TECHNICAL SPECIFICATIONS

AND

OPERATING PROTOCOLS AND PROCEDURES

FOR

INTERCONNECTION OF TRANSMISSION SYSTEMS

OR END-USER LOADS

Document 9023

Puget Sound Energy, Inc.

PSE-ET-160.80

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1. INTRODUCTION

1.1 GENERAL POLICY

For the purposes of this document, “Interconnection Customer” means or refers to interconnecting transmission systems and end-user loads. “PSE” means Puget Sound Energy, Inc., the Transmission Provider.

This document is referred to in Section 8 of the Parallel Operation Agreement between the Interconnection Customer and PSE. In the case of any conflict between the terms and conditions of this document and the terms and conditions of the Parallel Operation Agreement, the terms of the Parallel Operation Agreement shall control.

The requirements stated in this document are intended to minimize adverse conditions on the PSE system and to enable the Interconnection Customer to operate its transmission system or end-user load equipment in parallel with PSE’s system in a safe and reliable manner. The requirements cover the necessary interconnection equipment (relays, breaker, etc.) to be installed, owned, and maintained by the Interconnection Customer. The interconnection equipment is needed to disconnect interconnecting transmission systems and end-user loads from the PSE system when necessary to clear a fault. PSE will also identify any additional enhancements needed on the PSE system to provide the capacity and protection systems needed to successfully integrate interconnecting transmission systems and end-user loads into the system. PSE’s interconnection requirements are designed and intended to protect PSE’s system only. The Interconnection Customer is solely responsible for protecting its system and interconnection equipment. It is emphasized that these requirements are general and may not cover all details in specific cases. Interconnection Customers are advised to discuss project plans with PSE before purchasing or installing any equipment.

If the Interconnection Customer should cause harmonics, unusual fluctuation or disturbance on, or inductive interference with PSE’s system or PSE’s other customers, then PSE shall have the right to require the Interconnection Customer to install suitable apparatus to reasonably correct or limit such abnormalities at no expense to PSE or PSE’s other customers. PSE retains the right to disconnect the Interconnection Customer’s equipment until such requirements are met.

If generation is to be connected in conjunction with an end-user load, it shall meet the requirements of PSE's technical specifications and operating protocols and procedures for generation1.

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1 See the applicable specification for generator interconnection:
"Technical Specifications and Operating Protocols and Procedures for Large Generation Interconnections", PSE-ET-160.50, or
"Technical Specifications and Operating Protocols and Procedures for Small Generation Interconnections", PSE-ET-160.60, or
"Technical Specifications and Operating Protocols and Procedures for Generation Interconnections Not Subject to FERC Jurisdiction", PSE-ET-160.70.
Interconnection Customers and PSE personnel shall apply this document and plan, operate, and maintain their interconnection facilities in conformance with policies, standards, and reliability criteria of the North American Electric Reliability Corporation (NERC), Western Electricity Coordinating Council (WECC) and the Northwest Power Pool (NWPP).

1.2 COMPLIANCE WITH NERC INTERCONNECTION STANDARDS

NERC Standard FAC-001-0 Facility Connection Requirements, in requirement R2.1, states the Transmission Owner shall, "Provide a written summary of its plans to achieve the required system performance...throughout the planning horizon." This document represents such a written summary of PSE’s plans to achieve the required system performance of requirement 2.1.

Additionally, Requirement R2.1.1 states the written summary will address, "Procedures for coordinated joint studies of new facilities and their impacts on the interconnected transmission systems." To meet this requirement, studies performed by the Interconnection Customer and PSE to achieve the required system performance may include, but are not limited to, short circuit, power flow, transient stability, and harmonics. With respect to coordination, the planning of Interconnection installations will be coordinated through phone calls and conference calls, meetings, possible site visits, and sharing study results and data with affected transmission owners. WECC policies, procedure and guidelines governing the coordination of plans include “WECC Progress Report Policies and Procedures”, and “WECC Policies and Procedures for Regional Planning Project Review, Project Rating Review, and Progress Reports”.

Requirement 2.1.2 further states that the written summary will address, ”Procedures for notification of new or modified facilities to others (those responsible for the reliability of the interconnected transmission systems) as soon as feasible.” To comply with this requirement, plans for new or modified facilities will be provided to PSE’s interconnection customer as governed by PSE’s tariff. Additionally, plans for new or modified facilities will be provided to WECC when they can be made publicly available, which involves announcing such plans on OASIS. Documents governing the coordination of plans, and providing models for modification of new or modified facilities include “WECC Progress Report Policies and Procedures”, “WECC Policies and Procedures for Regional Planning Project Review, Project Rating Review, and Progress Reports”, “WECC Data Preparation Procedural Manual for Power Flow and Stability Studies”, “WECC Dynamic Modeling Procedure”, and “WECC Approved Dynamic Model Library”.

Requirement R3 states that PSE shall maintain and update these facility connection requirements as required. These facility connection requirements shall be maintained and updated from time to time as required. Requirement R3 further states that PSE shall make documentation of these requirements available to the users of the transmission system, WECC, and NERC on request (five business days). Documents of these requirements
shall be made available to the users of the transmission system, WECC, and NERC on request (five business days).

This document provides for compliance for PSE with NERC Standard FAC-001. This section provides direction to find compliance with the requirements in FAC-001. The following Table 1.2 gives the location in this document where each requirement of FAC-001 R1 and R2 is met. Some requirements are general and are addressed in many locations, but at least some of the locations are listed.

