



# State Interconnections

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# State Jurisdiction



- ❑ Interconnections made for purpose of retail transactions, i.e., retail sales, net metering, partial requirements customers, Community Solar Program.
- ❑ Interconnections between qualifying facility (QF) and host utility to facilitate PURPA wholesale sales, provided QF sells entire net output to host utility.
  - State does not have jurisdiction if QF sells any portion of output in non-PURPA wholesale sale in interstate commerce.
  - State does not have jurisdiction of an interconnection under PURPA if interconnecting entity is not the purchasing utility.

# Oregon Interconnection Procedures

- Net Metering Rules
  - Residential <25 kW and Nonresidential <2 MW
  - OAR ch. 860, div. 039 (Order No. 07-319)
  
- Small Generator Interconnection Rules
  - Generators <10 MW
  - OAR ch. 860, div. 082 (Order No. 09-196)
  
- Large Generator Interconnection Guidelines (LGIG)
  - Generators between 20 MW and 80 MW
  - Order No. 10-132
  
- Generators between 10 MW and 20 MW
  - No specified procedures

# Key differences between FERC LGIP and OPUC LGIA

## ❑ **Costs of Network Upgrades**

- **OPUC:** “Interconnection Customers are responsible for all costs associated with network upgrades unless they can establish quantifiable system-wide benefits, at which point the Interconnection Customer would be eligible for direct payments from the Transmission Provider in the amount of the benefit.” Order No. 10-132 at 3.
- **FERC:** Interconnection Customers must provide upfront capital for Network Upgrades and are eligible for reimbursement from Transmission Provider. (This reimbursement policy applies to non-independent Transmission Providers. Different pricing policies apply to independent Transmission Providers.) See FERC Order No. 2003 at 132-34.

## ❑ **Available Interconnection Service**

- **OPUC:** LGs must select Network Resource Interconnection Service (NRIS).
- **FERC:** LGs have choice of NRIS or Energy Resource Interconnection Service (ERIS).

# Small Generator Interconnection Rules

## OAR Ch. 860 Div. 082

### ☐ **Four Tier Review Process for small generators**

- Tier 1: <25 kW, lab-tested, inverter-based equipment, not connected to transmission line.
- Tier 2: <2 MW, interconnected to either radial distribution circuit or spot network distribution circuit serving one customer, not interconnected to transmission line, uses lab-tested or “field-tested equipment” (equipment approved by utility in previous Tier 4 application).
- Tier 3: <10 MW, not connected to transmission line, no power export beyond POI, uses low forward power relays or other protection to prevent power flow onto area network.
- Tier 4: <10 MW that do not qualify for Tier 1, 2, or 3. Tier 4 uses the four-step “Study Process,” that includes scoping meeting, feasibility study, system-impact study, and facilities study.

OPUC Tiers 1, 2 and 3

vs.

FERC 10 kw Inverter Process and Fast Track Process

- The FERC 10 kW Inverter and Fast Track Process and OPUC Tier 1, 2 and 3 Reviews are comparable, simplified processes. However, these simplified processes have different technical requirements and use different impact screens.
- **FERC:** SGs that fail screens in Fast Track Process have “customer options meeting” with Transmission Provider during which they may request the Transmission Provider perform a “supplemental review” for a fee of \$2500.00. The review includes (but is not limited to) the following three screens: (1) minimum load screen; (2) power quality and voltage screen; and (3) safety and reliability screen. An SG that passes the supplemental review need not go through the more expensive and time-consuming “Study Process” with scoping meeting, feasibility, system-impact, and facilities studies.
- **OPUC:** SGs that fail Tier 1, 2, and 3 Reviews generally must proceed to the Study Process (scoping meeting, feasibility study, system impact study, facilities study).

# OPUC Tier 4 Process vs. FERC SGIP

## ☐ Pre-application

- **OPUC: Pre-application Request for Information.** SG may submit request to receive available relevant existing studies and other materials to allow generator to understand the feasibility of interconnection at a particular point on transmission or distribution system. Public utility may charge SG for cost of assembling materials.
- **FERC:**
  - **Pre-Application Request for Information.** SG may submit request to receive available relevant existing studies and other materials to allow generator to understand the feasibility of interconnection at a particular point on transmission or distribution system. Public utility may charge SG for cost of assembling materials.
  - **Pre-Application Report.** SG may ask for report regarding a proposed project at a proposed site for fee of \$300 or other amount approved by FERC. The information included in the Pre-Application Report includes information reasonably available to Transmission Provider such as available capacity (in MW) of substation/area bus or bank and circuit likely to serve the proposed Point of Interconnection (i.e., total capacity less the sum of existing aggregate generation capacity and aggregate queued generation capacity).

