

# **INTERCONNECTION STANDARDS**

## **And Related Documents**

**For**

### **CUSTOMER-OWNED GENERATING FACILITIES**

**300 kW OR Less**

**AVISTA UTILITIES**

**EFFECTIVE: 3/1/2006**

**Interconnection Standards**  
**Generating Facilities 300 kW or Less**

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# INTERCONNECTION STANDARDS

## CUSTOMER-OWNED GENERATING FACILITIES 300 KILOWATTS OR LESS

### Chapter 1: General Conditions

This document states the general conditions and requirements and technical specifications for the safe and reliable operation of interconnected customer-owned generating facilities, 300 kW or less in capacity, that are intended to generate energy to serve all or a part of the customer's load or for purchase by Avista Utilities.

**Note:** Capitalized terms shall have the meaning of the word as defined in Chapter 3, Definitions.

- A. Electrical Generating Systems (300kW and Smaller)**  
Any electrical generating facility with a maximum electrical generating capacity of 300 kW or less must comply with these standards to be eligible to connect and operate in parallel with the Avista Utilities' distribution system.
- B. Application**  
Each customer seeking to interconnect qualifying generation will fill out and submit the application form (Appendix A) to Avista Utilities. Information must be accurate, complete, and approved by the Avista Utilities prior to installing the generating facility.
- C. Application Fees**  
Customers will be charged an interconnection application fee of \$100.
- D. Application Prioritization**  
All generation interconnection requests for facilities 300 kW or less from customers will be prioritized by the Avista Utilities the same as any new load requests. Preference will not be given to either request type. The Avista Utilities will process the application and provide interconnection in a time frame consistent with the average of other service connections.
- E. Interconnection Agreement**  
Prior to interconnection all qualifying customers will obtain a Certificate of Completion (Appendix B) and sign an appropriate Interconnection Agreement. (See Appendices C and D). This Agreement between the Avista Utilities and Customer outlines the interconnection standards, billing and revenue agreements, and on-going maintenance and operation requirements.
- F. Unauthorized Connections.**  
For the purposes of public and working personnel safety, any non-approved generation interconnections discovered will be immediately disconnected from the Avista Utilities system.

**G. Technical Specifications**

All technical specifications are contained in Chapter 2.

**H. Dedicated Distribution Transformer.**

To ensure reliable service to all Avista Utilities customers and to minimize possible problems for other customers, the Avista Utilities will review the need for a dedicated-to-single-customer distribution transformer. Interconnecting generation under 300kW may require a separate transformer. If the Avista Utilities requires a dedicated distribution transformer, the Customer shall pay for all costs of the new transformer and related facilities.

**I. Metering**

**Net Metering:** The Avista Utilities 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 Avista Utilities shall specify. The customer shall provide space for metering equipment. It will be the customer's responsibility to provide the current transformer enclosure (if required), meter socket(s) and junction box after the customer has submitted his/her drawings and equipment specifications for Avista Utilities approval. The Avista Utilities may approve other generating sources for net metering but is not required to do so.

**Production Metering:** The Avista Utilities may require separate metering for production. This meter will record all generation produced and may be billed separately from any net metering or customer usage metering. All costs associated with the installation of production metering will be paid by the customer.

**J. Labeling.**

Common labeling furnished or approved by the Avista Utilities 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.

**K. Insurance & Liability**

For solar, wind, hydro or fuel cells no additional insurance will be necessary. For other generation facilities permitted under these standards additional insurance and indemnification may be required. Qualifying generation must meet these interconnection standards and maintain compliance with these standards during operation.

**L. Future Modification or Expansion.**

Prior to any future modification or expansion of the customer-owned generating facility, the customer will obtain Avista Utilities review and approval. The Avista Utilities 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.

**M. Avista Utilities System Capacity**

For the overall safety and protection of the Avista Utilities system the interconnection of generation for net metering to 0.1% of the Avista Utilities' 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 the Avista Utilities to allow additional generation interconnection beyond these stated limits.

**N 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.

**O. Interconnection Costs**

Additional costs above and beyond the application fee, if any, will be cost based and applied as appropriate. For example costs may be incurred for transformers, production meters, and Avista Utilities testing, qualification, and approval of non UL 1741 listed equipment.