Table 1.2. NERC Standard FAC-001 Facility Connection Requirements

<table>
<thead>
<tr>
<th>NERC Standard FAC-001 Requirement</th>
<th>Section/Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1. The Transmission Owner shall … ensure compliance with NERC Reliability Standards and applicable Regional Reliability Organization, subregional, Power Pool, and individual Transmission Owner planning criteria and facility connection requirements. …</td>
<td>1.1/p.2, para.1</td>
</tr>
<tr>
<td>R2.1. Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:</td>
<td>1.2/p.2, para.1</td>
</tr>
<tr>
<td>R2.1.1. Procedures for coordinated joint studies of new facilities and their impacts on the interconnected transmission systems.</td>
<td>1.2/p.2, para.2</td>
</tr>
<tr>
<td>R2.1.2. Procedures for notification of new or modified facilities to others (those responsible for the reliability of the interconnected transmission systems) as soon as feasible.</td>
<td>1.2/p.2, para.3</td>
</tr>
<tr>
<td>R2.1.3. Voltage level and MW and MVAR capacity or demand at point of connection.</td>
<td>2.1/p.5; 3.3/p.8-9; 3.4/p.9-10</td>
</tr>
<tr>
<td>R2.1.4. Breaker duty and surge protection.</td>
<td>duty 4.3/p.11 surge 4.5/p.11</td>
</tr>
<tr>
<td>R2.1.5. System protection and coordination.</td>
<td>5./p.13; 8./p.23</td>
</tr>
<tr>
<td>R2.1.6. Metering and telecommunications.</td>
<td>6./p.15-18</td>
</tr>
<tr>
<td>R2.1.7. Grounding and safety issues.</td>
<td>2.3/p.5; 4.2/p.11; 4.4/p.11; 4.7/p.12</td>
</tr>
<tr>
<td>R2.1.8. Insulation and insulation coordination.</td>
<td>4.5/p.11</td>
</tr>
<tr>
<td>R2.1.9. Voltage, Reactive Power, and power factor control.</td>
<td>3.3/p.8-9; 3.4/p.9-10</td>
</tr>
<tr>
<td>R2.1.10. Power quality impacts.</td>
<td>3./p.7-10</td>
</tr>
<tr>
<td>R2.1.12. Synchronizing of facilities.</td>
<td>8.1/p.23, para.2</td>
</tr>
<tr>
<td>R2.1.13. Maintenance coordination.</td>
<td>10./p.29-30</td>
</tr>
<tr>
<td>R2.1.14. Operational issues (abnormal frequency and voltages).</td>
<td>2./p.5; 3.3/p.8-9; 3.4/p.9-10</td>
</tr>
<tr>
<td>R2.1.15. Inspection requirements for existing or new facilities.</td>
<td>existing 10./p.29-30 new prot. 9./p.25-27</td>
</tr>
<tr>
<td>R2.1.16. Communications and procedures during normal and emergency operating conditions.</td>
<td>11./p.31-32</td>
</tr>
<tr>
<td>R3. The Transmission Owner shall maintain, update, and make available …</td>
<td>1.2/p.2-3, para.4</td>
</tr>
</tbody>
</table>

1 PSE does not specify equipment ratings to Interconnection Customer.
1.3 LIABILITY

This section sets forth the respective responsibilities and liabilities between PSE and the Interconnection Customer, subject to the provisions of any Parallel Operation Agreement or Letter of Agreement entered into between PSE and the Interconnection Customer.

The terms “approve,” “approved,” and “approval” used throughout this document means acceptance. Approval by PSE does not mean that PSE endorses or is to be responsible for the safety or reliability of the Interconnection Customer’s design or facility.

The Interconnection Customer shall submit in a timely manner sufficient design and specifications information relating to the facilities to be installed by the Interconnection Customer and PSE shall be entitled to review and approve or accept said facilities prior to their installation and energization. The Interconnection Customer agrees to incorporate any reasonable design changes requested by PSE prior to, during, or after installation of Customer’s facilities. PSE’s approval or acceptance of any design and specification information related to the facilities to be installed by the Interconnection Customer shall not be construed as an endorsement of such engineering plans, specifications or other information.

1.4 RELIABILITY CHARGES

From time to time new requirements for testing, equipment, and/or performance are established by WECC, NERC, or other electricity reliability authorities, for interconnecting transmission systems and end-user loads. To the extent the Interconnection Customer fails to meet future demonstration, testing, equipment and/or performance requirements, as they may apply, the Interconnection Customer shall be obligated to pay any charges incurred by PSE resulting from the Interconnection Customer’s noncompliance.
2. PSE SYSTEM INFORMATION

2.1 VOLTAGE

PSE’s most common primary local distribution voltage is 12.47 kV. Other local distribution voltages are sometimes used in specific areas (example 4.16 kV or 34.5 kV). The majority of the distribution circuits are “effectively grounded” (see Section 2.3) and are used for four-wire distribution (phase to neutral connected) loads. Other voltages of PSE’s electrical system are 57.5 kV, 115 kV and 230 kV. 115 kV and 230 kV are the most typical transmission facility voltages. The Interconnection Feasibility Study will determine the voltage at the Point of Interconnection.

2.2 FREQUENCY

The frequency for connection to the PSE’s system must be 60 Hz sinusoidal alternating current at a standard voltage (see Section 2.1) and phase rotation.

2.3 PSE EFFECTIVE GROUNDING

PSE maintains effective grounding on its distribution and transmission systems as defined by IEEE Std. 142.
3. SYSTEM INTEGRITY

3.1 GENERAL

The interconnection of the Interconnection Customer’s equipment with the PSE system must not cause any reduction in the quality of service being provided to PSE’s other customers. No abnormal voltages, frequencies, or interruptions will be permitted. If high or low voltage complaints, transient voltage complaints, and/or harmonic (voltage distortion) complaints result from operation of equipment within the Interconnection Customer’s transmission system or end-user load, such equipment shall be disconnected from PSE’s system until the problem is resolved by the Interconnection Customer. The Interconnection Customer is responsible for the expense of keeping the equipment in good working order so that the voltage, total harmonic distortion, flicker, power factor, and VAR requirements are always met.

3.2 HARMONICS

The Total Harmonic Distortion (THD) from the Interconnection Customer’s transmission system or end-user load will be measured at the metering point or Point of Interconnection. Harmonics on the power system from all sources must be kept to a minimum. Under no circumstances will the harmonic current and voltage flicker be greater than the values listed in Tables 10.3, 10.4 and 11.1 reprinted from the most current version of IEEE Std. 519.

Note: Any interference with customers or communications caused by the Interconnection Customer’s harmonics in excess of federal, state, or local codes will be resolved at the Interconnection Customer’s expense.

Table 10.3 Current Distortion Limits for General Distribution Systems (120 V through 69,000 V)

<table>
<thead>
<tr>
<th>Individual Harmonic Order (Odd Harmonics)</th>
<th>Maximum Harmonic Current Distortion in Percent of ( I_L )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{I_{sc}}{I_L} )</td>
<td>( &lt; 11 )</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>( &lt; 20^* )</td>
<td>4.0</td>
</tr>
<tr>
<td>20 ( &lt; 50 )</td>
<td>7.0</td>
</tr>
<tr>
<td>50 ( &lt; 100 )</td>
<td>10.0</td>
</tr>
<tr>
<td>100 ( &lt; 1000 )</td>
<td>12.0</td>
</tr>
<tr>
<td>( &gt; 1000 )</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Even harmonics are limited to 25% of the odd harmonic limits above. Current distortions that result in a dc offset, e.g., half-wave converters, are not allowed.

