliver the excess energy to the Utility at the Utility's meter.
- (b) Customer shall pay for designing, installing, inspecting, operating, and maintaining the electric generating facility in accordance with all applicable laws and regulations and shall comply with the Utility's Interconnection Standards set forth in Attachment B, which is attached hereto.
- (c) Customer shall pay for the Utility's standard watt-hour meter electrical hook-up, if not already present.
- (d) Customer shall not commence parallel operation of the generating facility until written approval of the Interconnection facilities has been given by the Utility. Such approval shall not be unreasonably withheld. The Utility shall have the right to have representatives present at the initial testing of Customer's protective apparatus. Customer shall notify the Utility when testing is to take place.

5. MAINTENANCE AND PERMITS

Customer shall:

1. maintain the electric generating facility and Interconnection facilities in a safe and prudent manner and in conformance with all applicable laws and regulations including, but not limited to, the Utility's Interconnection Standards, and
2. obtain any governmental authorizations and permits required for the construction and operation of the electric generating facility and Interconnection facilities, including electrical permit(s).
3. reimburse the Utility for any and all losses, damages, claims, penalties, or liability it incurs as a result of Customer's failure to obtain or maintain any governmental authorizations and permits required for construction and operation of Customer's generating facility or failure to maintain Customer's generating facility as required in (1) of this Section 5.

6. ACCESS TO PREMISES

The Utility may enter Customer's premises or property to:

1. inspect, with prior notice, at all reasonable hours, Customer's generating facility's protective devices;
2. read meter; and
3. disconnect at the Utility's meter or transformer, without notice, the generating facilities if, in the Utility's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, or the Utility's facilities, or property of others from damage or interference caused by Customer's electric generating facilities, or lack of properly operating protective devices or inability to inspect the same.

The Utility inspection or other action shall not constitute approval by the Utility. The customer remains solely responsible for the safe and adequate operation of its facilities.

7. INDEMNITY AND LIABILITY

- (a) The Customer assumes the risk of all damages, loss, cost and expense and agrees to indemnify the Utility, its successors and assigns, and its respective directors, officers, employees and agents, from and against any and all claims, losses, costs, liabilities, damages and expenses including, but not limited to, reasonable attorney fees, resulting from or in Interconnection with performance of the agreement or which may occur or be sustained by Name of Utility on account of any claim or action brought against the Utility for any reason including but not limited to loss to the electrical system of the Customer caused by or arising out of an electrical disturbance.
- (b) Such indemnity, protection, and hold harmless includes any demand, claim, suit or judgment for damages, death or bodily injury to all persons, including officers, employees or agents, and subcontractors of either Party hereto including payment made under or in Interconnection with any Worker's Compensation Law or under any plan for employees' disability and death benefits or property loss which may be caused or contributed to by the Interconnection, maintenance, operation, use, presence, or removal of Customer's equipment. The only exception will be liability occasioned by the sole negligence or willful misconduct of the Utility or its employees acting within the scope of their employment and liability occasioned by a partial negligence of the Utility or its employees acting within the scope of their employment to the extent that such partial liability is fixed by a court of competent jurisdiction.
- (c) The provisions of the Section 7 shall not be construed to relieve any insurer of its obligations to pay any insurance claims in accordance with the provisions of any insurance policy.
- (d) The Utility shall have no liability, ownership interest, control or responsibility for the Customer's Electric Generating Facility or its Interconnection with the

Utility's electric system, regardless of what the Utility knows or should know about the Customer's Electric Generating Facility or its Interconnection.

- (e) Customer recognizes that it is waiving immunity under Washington Industrial Insurance law, Title 51 RCW, and further agrees that this indemnification clause has been mutually negotiated. This indemnification shall extend to and include attorney's fees and the costs of establishing the right of indemnification hereunder in favor of the Utility.
- (f) For Generation greater than 100kW, the Generator shall obtain, at its own expense, insurance for bodily injury and property damage with a combined single limit of \$_____, with provisions acceptable to the Utility prior to the actual interconnected operation of the facility. Such insurance shall be maintained in full force and effect so long as the facility is interconnected to the Utility's system. Failure to maintain such insurance shall constitute a breach of contract and shall be sufficient grounds for the Utility to terminate the Agreement.

8. INDEPENDENT CONTRACTORS

The Parties hereto are independent contractors and shall not be deemed to be partners, joint ventures, employees, franchisees or franchisers, servants or agents of each other for any purpose whatsoever under or in Interconnection with this Agreement.

9. GOVERNING LAW

This Agreement shall be interpreted, governed, and constructed under the laws of the State of Washington as if executed and to be performed wholly within the State of Washington. Venue of any action arising hereunder or related to this agreement shall lie in Clark County, Washington.