## ☐ Queue:

- **OPUC and FERC:** Queue position based on time and date Transmission Provider receives complete Interconnection Request. Queue position determines order of interconnection studies and cost responsibility for Network Upgrades necessary to accommodate interconnections.

# OPUC Tier 4 Study Process v. FERC SGIP Study Process

## ☐ Study timelines

- **FERC:** The intervals the Transmission Provider has to tender study agreements and to execute studies are specified in SGIP. Provider must complete Feasibility Study within 30 days, System-impact Study within 45 days, and Facilities Study within 45 days. Transmission Provider required to use reasonable efforts to meet deadlines.
- **OPUC:** Only the timelines for tendering study agreements are specified in rules. Timelines to execute studies are determined by utility and included in study agreement. Utility is required to make reasonable, good-faith efforts to follow timelines in study agreements.

## ☐ Study criteria for System Impact Study

- **FERC:** Transmission Provider shall evaluate the impact of proposed interconnection on the reliability of Transmission System. The SIS will consider the “Base Case” as well as all generating facilities that, on the date the SIS is commenced: (i) are directly interconnected to Transmission System, (ii) are interconnected to Affected Systems and may have impact on Interconnection Request; (iii) have a pending higher queued Interconnection Request; and (iv) have an executed LGIA or have requested an unexecuted LGIA be filed with FERC.
- **OPUC:** In determining whether there are possible adverse impacts from SG’s interconnection that must be addressed, public utility must consider the aggregated nameplate capacity of all generating facilities that, on the date the study begins, are directly interconnected to the public utility’s transmission or distribution system, have a pending completed application to interconnect with a higher queue position, or have an executed interconnection agreement with the public utility.

## ☐ Re-study

- **FERC:** No re-study allowed even if generator with higher placement in queue drops out or has material change in circumstances.
- **OPUC:** No prohibition on re-study if generator higher in queue drops out or has material change in circumstances.

# Tier 4 Service vs. FERC SG Interconnection Service

## ❑ Interconnection service options:

- FERC: Not specifically categorized. However, NRIS not available under SGIP.
- OPUC: Not specifically categorized.

## ❑ Up-front cost responsibility:

- FERC and OPUC: SG must provide upfront capital for interconnection facilities and necessary upgrades to the distribution and transmission system.

OPUC SG Rules

VS.

SGIP

Cost Sharing

- **FERC:** SGs not entitled to reimbursement for costs of interconnection facilities and upgrades to distribution system but are entitled to reimbursement from Transmission Provider for Network Upgrades to transmission system.
- **OPUC:**
  - When adopting OAR ch. 860, div. 082, OPUC specifically noted the proposed rules “include language that is meant to strictly limit a public utility's ability to require one small generator facility to pay for the cost of system upgrades that primarily benefit the utility or other small generator facilities, or that the public utility planned to make regardless of the small generator interconnection.” (Order No. 09-196.)
  - OAR 860-032-0035(4) provides: “A public utility must design, procure, construct, install, and own any system upgrades to utility’s transmission or distribution system necessitated by the interconnection of a small generator facility. A public utility must identify any adverse system impacts on an affected system caused by the interconnection of a small generator facility to the public utility’s transmission or distribution system. The public utility must determine what actions or upgrades are required to mitigate these impacts. Such mitigation measures are considered system upgrades as defined in these rules. The applicant must pay the reasonable costs of system upgrades.”

# Net Metering Interconnection

## OAR ch. 860, div. 039

### ☐ **Three processes:**

- Level 1: Eligibility: < 25 kW, inverter based facility, not connected to transmission line. *Screen example:* will not contribute more than 10 percent to distribution circuit's maximum fault current at point on the high voltage (primary) level that is nearest the proposed point of common coupling.
- Level 2: Eligibility: < 2 MW. *Screen examples:* (1) aggregate capacity on distribution circuit to which facility will interconnect will not cause any distribution protective equipment or customer equipment to exceed 90 percent of the short circuit capability of the equipment; (2) aggregate generation capacity connected to distribution circuit will not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the high voltage level nearest the proposed point of common coupling.
- Level 3: Eligibility: < 2 MW. Utility conducts impact study that identifies and details impacts to the electric distribution system. Impact study identifies any system upgrades needed to address adverse impacts.

☐ **Cost allocation:** Generator pays costs for interconnection facilities and for necessary upgrades to distribution system.