\( I_{sc} \) = maximum short-circuit current at Point of Interconnection.

\( I_L \) = maximum demand load current (fundamental frequency component) at Point of Interconnection.
### Table 10.4 Current Distortion Limits for General Transmission Systems (69,001 V through 161,000 V)

<table>
<thead>
<tr>
<th>Individual Harmonic Order (Odd Harmonics)</th>
<th>Maximum Harmonic Current Distortion in Percent of $I_L$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_{sc}/I_L &lt; 11$</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>$20 &lt; I_{sc}/I_L &lt; 50$</td>
<td>2.0</td>
</tr>
<tr>
<td>$50 &lt; I_{sc}/I_L &lt; 100$</td>
<td>3.5</td>
</tr>
<tr>
<td>$100 &lt; I_{sc}/I_L &lt; 1000$</td>
<td>6.0</td>
</tr>
<tr>
<td>$&gt; 1000$</td>
<td>7.5</td>
</tr>
</tbody>
</table>

| Even harmonics are limited to 25% of the odd harmonic limits above. |
| Current distortions that result in a dc offset, e.g., half-wave converters, are not allowed. |
| *All power generation equipment is limited to these values of current distortion, regardless of actual $I_{sc}/I_L$. |

$I_{sc} =$ maximum short-circuit current at Point of Interconnection.  
$I_L =$ maximum demand load current (fundamental frequency component) at Point of Interconnection.

### Table 11.1 Voltage Distortion Limits

<table>
<thead>
<tr>
<th>Bus Voltage at Point of Interconnection</th>
<th>Individual Voltage Distortion (%)</th>
<th>Total Voltage Distortion THD (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>69 kV and below</td>
<td>3.00</td>
<td>5.0</td>
</tr>
<tr>
<td>69001 kV through 161 kV</td>
<td>1.5</td>
<td>2.5</td>
</tr>
<tr>
<td>161,001 kV and above</td>
<td>1.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

NOTE: High-voltage systems can have up to 2.0% THD where the cause is an HVDC terminal that will attenuate by the time it is tapped for a user.

### 3.3 VOLTAGE - DISTRIBUTION LEVEL

The Interconnection Customer shall ensure that operation of its end-user load does not adversely affect the voltage stability of PSE’s system. Adequate voltage control shall be provided by all Interconnection Customers to minimize voltage deviations on the PSE system caused by changing loading conditions. If the Interconnection Customer’s end-user load is operating with a power factor less than 0.95, the Interconnection Customer will be responsible for installing some type of reactive power compensation to bring the overall power factor up to the 0.95 minimum level, or pay PSE a charge for VAr losses in excess of power factor 0.95. These power factor requirements are to be met at the point of delivery and/or metering point, during all hours of operation and over all operating conditions.

The magnitude and frequency of the voltage flicker (i.e., sudden momentary voltage change) caused by the Interconnection Customer shall not exceed the values given in the most current version of PSE’s Standard Practice 0650.4100, “Voltage Flicker” (see Figure 3.3). Voltage flicker percentage shall be referenced to motor pre-start conditions. Some PSE customers have voltage sensitive loads and, if PSE receives complaints from
customers affected by the Interconnection Customer, the Interconnection Customer will be responsible for reducing voltage variations even if they are within the parameters stated in the voltage flicker chart in the above referenced PSE Voltage Flicker standard.

Voltage flicker will normally be measured at the Point of Interconnection between the Interconnection Customer and PSE. However, at PSE’s discretion, if voltage flicker problems are found, the measurement may be taken at the nearest possible present or future PSE customer.

The voltage flicker chart does not address the time duration of the voltage drop. For the purposes of this section, a drop of any duration shall be considered as a single occurrence. Such a voltage drop may be acceptable after consultation with PSE, but the Interconnection Customer is responsible for any associated damage caused to the equipment or lost productivity of other PSE customers. It is advised that Interconnection Customers review the most current version of IEEE Standard 141 (Red Book) for typical sensitivity to very short voltage disturbances.

![Figure 3.3 Range of observable and objectionable voltage flicker versus time, from PSE Standard 0650.4100](image)

### 3.4 VOLTAGE - TRANSMISSION LEVEL

The Interconnection Customer shall ensure that operation of its transmission system or end-user load does not adversely affect the voltage stability of PSE’s system. Adequate voltage control shall be provided by all Interconnection Customers to minimize voltage
deviations on the PSE system caused by changing loading conditions. If the Interconnection Customer’s transmission system is operating with a power factor less than 0.95, the Interconnection Customer will be responsible for installing some type of reactive power compensation to bring the overall power factor up to the 0.95 minimum level, or pay PSE a charge for VAr losses in excess of power factor 0.95. These power factor requirements are to be met at the point of delivery and/or metering point, during all hours of operation and over all operating conditions.
4. GENERAL DESIGN REQUIREMENTS

4.1 CODES, WECC AND NERC

The Interconnection Customer’s installation must be in compliance with all applicable laws, regulations, and codes. The Interconnection Customer must also meet all applicable interconnection requirements of WECC and NERC.

4.2 DISCONNECTING DEVICES

A disconnecting device (normally a gang-operated three pole disconnect switch) is required at the Point of Interconnection that separates the Interconnection Customer’s transmission system or end-user load from PSE’s system. The switch must be operable by PSE, must be accessible to PSE at all times, and must be lockable in the open position with PSE’s standard padlock. Each switch or other disconnecting device shall comply with the most current versions of PSE Standard Specifications 1300.2100 and 1300.2300. If the switch is located on the PSE side of the Point of Interconnection, it shall be installed by PSE at the Interconnection Customer’s expense. If the switch is located on the Interconnection Customer’s side, it shall be installed by the Interconnection Customer. Any interconnection breaker shall comply with the most current version of PSE Standard Specification 1300.4000.

4.3 INTERRUPTING DEVICES

Any interrupting device installed by the Interconnection Customer must be adequately rated for the available short circuit current. PSE will provide short-circuit data to the customer for use in calculating the required interrupting rating as part of the System Impact Study.

4.4 STEP AND TOUCH POTENTIAL

It is the Interconnection Customer’s responsibility to ensure that the step and touch potentials meet the most current version of IEEE Std. 80 and that construction complies with National Electrical Safety Code (NESC).