10. FUTURE MODIFICATION OR EXPANSION

Any future modification or expansion of the Customer owned generating facility will require an engineering, safety and reliability review and approval by the Utility. The Utility reserves the right to deny the modification or expansion or to require the Customer, at Customer's expense, to provide modifications or additions to existing electrical devices including, but not limited to protection device and meters, in the event of changes to government or industry regulation and/or standards.

11. AMENDMENTS, MODIFICATIONS OR WAIVER

Any amendments or modifications to this Agreement shall be in writing and agreed to by both Parties. The failure of any Party at any time or times to require performance of any provision hereof shall in no manner affect the right at a later time to enforce the same. No waiver by any Party of the breach of any term or covenant contained in this Agreement, whether by conduct or otherwise, shall be deemed to be construed as a further or continuing waiver of any such breach or waiver of the breach of any other term or covenant unless such waiver is in writing.

12. ASSIGNMENT

The Customer shall not assign its rights under this Agreement without the express written consent of the Utility. The Utility may impose reasonable conditions on any such assignment to ensure that all of Customer’s obligations under this Agreement are met and that none of Customer’s obligations under this Agreement are transferred to the Utility as a result of default, bankruptcy, or any other cause.

13. APPENDICES

The Agreement includes the following appendices attached and incorporated by reference:

Appendix A: Application for Net Metered Electrical Generation to Clark Public Utilities.

Appendix B: Clark Public Utilities Net Metering Certificate of Completion.

14. NOTICES

All written notices shall be directed as follows:

Clark Public Utilities	Customer: _____
Attention: Sam Walker	Name: _____
P.O. Box 8900	Address: _____
Vancouver, WA 98668	City, State & Zip: _____

Customer notices to the Utility, pursuant to this Section 15, shall refer to the Service Address set forth in Appendix A, Application for Net Metered Electrical Generation.

15. TERM OF AGREEMENT

This Agreement shall be in effect when signed by the Customer and the Utility and shall remain in effect thereafter month to month unless terminated by either Party on thirty (30) days' prior written notice in accordance with Section 13.

16. SIGNATURES

IN WITNESS WHEREOF, the Parties hereto have caused two originals of this Agreement to be executed by their duly authorized representatives.

This Agreement is effective as of the last date set forth below.

CUSTOMER:

CLARK PUBLIC UTILITIES:

Signature

Signature

Print name

Print name

Title

Title

Date

Date

APPENDIX D – Power Purchase Agreement

Power Purchase Agreement For Power Generation Facilities (300 Kilowatts or less)

THIS AGREEMENT, between _____
(Seller) and Clark Public Utilities (Utility), bears the following recitals:

1. Seller intends to own and/or operate an electric power generation facility using co-generation, fuels derived from biomass, waste or renewable energy sources, including wind, solar energy, and water to produce power. Seller desires to operate such generation in parallel with the Utility's system and sell a portion or all of the power produced to the Utility. The Utility has no direct financial involvement in the investment, construction, operation, or maintenance of Seller's generation facility.
2. Seller's generation facility is located at _____ and will be ready to produce and deliver power for sale on or about _____.
3. Seller's generation facility is described as:
Make: _____
Model: _____ Serial Number: _____
Fuel or energy source: _____ and having a name plate output rating of _____ kW, _____ volts, _____ phase, 60 Hertz.
4. The Utility is willing to permit Seller to operate its generation facility in parallel with the Utility's system under certain conditions for the purposes of delivering power to the Utility.
5. The Utility is willing to purchase Seller's delivered energy at the rate of _____, as that rate may from time to time be revised by the Board of Commissioners of the Utility.

NOW, THEREFORE, Seller and the Utility agree to the following:

1. The Seller and the Utility agree to interconnect their respective facilities to purchase or sell electric energy, and the Utility agrees to purchase such delivered electric energy at the rate of _____, as that rate may from time to time be revised.
2. The Utility's obligation for payment to Seller for energy deliveries to the Utility shall commence on the date stated by the Utility in its written approval for Seller to commence parallel operation as described in Para 7.
3. The Utility shall sell any electric power delivered by the Utility to the Seller under the provisions of the Utility's applicable rate schedules.
4. Seller shall be fully responsible for the costs and performance of designing, installing, owning, operating, and maintaining Seller's:
 - a. generating facility in accordance with the requirements of all applicable laws, rules, codes, and regulations, and the directives of all governmental agencies having jurisdiction;