**Chapter 2: Technical Specifications**

This Chapter sets forth the technical specifications and conditions that must be met to interconnect non-Avista Utilities-owned electric generation, 300 kW or less, for parallel operation with the distribution system of Avista Utilities. For purposes of these Standards, the interconnecting entity shall be designated Customer, and **Utility** as Avista Utilities.

**A. General Interconnection Requirements**

1. Any Facility desiring to interconnect with the Avista Utilities EPS or modify an existing interconnection must meet all minimum specifications applicable, as set forth in the following documents and standards and requirements in this Section in their most current approved version at the time of interconnection.
2. The specifications and requirements listed herein are intended to mitigate possible adverse impacts caused by the Facility on Avista Utilities equipment and personnel and on other customers of the Avista Utilities. They are not intended to address protection of the Facility itself or its internal load. It is the responsibility of the Facility to comply with the requirements of all appropriate standards, codes, statutes and authorities to protect itself and its loads.
3. The specifications and requirements listed herein shall apply generally to the non-Avista Utilities-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. The Avista Utilities may verify compliance at any time, with reasonable notice.

4. The Customer will comply with the following requirements in this Section. At its sole discretion, the Avista Utilities may approve alternatives that satisfy the intent of, and/or may excuse compliance with, any specific elements of the requirements contained in this Section.
  - a) **Code and Standards.** 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 to obtain 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.

#### **B. Inverter Based Interconnection Requirements, as Applicable**

- IEEE Std 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 Avista Utilities Interface of Photovoltaic (PV) Systems

#### **C. Non Inverter Based Interconnection Requirements**

The Application for such Interconnection may require more detailed Avista Utilities review, testing, and approval, at Customer cost, of the equipment proposed to be installed to ensure compliance with applicable standards including:

- IEEE Std 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 interconnection may also be required to submit a power factor mitigation plan for Avista Utilities review and approval.

## D. Specific Interconnection Requirements

**1. Visible/Lockable Disconnect.** Customer shall furnish and install on Customer's side of the meter a UL approved safety disconnect switch which shall be capable of fully disconnecting the Customer's energy generating equipment from Avista Utilities electric service. The disconnect switch shall be located adjacent to Avista Utilities 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 Avista Utilities personnel at all times.

This requirement may be waived by the Avista Utilities if: (1) Customer provides interconnection equipment that Customer can demonstrate, to the satisfaction of Avista Utilities, performs physical disconnection of the generating equipment supply internally; and, (2) Customer agrees that its service may be disconnected entirely if generating equipment must be physically disconnected for any reason.

The Avista Utilities shall have the right to disconnect the Facility from Avista Utilities' supply at the disconnect switch when necessary to maintain safe electrical operating conditions or, if the Facility does not meet required standards or, if the Facility at any time adversely affects Avista Utilities' operation of its electrical system or the quality of Avista Utilities' service to other customers.

**2. Voltage and Phasing.** Nominal voltage and phase configuration of Customer generation must be compatible to the Avista Utilities system at the Point of Common Coupling (PCC).

**3. Interconnection to secondary Network Distribution Systems (distribution systems with multiple sources of secondary supply).** Customer must provide evidence that their generation will never result in reverse current flow through the Avista Utilities's Network Protectors. All instances of interconnection to secondary Distribution Networks shall require review and written pre-approval by designated Avista Utilities engineering staff. Interconnection to distribution secondary area networks is not allowed. Closed Transition Transfer Switches are not allowed in secondary Network Distribution Systems.

### **Chapter 3: Definitions**

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 Customer to the Avista Utilities, which initiates the interconnection process.

**Certificate of Completion:** Form completed by Customer and the electrical inspector having jurisdiction over the installation indicating completion of installation and inspection.

**Customer:** Entity who owns and/or operates the Facility interconnected to the Avista Utilities 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 the Avista Utilities' distribution system.

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

**Interconnection Service Agreement:** An agreement for interconnection service, between the Customer and the Avista Utilities. The agreement also includes any amendments or supplements thereto entered into by the Customer and the Avista Utilities.

**Net Metering:** Measuring the difference between the electricity supplied by an electric Avista Utilities and the electricity generated by a customer-generator that is fed back to the electric Avista Utilities over the applicable billing period.

**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) Avista Utilities customers.

**Point Of Common Coupling (PCC):** The point where the Customer's local electric power system connects to the Avista Utilities 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 Avista Utilities. See the Avista Utilities for the location at a particular Customer site.