4.5 INSULATION COORDINATION

In general, stations with equipment operated at 15 kV and above, as well as all transformers and reactors, shall be protected against lightning and switching surges. Typically this includes station shielding against direct lightning strokes, surge arresters on all transformers, reactors, and surge protection with rod gaps (or arresters) on the incoming lines.
4.6 CONTROL REQUIREMENTS

Outputs or interposing relays controlled by programmable logic controllers shall not be in series with the interconnection tripping relays and breaker trip coils. All interconnection protection relays shall be capable of tripping the breakers.

All interconnection protection shall be powered by station battery DC voltage and must include a DC undervoltage detection device and alarm. The station battery design shall be in compliance with the most current version of IEEE Std. 485.

4.7 EFFECTIVE GROUNDING

It is the Interconnection Customer’s responsibility to ensure that its system is effectively grounded at the Point of Interconnection. As defined by IEEE Std. 142, an effectively grounded system requires that $X_0/X_1 < 3$ and $R_0/X_1 < 1$. 
5. MINIMUM INTERCONNECTION PROTECTION REQUIREMENTS

To ensure that all proposed interconnections are handled uniformly, this section outlines the minimum protection requirements for the interconnection to protect PSE’s system.

Note: PSE reserves the right to require additional protection necessary to preserve the integrity of the PSE System. Each request will be studied individually to identify protection requirements specific to the project, as well as required network upgrades resulting from the project.

5.1 TYPICAL INTERCONNECTION REQUIREMENTS – TRANSMISSION SYSTEM

Project design shall, in accordance with Good Utility Practice, include redundancy and backup protection.

The interconnection protection shall be operational for any single component failure. Discrete relays may act as a back-up to one another. For multifunction microprocessor based relays, two separate redundant relays are required.

Any protective relay not equipped with an internal isolation device must be connected through an external test device, such as the ABB FT-1 switch or equivalent.

In all cases, the interconnection equipment must isolate the interconnected transmission system from the PSE system when necessary to clear a fault.

The interrupting device must be adequately rated for the available short-circuit current.

Where required by PSE, synchronism check capability shall be provided to supervise close of interconnection breakers.

The protective scheme chosen shall be compatible with protection installed on adjacent lines, and shall meet requirements for speed and selectivity as determined by PSE’s System Protection group.

5.2 TYPICAL INTERCONNECTION REQUIREMENTS – END-USER LOADS

In all cases, the interconnection equipment must open the interrupting device to isolate a fault inside the Facility from the PSE system before any PSE protective devices operate.

The interrupting device must be adequately rated for the available short-circuit current.
6. METERING: PSE REVENUE, OPERATIONS AND SCHEDULING REQUIREMENTS

6.1 GENERAL

Metering may be required for revenue purposes, System Operations purposes, or both, depending on the specifics of the project.

Revenue metering is required for the measurement of any function that will be billed under a PSE Scheduled Tariff. The Washington Administrative Code (WAC) requires that revenue metering be owned and operated by PSE, and that it meets stringent accuracy requirements. Even if revenue metering is not required on a project initially, it is often advisable, during the planning and construction of interconnection facilities, to include all the provisions for the possibility of future installation of PSE-owned revenue metering as retrofit installation at a later date can be extremely costly and complicated compared to the incremental cost of including those provisions during the initial construction.

Systems Operation metering is used for dispatching, reserves, accounting, and control of the PSE Transmission and Distribution systems. Whether or not System Operations metering is required is the sole discretion of PSE. Often, the revenue metering can also be used to provide meter data for system operations, which is the most cost effective solution when both metering systems are necessary. If System Operations metering is required but revenue metering is not required, it may be possible for the System Operation metering to be customer-owned as Systems Operation metering does not fall under the WAC. Systems Operation metering that is customer-owned must be reviewed in advance by the PSE Electric Meter Engineering Department for function and accuracy. Accuracy must be within +/- 1.0%.

6.2 REVENUE METERING

In general, Revenue Metering installation requirements for the different categories of the Interconnection Customer-owned facilities are the same as those outlined in PSE’s Electric Service Handbook for Commercial/Industrial/Multifamily & Manufactured Housing Developments (PSE Standards 6325.3000-3360). In addition to the PSE Handbook, metering installations shall comply with the requirements of the Electric Utility Service Entrance Requirement Committee (EUSERC), Section 300 or 400, as appropriate. PSE will provide a current one page EUSERC acceptability summary.

Preferably, the metering will be located on PSE’s side of ownership of the electric facilities and the metering voltage shall normally be the same voltage as the Point of Interconnection. If the voltage at the Point of Interconnection exceeds 15 kV, metering may be installed at the low side of the step-down transformer. In this case, loss compensation shall be applied at the meter to adjust for transformer and line losses between the meter point and the Point of Interconnection. In this case, the
Interconnection Customer shall provide PSE with a standard ANSI Power Transformer Test report to be used for transformer loss compensation calculations.

Bi-directional metering shall be utilized, with the delivered energy registers measuring power entering the facility, and the received energy registers measuring the power leaving the facility. This metering scheme is illustrated in Attachment 1.

PSE shall provide, at the Interconnection Customer’s expense, current and potential transformers, test switches, and the meter(s). Instrument transformers shall be installed by the Interconnection Customer. The Interconnection Customer is responsible for furnishing, installing, and maintaining the meter sockets, switches, enclosures, conduit, protection equipment, and all necessary wiring and connections (except CT and VT secondary wiring).

The Interconnection Customer is required to provide a phone line to the site for remote interrogation of the meter. If several meters are required, the Interconnection Customer shall provide a 1-1/2-inch conduit between meter cabinets for communication and control cables between the meters.

The Interconnection Customer will provide an auxiliary single-phase 120-Volt source to all meter points. This will provide auxiliary power to the meter in the event the interconnection metering point is de-energized.

All revenue and system operation metering installations must be reviewed and approved by the PSE Electric Meter Engineering Department.

6.3 RTU (REMOTE TERMINAL UNIT) AND TELEMETRY METERING

Balancing Authorities, such as the one operated by PSE, are required to meet NERC, WECC and Northwest Power Pool (NWPP) operating policies and to conform to good utility practices. One such requirement is to have generating reserves per the WECC Minimum Operating Reliability Criteria and the NWPP Reserve Sharing Procedure. These reserves include regulating, contingency spinning, and contingency non-spinning. This section deals with those requirements.