- b. control and protective devices as required by the Utility for the safe parallel operation of Seller's generation facility with the Utility's system; and
 - c. interconnection facilities on Seller's premises as may be required to deliver power from Seller's generation facilities to the agreed point of interconnection with the Utility's system.
- 5. In the event it is necessary for the Utility to install any special or additional interconnection facilities, including control or protective devices, time of delivery metering, and reinforcement of its system to receive or to continue to receive the power delivered under this Agreement, Seller shall reimburse the Utility for its costs associated with the installation of such facilities.
- 6. Seller shall submit equipment specifications and detailed plans to the Utility for the installation of its interconnection facilities, control and protective devices, and facilities to accommodate the Utility's meters for review and advance written approval prior to their actual installation.
- 7. Seller agrees not to operate its generator in parallel with the Utility's system until the installation has been inspected by authorized Utility representatives and final written approval is received from the Utility to commence parallel operations.
- 8. The Utility's approvals described in this Agreement shall not be construed as any warranty of safety, durability, or reliability of Seller's generation service facilities or its control or protective devices.
- 9. The Utility shall have the right:
 - a. to enter the Seller's premises at any time for the inspection of Seller's protective devices and for reading and testing of meters;
 - b. to enter Seller's premises at reasonable times to disconnect the interconnection for purposes of maintenance; and
 - c. to enter Seller's premises at any time and to disconnect without notice the interconnection facilities if, in the Utility's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, or the Utility's facilities, or other customer's facilities from damage or interference caused by Seller's generator, or lack of properly operating protective devices.
- 10. Seller agrees to make no change in its generation facility or protective devices without the prior written consent of the Utility.
- 11. The Utility shall not be liable for any loss or damage to property or bodily injuries to or death of persons, whether suffered by the Seller, its agents or employees, or by any third person, persons or corporations, resulting from the location, use, or operation of electrical or other equipment located on the customer's side of the point of delivery, or from electric energy present therein or escaping therefrom.
- 12. The Seller shall indemnify the Utility, its officers, agents, and employees against any loss, damages, bodily injury or death of any person or persons, including, but not limited to, the employees of the Utility, its customers, or any third party, resulting from or arising out of or in any way connected with the installation, inspection, maintenance, testing, use, and operation of Seller's facility.
- 13. Seller shall be solely responsible for securing any and all easements, licenses and

permits, or exemptions therefrom, as may be required by any federal, state, or local statutes, ordinances or regulations, and hereby represents and warrants that all such necessary easements, licenses and permits, or exemptions, have been received, and hereby agrees to and shall indemnify and defend the Utility, its officers, agents, and employees, from and against any and all losses or claims resulting from or arising out of Seller's performance or failure to perform under this provision.

14. Seller shall obtain, at its own expense, insurance for bodily injury and property damage with a combined single limit of \$ _____, with provisions acceptable to the Utility prior to the actual interconnected operation of the facility. Such insurance shall be maintained in full force and effect so long as the facility is interconnected to the Utility's system. Failure to maintain such insurance shall constitute a breach of contract and shall be sufficient grounds for the Utility to terminate this Agreement.

A certificate of the insurance coverage of the Seller shall be authenticated by the proper officer of the insurer and shall provide that such insurance is in effect at the time of said certificate and will not be cancelled, limited, or allowed to expire without renewal until after thirty (30) days' advance written notice has been given to the Utility.

15. This Agreement may not be assigned by the Seller to another party except with the written consent of the Utility, which consent shall not be unreasonably refused.
16. This Agreement shall be in effect when signed by the Seller and the Utility for an initial term of one year, and shall remain in effect thereafter from month to month unless terminated by either party with thirty (30) days' advance written notice to the other.

Dated this _____ day of _____, 20_____

Seller	Clark Public Utilities
By: _____	By: _____
Title: _____	Title: _____

MAILING ADDRESS:

Clark Public Utilities
P.O. Box 8900
Vancouver, Washington 98668

APPENDIX E

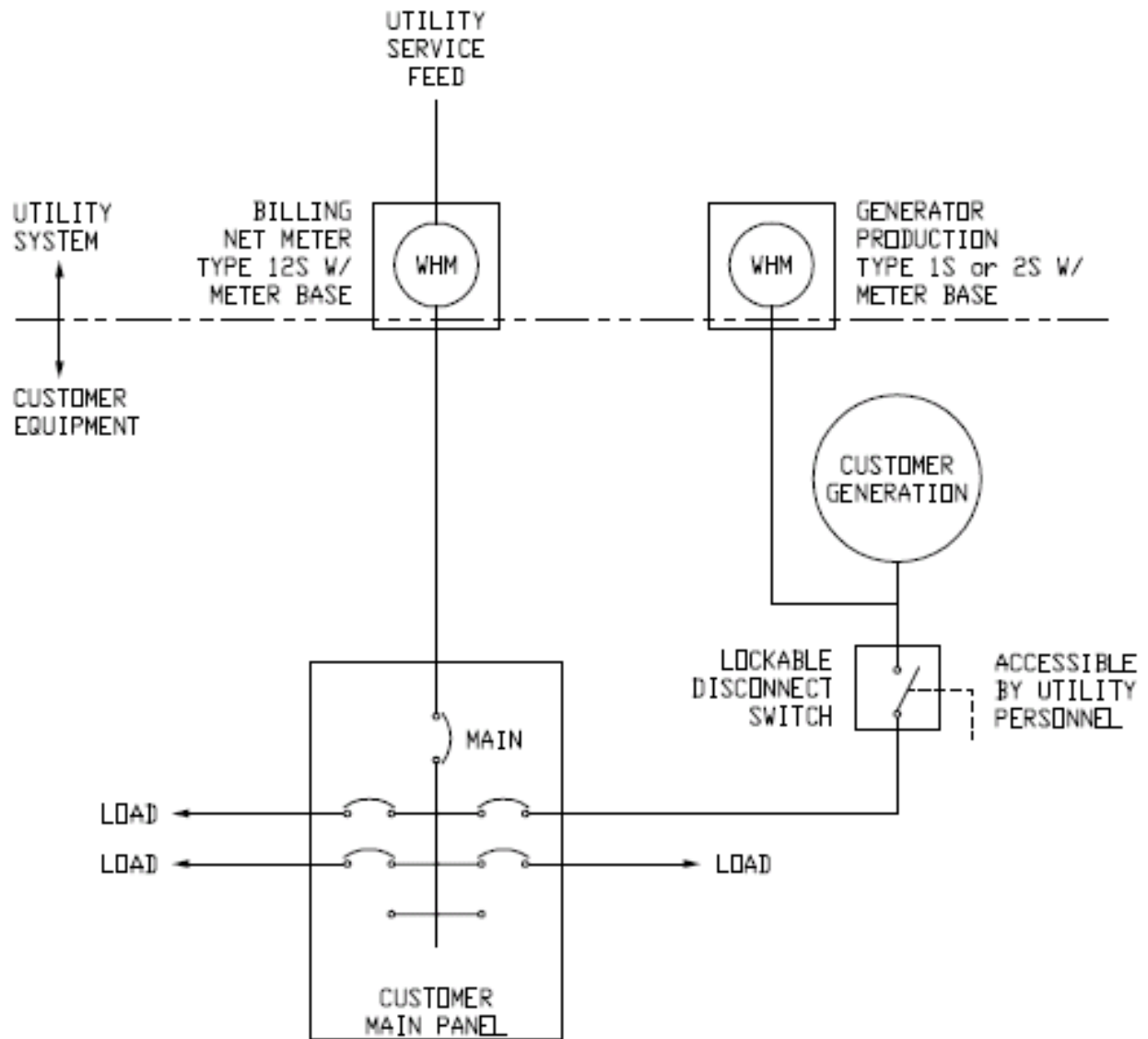
Customer Checklist for Utility Interconnection

- Submit an application to the Utility
 - ✓ Interconnection inverter must be UL 1541 Listed
 - ✓ Electrical schematic drawing must be included
 - ✓ Include provisions for a lockable visible disconnect
- Send application to Clark Public Utilities, P.O. Box 8900, Vancouver, WA 98668, ATTN: Sam Walker
- Receive written design approval from the Utility
- Get an electrical permit from Washington State L & I (360-896-2300). Follow the National Electric Code (NEC) as required
- Complete the installation
- Get inspections from a state electrical inspector and the Utility
- If net metered, Utility approves, or installs new, bi-directional meter
- If production metered, applicant purchases and installs, and Utility approves, production meter
- Submit Certificate of Completion to Utility
- Start generating power

Questions?

Call Sam Walker at (360) 992-3354

Exhibit B



TYPICAL ONE-LINE DIAGRAM



METER BASES TO BE CUSTOMER EQUIPMENT
 LABEL METER BASE BY USAGE AS FOLLOWS:
 UTILITY BILLING
 GENERATOR PRODUCTION

					ELECTRICAL DIVISION												
					CUSTOMER-GENERATOR / NET METERING UNDER 26 KV TYPICAL ONE-LINE DIAGRAM												
1	1-4-07	ADD PRODUCTION METER	RRB/RCB/CM	ENGINEER	RCB	CHECKED	CM	NO	<table border="1" style="font-size: small;"> <tr> <td>SCALE</td> <td>NONE</td> </tr> <tr> <td>FILED</td> <td>2004 Meter, 4/10</td> </tr> <tr> <td>COPY NO.</td> <td>1</td> </tr> <tr> <td>DATE</td> <td>4/10/07</td> </tr> </table>	SCALE	NONE	FILED	2004 Meter, 4/10	COPY NO.	1	DATE	4/10/07
SCALE	NONE																
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COPY NO.	1																
DATE	4/10/07																

8800 R.L. Little Avenue
 P.O. Box 800
 Chesapeake, Va. 23042