6.3.1 Interconnected Transmission Systems

Real-time monitoring data is required for all transmission system interconnections. This data is sent from the interconnection site to PSE’s Operating Center using RTU equipment for metering and breaker status. When interconnecting two Balancing Authorities telemetry equipment is used for backup metering. Separate dedicated communication circuits (e.g., leased line) are required to transmit such data. Interconnection values are transmitted continuously from the substation to the Operating Center, and hourly accumulations are calculated every 15 minutes for load area balancing purposes.
These interconnection values are used for Automatic Generation Control (AGC), reserves calculations, forecasting, and for load area balancing.

The following includes specific requirements:

- Meter values sent via RTU and telemetry include bus voltage, real power (MW), energy (MWh) and reactive power (MVAR).
- Both RTU and telemetry require dedicated communication circuits between the substation and the PSE operating center.
- Reasonable access must be provided by the Interconnection Customer to PSE for installation, testing, and repair of the RTU equipment, telemetry equipment, and circuits.

6.3.2 End-User Load Facilities not Served by Dedicated PSE Substation Facilities

End-user load facilities that are not served by dedicated PSE substation facilities, and have a load demand less than 4 MW do not require real time monitoring. End-user load facilities that have a load demand greater than or equal to 4 MW are required to have real time monitoring. End-user load facilities that are tapped to a PSE distribution circuit are an example of a load facility not served by dedicated PSE substation facilities. When interconnecting two Balancing Authorities, the requirements for two communications paths in 6.3.1 apply.

6.3.3 End-User Load Facilities Served by Dedicated PSE Substation Facilities

Real-time monitoring is required for end-user load facilities that are served by dedicated PSE substation facilities. This data is sent from the PSE substation to PSE’s Operating Center using RTU equipment. A dedicated communication circuit (e.g., leased line) is required to transmit such data. Data values are transmitted continuously from the substation to the Operating Center. When interconnecting two Balancing Authorities, the requirements for two communications paths in 6.3.1 apply.

6.4 SCHEDULING REQUIREMENTS

Interconnected transfers or load shall be pre-scheduled for each hour using PSE’s normal scheduling procedures. The pre-schedule shows hourly plans on a 7-day (168-hour) advance time period, and is updated weekly or as conditions change. If prescheduled load is taken off line for any reason, the Interconnection Customer shall notify PSE’s 24-hour dispatcher with an updated schedule.

6.5 SCADA, RTU AND TELEMETRY REQUIREMENTS

The general RTU and telemetry requirements from the Interconnection Customer to PSE for Transmission System facilities at the Point of Interconnection are provided in Table
6.5.1. The general RTU and telemetry requirements from the Interconnection Customer to PSE for End-User load facilities at the Point of Interconnection are provided in Table 6.5.2.

SCADA for breaker status is required for the Point of Interconnection between PSE and the Customer when a breaker(s) or motor-operated switches are used.

PSE’s 24-Hour Operating Center must have the ability to disconnect the transmission system or end-user load interconnection from PSE’s system via SCADA for each Point of Interconnection that is 10 MW or greater. Switching procedures for disconnecting the transmission system or the end-user load interconnection will vary depending upon the bus configuration.

Table 6.5.1 RTU, and Telemetry on Transmission Interconnections

<table>
<thead>
<tr>
<th>Transmission Interconnection</th>
<th>Telemetry</th>
<th>Energy Registers &amp; Load Profile Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTU</td>
<td>• MW showing direction of flow (+/ -)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MVAR showing direction of flow (+/ -)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MW showing direction of flow (+/ -)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MWh delivered by PSE per hour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MWh received by PSE per hour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MVAR showing direction of flow (+/ -)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bus Voltage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Local/Remote Status (for PSE owned)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interconnecting Breaker – Control (≥ 10 MW)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Alarms</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dial-Up</th>
<th>Energy Registers &amp; Load Profile Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• MWh Delivered</td>
</tr>
<tr>
<td></td>
<td>• MVARh Delivered</td>
</tr>
<tr>
<td></td>
<td>• MWh Received</td>
</tr>
<tr>
<td></td>
<td>• MVARh Received</td>
</tr>
</tbody>
</table>
## Table 6.5.2 RTU, and Telemetry on End-User Load Interconnections

<table>
<thead>
<tr>
<th>End-User Load Interconnection</th>
<th>Telemetry (between Balancing Authorities)</th>
<th>RTU</th>
<th>Dial-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>● MW showing direction of flow (+ / -)</td>
<td>● MW showing direction of flow (+ / -)</td>
<td>Energy Registers &amp; Load Profile Channels</td>
</tr>
<tr>
<td></td>
<td>● MVAR showing direction of flow (+ / -)</td>
<td>● MWh delivered by PSE per hour</td>
<td>● MWh Delivered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● MWh received by PSE per hour</td>
<td>● MVARh Delivered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● MVAR showing direction of flow (+ / -)</td>
<td>● MWh Received</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Bus Voltage</td>
<td>● MVARh Received</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Local/Remote Status (for PSE owned)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Interconnecting Breaker - Control</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Alarms</td>
<td></td>
</tr>
</tbody>
</table>
7. DESIGN REVIEW AND DOCUMENTATION

For all system interconnections and transmission-connected end-user loads, the following review process must take place.

7.1 DESIGN REVIEW PROCESS

Step 1: Interconnection Customer Submits an Interconnection Request

The Interconnection Customer initially submits a preliminary design package to PSE for review and approval. This package shall include:

- A proposed electrical one-line diagram that identifies basic service voltages.
- Major facility equipment and ratings, Interconnecting Facility address, transformers, breakers, approximate load/station service requirements, etc.
- Metering and Point of Interconnection (voltage and physical location).
- Any pertinent information on normal operating modes, proposed in-service dates (both initial energization and commercial operation).
- Appropriate Paperwork:
  - Interconnection Customer Transmission System Connected to the PSE Transmission System - The Interconnection Customer completes the data as shown in Appendix A.
  - Interconnection Customer End-User Load Connected to the PSE Distribution System - The Interconnection Customer completes the data as shown in Appendix B.
  - Interconnection Customer End-User Load Connected to the PSE Transmission System - The Interconnection Customer completes the data as shown in Appendix C.

Note: In order to avoid any unnecessary costs associated with changes to the preliminary design plans, this preliminary design package should be submitted prior to the Interconnection Customer ordering any equipment, or beginning any major detailed engineering consultant work.

Step 2: PSE Performs Interconnection Feasibility Study

After a Feasibility Study is completed by the PSE Planning department, the PSE Protection and Control groups will then review the general requirements and work with the Interconnection Customer during the preliminary evaluation of the interconnection.

Step 3: PSE’s Design Review

The Interconnection Customer is required to submit various design documentation to PSE for review, and undergo specified PSE-witnessed start-up testing procedures (see Section 9) prior to interconnecting with the PSE system. The specific design documents and test procedures will vary depending on each Interconnection Customer’s transmission system or end-user load; however, the general requirements for the design review process are
outlined below. The PSE representative is to be contacted for the actual procedures to be followed on a specific project.

7.2 PSE PERFORMS REVIEW OF INTERCONNECTION CUSTOMER’S PROTECTION DESIGN

The PSE Protection department will have primary responsibility for reviewing and commenting on all required protection design and associated settings. This data shall be provided after the Interconnection Customer works with PSE on the appropriate system requirements.

The Interconnection Customer shall provide the following information:

**Detailed one-line diagram of interconnection facility.**
This drawing shows the functional arrangement of all interconnection equipment using single line and standard symbol notations per ANSI 432.2 and 41.1. It must include a table that lists the equipment ratings.

**An AC current and potential control schematic of the interconnection facility.**
The AC schematic is a primary three line drawing showing the phasing and interconnection of the CTs and VTs with the interconnection protection. The drawings shall show all grounding of cables, CTs, etc., as well as indicating polarity.

**A control schematic of the interconnection facility.**
The schematic shall be functionally complete showing all DC potential circuits with all relays and control connections to the tripping and closing coils of the interconnection breaker. All relay output contacts and switches require a development table. The schematic must show the terminal designation of all devices.

**A three-line diagram of the interconnection facility.**
This drawing must include all the equipment shown on the one line diagram. Phasing and bushing designations for all primary equipment shall be shown.

**All protective equipment ratings**
Provide ratings for all protective equipment.

**Ground Mat design and test data**
Provide the ground mat design and test data.

**Equipment specifications and details**
This should include the specifications and details for transformers, circuit breakers, current transformers, voltage transformers, and any other major equipment or special items. Transformer information is to include configuration, ratings, nameplate diagram, and % positive and zero sequence impedance based upon the transformer’s self-cooled rating.

**Specific setting information on all of the interconnection relays**
Information is to include the manufacturer, model, style number, and setting range information for each relay.

7.3 PSE'S REVIEW TIMELINE

PSE will review the preliminary design documentation and provide comments in a timely manner. This may include cost estimates, as appropriate, for any modifications to the PSE system required to accommodate the interconnection. PSE will also provide maximum PSE system short circuit data as requested by the Interconnection Customer.

PSE will review the final design documentation and provide comments in a timely manner. If any changes are made, the Interconnection Customer shall provide to PSE a set of revised one-lines, schematics, and construction drawings. The Interconnection Customer may elect to also supply at this time the proposed test procedure as required for PSE witnessing of tests (see Sections 9 and 11). This should be done in advance (at least 30 days) of the actual testing. In addition, the Interconnection Customer shall provide a copy of the electrical permit issued by the local jurisdiction prior to scheduling witness tests. Usually a coordination meeting is held with PSE and the Interconnection Customer to clarify any questions that may exist before testing begins.

7.4 AS-BUILT DOCUMENTATION DEADLINE

The final “As-Built” documentation, including all drawings and final “As-Left” relay settings, must be provided by the Interconnection Customer to PSE not later than 90 days after the date of commercial operation. The final As-Built drawings shall be stamped by a Professional Engineer, registered in the State of Washington.
8. PROTECTION SETTINGS

The Interconnection Customer, in accordance with the following guidelines, shall specify all relay settings of the interconnection protection. PSE shall review and approve the settings to verify coordination with the PSE system.

8.1 INTERCONNECTION PROTECTION

Protection of the interconnection between two systems will be chosen to meet the operational requirements. For instance, high-speed protection of the line connecting two systems may be required if delayed clearing would adversely impact stability of either of the transmission systems.

Standard protection for a transmission line in PSE’s system consists of three zones of step-distance protection for phase faults, with directional ground overcurrent and breaker failure protection. Settings at each end of the line must be coordinated with other relays in the interconnecting system. Synchronism and/or voltage condition checking is also required for supervision of the close of a breaker connecting the two systems.

8.2 PROTECTION OF END-USER LOADS

Protection of the breaker connecting an end-user load to PSE’s transmission shall be set to trip the breaker for faults within the Interconnection Customer’s system. In no case shall a fault beyond the interconnection breaker affect reliability of service to PSE’s other customers.
9. DEMONSTRATION OF INTERCONNECTION
CUSTOMER’S PROTECTIVE DEVICES

9.1 GENERAL

The Interconnection Customer shall send PSE a copy of the proposed test plans at least 30 days before planned testing in order for PSE to review and approve the plans. The Interconnection Customer shall demonstrate to PSE’s representative the correct operation of the interconnection protective devices, as described below. PSE shall not be responsible for performing such demonstration. The Interconnection Customer must provide qualified electricians, technicians, and operators to perform the demonstration(s). The Interconnection Customer must supply all personal protective equipment and designate any procedures necessary to ensure that safety precautions are taken while working near energized equipment. The scheduling of this demonstration shall be coordinated with PSE, with a minimum of 72 hours advance notice.

The protective device demonstration shall be divided into two parts,

1. **Calibration** - The Calibration demonstration is to ensure that the agreed-upon settings are used on each of the relays required by PSE. This demonstration is also to ensure that the relays are functional and calibrated to manufacturers’ tolerances.

2. **Trip and Circuit Checks** - The Trip and Circuit Check demonstration is to ensure that each of the required relays is properly connected to the instrument transformers and operate the proper interrupting device. All of the initial tests must be successfully completed and certified test reports of relay and instrument transformers provided to PSE prior to interconnection with PSE’s system.

The following Calibration and Trip and Circuit Check sections are intended to serve as general requirements. The actual demonstration will depend upon the final approved AC/DC schematics, relay settings, etc. It is the Interconnection Customer’s responsibility to demonstrate operation of all protective devices in a safe manner that does not adversely affect any equipment on the line.

9.2 CALIBRATION

9.2.1 Current Transformer (CT)

Visually check polarity mark orientation on all CTs with respect to the AC schematics in the design drawings. Perform polarity checks of the CTs per the most current version of ANSI Standard C57.

The following calibration tests shall also be performed:

- Verify the CT polarity.
• Verify that all grounding, shorting connections, and test blocks provided make good contact.
• CT single point grounding shall be confirmed for each CT circuit as shown on the drawings, with the preferred grounding location at or near the relay panel.
• Ratio CTs at specified tap ratio.
• Perform Megger® tests on all CTs to ground.
• Perform demagnetization and excitation tests on CTs as the final tests on CTs.
• Check excitation test data against CT excitation curves.

9.2.2 Voltage Transformer (VT), Potential Device (PD), Capacitor Voltage Transformer (CVT), and Coupling-Capacitor Voltage Transformer (CCVT)

Visually check polarity mark orientation on all VTs, PDs, CVTs, and CCVTs with respect to the three-line diagrams in the design drawings and the manufacturer’s drawings. Test all polarities per the most current version of ANSI Standard C57.13.
• Verify polarity electrically relative to polarity marks.
• Verify ratio at specified tap.
• Verify VT, PD, CVT, and CCVT circuit single point grounding as shown on the drawings.
• Doble® power factor test all VTs, CVTs, and CCVTs.
• Adjust the PDs for the voltage and the burden of the secondary circuits to that they are being connected.

9.2.3 Relays

Test relays with actual setting values to verify calibration, input mapping, and output mapping.

9.2.4 Testing and Calibration

All testing and calibration of CTs, VTs, PDs, CVTs, CCVTs, and relays will be performed using test equipment of current calibration. “Current calibration” means:
• According to manufacturer’s calibration specifications and intervals.
• Within a one-year interval of the last equipment calibration.
• Proof of test equipment calibration must be provided to PSE prior to relay calibration.
9.3 TRIP AND CIRCUIT CHECKS

All required relays shall be functionally operated to demonstrate proper interrupting device operation. Tests may be performed off-line, if possible. Tests that cannot be performed off-line must be demonstrated to operate on-line. Trip outputs from the relay may be arrived at either by manually operating all appropriate contacts, or by injecting an electrical signal to cause a trip output.

Check continuity of the CT circuit to each relay by primary injection. Following energization, verify correct voltage polarity at relays (where applicable).

Demonstrate that the interlocks between the Interconnection Customer’s transmission system or end-user load and PSE’s breakers operate properly (e.g., Interconnection Customers cannot energize a dead line and can only tie to a hot line via a synchronizing device).
10. GENERAL MAINTENANCE REQUIREMENTS

10.1 INSPECTION

PSE may inspect Interconnection Customer’s facilities whenever it appears that the Interconnection Customer is operating in a manner hazardous to PSE’s system integrity and/or customer safety. Interconnection Customer shall perform functional testing of all breakers, relays, and instrument transformers on a yearly basis, at the Interconnection Customer’s expense.

10.2 CALIBRATION DEMONSTRATION (EVERY 3 YEARS)

The Interconnection Customer shall be required to demonstrate that the interconnection relays and any customer-owned meters are functional and calibrated to manufacturer’s tolerances and set to approved settings. Refer to Table 10.2 for the calibration demonstration process.

Table 10.2 Calibration Demonstration Process

<table>
<thead>
<tr>
<th>Action</th>
<th>Compliance Time Limit</th>
<th>Failure to Comply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration Demonstration Every 3 Years</td>
<td>Must be performed within forty-five (45) days after the Interconnection Customer’s anniversary of the Installation date.</td>
<td>PSE may physically disconnect the interconnection until the test has been completed.</td>
</tr>
<tr>
<td>Interconnection Customer shall notify PSE of their selection of Protection and Control Contractor and coordinate the test date with PSE.</td>
<td>No fewer than thirty (30) calendar days prior to the scheduled test date.</td>
<td>PSE may require Interconnection Customer to reschedule the demonstration test if Interconnection Customer fails to notify PSE 30 days in advance of the scheduled test date.</td>
</tr>
<tr>
<td>Interconnection Customer’s protection and control contractor shall document the demonstration test in a certified report.</td>
<td>A copy of the test report shall be provided to PSE within fifteen (15) business days after testing has been completed.</td>
<td>PSE may require Interconnection Customer to schedule another demonstration test if the demonstration of the initial test or its reported test results do not conform or adhere to the requirements set forth in this document (as modified from time to time).</td>
</tr>
</tbody>
</table>

Note: PSE, at its sole discretion, may be present to witness testing of equipment. Any and all costs incurred by PSE to witness such testing shall be the responsibility of the Interconnection Customer.
10.3 DESIGN CHANGES AFTER COMMERCIAL OPERATION

Any modifications to the Interconnection Customer’s transmission or end-user load protective system after the Interconnection Commercial Operation Date must be submitted to PSE for review. Demonstration of Relay Calibration, Trip and Circuit Tests and On-Line Start-Up Testing may be required depending on the extent of the modification. Setting changes of any interconnection protection or synchronizing device must be approved by PSE with a hard copy of the changes forwarded to the designated PSE representative.

Any “Field Modification” or “As-Built” AC/DC protection and synchronizing schematics associated with any interconnection device must be forwarded to the designated PSE representative. The final As-Built drawings shall be stamped by a Professional Engineer, registered in the State of Washington.

PSE system changes may necessitate additional interconnection protection being required, which shall be paid for by the Interconnection Customer.
11. OPERATING REQUIREMENTS

11.1 SWITCHING AND TAGGING RULES

PSE will provide the Interconnection Customer with a copy of PSE’s Standard Practice 0201.1011, Switching & Clearances Handbook, and the Interconnection Customer shall comply with applicable switching and tagging rules in obtaining or in providing clearances for work or for switching operations on equipment.

11.2 DE-ENERGIZED CIRCUITS

The Interconnection Customer’s transmission system or end-user load facility shall not energize a de-energized PSE circuit under any circumstances unless under the direct orders of PSE’s Power Dispatcher/System Operator. Failure to observe this requirement will be cause for immediate (and possibly permanent) disconnection of the Interconnection Customer’s transmission system or end-user load. In addition, the Interconnection Customer shall be responsible for all damages and injuries resulting from such actions.

11.3 OPERATING DATA

The Interconnection Customer will cooperate with PSE in the analysis of disturbances to the Facility’s or PSE’s electric system by gathering and providing access to information relating to any disturbance, including information from oscillography, protective relay targets, breaker operations, and sequence of events records.

11.4 COMMUNICATIONS

Transmission systems and end-user loads must provide the following:

- Voice communication to the Interconnection Customer for Transmission and Distribution System Interconnections via normal telephone lines or mutually agreed upon circuits.
- A 24-hour phone or pager number for the Interconnection Customer Facility Operator. The Interconnection Customer Facility Operator shall also have information for contacting PSE’s 24-hour Operations Center dispatchers.
- Notification to PSE’s Dispatch Center prior to bringing any transmission system online with PSE’s system and the time of interconnection.
- Immediate notification to PSE’s Dispatch Center of unplanned trip operations.

11.5 DISCONTINUANCE OF OPERATIONS

Interconnection Customers shall discontinue interconnected operation when requested by PSE, as follows:
• To facilitate maintenance, test, or repair of PSE facilities.

• To accommodate line clearances or non-recloses on associated circuit. PSE will notify the Interconnection Customer Facility Operator in advance of planned clearances or non-recloses. During emergencies, PSE may not be able to give advance warning of being disconnected from the system.

• When the Interconnection Customer’s transmission system or end-user load is interfering with customers on the system due to degradation of power quality or service.

• When an inspection of the Interconnection Customer’s transmission system or end-user load reveals a condition hazardous to the PSE system or a lack of scheduled maintenance or maintenance records for equipment necessary to protect the PSE system.

• When Good Utility Practices warrant discontinued operation.
ATTACHMENT 1

INTERCONNECTION METERING DIAGRAM
<table>
<thead>
<tr>
<th>DEVICES</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>AC CIRCUIT BREAKER</td>
</tr>
</tbody>
</table>

PSE REVENUE METERING
TELEMERTY AND CONTROL METERING
LOAD OR INTERCONNECTING UTILITY

PSE-ET-160.80 Attachment 1

INTERCONNECTION REQUIREMENTS
METERING
SYSTEM PROTECTION

ATTACHMENT 1
APPENDIX A

INTERCONNECTION REQUEST FOR INTERCONNECTION CUSTOMER TRANSMISSION SYSTEM CONNECTED TO PSE TRANSMISSION SYSTEM

1. The undersigned Interconnection Customer submits this request to interconnect its transmission system Facility with the Transmission Provider’s transmission System.

2. This Interconnection Request is for (check one):
   _____ A proposed new transmission system Facility.
   _____ An increase in the transmission system load or a Material Modification of an existing transmission system Facility.

4. The Interconnection Customer provides the following information:
   a. Address or location or the proposed new transmission system Facility site (to the extent known) or, in the case of an existing transmission system Facility, the name and specific location of the existing transmission system Facility;
   b. Maximum summer at _____ degrees C and winter at _____ degrees C kilowatt electrical load of the proposed new transmission system Facility or the amount of megawatt increase in the transmission system load of an existing transmission system Facility;
   c. General description of the equipment configuration;
   d. Commercial Operation Date by day, month, and year;
   e. Name, address, telephone number, and e-mail address of the Interconnection Customer’s contact person;
   f. Approximate location of the proposed Point of Interconnection (optional); and
   g. Interconnection Customer Data.

5. Applicable deposit amount.

6. Evidence of Site Control (check one)
   _____ Is attached to this Interconnection Request
   _____ Will be provided at a later date
7. This Interconnection Request shall be submitted to the representative indicated below:
   [To be completed by Transmission Provider]

8. Representative of the Interconnection Customer to contact:
   [To be completed by Interconnection Customer]

9. This Interconnection Request is submitted by:

   Name of Interconnection Customer:
   __________________________________________

   By (signature): ________________________________

   Name (type or print): __________________________

   Title: ________________________________________
APPENDIX B

INTERCONNECTION REQUEST FOR INTERCONNECTION
CUSTOMER END-USER LOAD CONNECTED TO PSE DISTRIBUTION
SYSTEM

1. The undersigned Interconnection Customer submits this request to interconnect its end-user load Facility with the Transmission Provider’s Distribution System.

2. This Interconnection Request is for (check one):
   _____ A proposed new end-user load.
   _____ An increase in the end-user load or a Material Modification of an existing end-user load Facility.

4. The Interconnection Customer provides the following information:
   a. Address or location or the proposed new end-user load Facility site (to the extent known) or, in the case of an existing end-user load Facility, the name and specific location of the existing end-user load Facility;
   b. Maximum summer at _____ degrees C and winter at _____ degrees C kilowatt electrical load of the proposed new end-user load Facility or the amount of megawatt increase in the end-user load of an existing end-user load Facility;
   c. General description of the equipment configuration;
   d. Commercial Operation Date by day, month, and year;
   e. Name, address, telephone number, and e-mail address of the Interconnection Customer’s contact person;
   f. Approximate location of the proposed Point of Interconnection (optional); and
   g. Interconnection Customer Data.

5. Applicable deposit amount.

6. Evidence of Site Control (check one)
   _____ Is attached to this Interconnection Request
   _____ Will be provided at a later date

7. This Interconnection Request shall be submitted to the representative indicated below:
8. Representative of the Interconnection Customer to contact:

[To be completed by Interconnection Customer]

9. This Interconnection Request is submitted by:

Name of Interconnection Customer:

________________________________________

By (signature):

________________________________________

Name (type or print):

________________________________________

Title:

________________________________________

Date:

________________________________________

Date:

________________________________________
APPENDIX C

INTERCONNECTION REQUEST FOR INTERCONNECTION CUSTOMER END-USER LOAD CONNECTED TO PSE TRANSMISSION SYSTEM

1. The undersigned Interconnection Customer submits this request to interconnect its end-user load Facility with the Transmission Provider’s transmission System.

2. This Interconnection Request is for (check one):
   _____ A proposed new end-user load Facility.
   _____ An increase in the end-user load or a Material Modification of an existing end-user load Facility.

4. The Interconnection Customer provides the following information:
   a. Address or location or the proposed new end-user load Facility site (to the extent known) or, in the case of an existing end-user load Facility, the name and specific location of the existing end-user load Facility;
   b. Maximum summer at _____ degrees C and winter at _____ degrees C kilowatt electrical load of the proposed new end-user load Facility or the amount of megawatt increase in the end-user load of an existing end-user load Facility;
   c. General description of the equipment configuration;
   d. Commercial Operation Date by day, month, and year;
   e. Name, address, telephone number, and e-mail address of the Interconnection Customer’s contact person;
   f. Approximate location of the proposed Point of Interconnection (optional); and
   g. Interconnection Customer Data.

5. Applicable deposit amount.

6. Evidence of Site Control (check one)
   _____ Is attached to this Interconnection Request
   _____ Will be provided at a later date

7. This Interconnection Request shall be submitted to the representative indicated below:
   [To be completed by Transmission Provider]
8. Representative of the Interconnection Customer to contact:

[To be completed by Interconnection Customer]

9. This Interconnection Request is submitted by:

   Name of Interconnection Customer:

   ____________________________________________

   By (signature): ______________________________

   Name (type or print): _________________________

   Title: ______________________________________