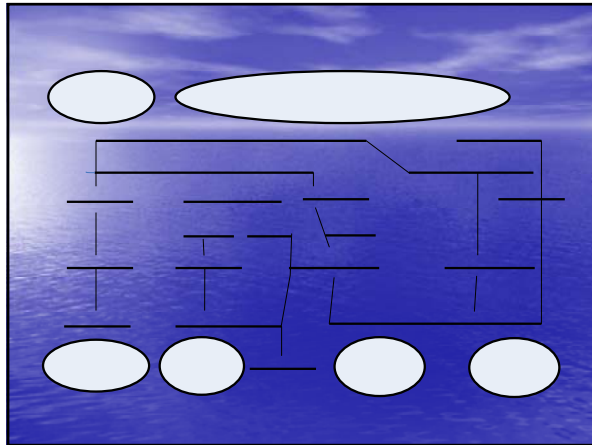




# Selling Renewable Power to PGE

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## Renewable Power Projects



## NET METERING OVERVIEW

- Law passed in 1999
- Currently: 693 NM projects totaling 9.1 MW.
- 98% are PV (photovoltaic) customers.
- Average size of Residential generation: 3.5 kW
- Average commercial system: 50 kW

## NET METERING

- RULES UPDATED - July '07
  - Residential <25 kW
  - **Commercial - up to 2MW!**
  - Renewable, or fuel cell generation.
  - **Net Metering Agreement** covers Interconnection and power import and export provisions
  - **Billing:** if in a monthly billing period a customer-generator supplies to the public utility more electricity than the public utility supplies the customer-generator, the public utility will apply the excess kilowatt-hours as a cumulative credit to the customer-generator's next monthly bill. The credit for the excess kilowatt-hours will be applied at the full retail rate for each rate component on the bill that uses kilowatt-hours as the billing determinant.
  - **Yearly true-up with no compensation for excess at the year-end.**

## Net Metering Schedule 203 – Agreement Process

- Determine generation needed to off-set site load
- Complete NM Application
- Complete NM Agreement
- Complete Installation
- PGE Inspects and installs bi-directional meter

## Net Metering Interconnection

- **Level 1 - No Fee**
  - The facility is inverter-based; and
  - The facility has a capacity of 25 kilowatts or less.
- **Level 2 - \$50.00 plus \$1.00 per kilowatt** of the net metering facility's capacity, plus the reasonable cost of any required minor modifications
  - The facility has a capacity of two megawatts or less; and
  - The facility does not qualify for or failed to meet applicable Level 1 interconnection review procedures.
- **Level 3 - \$100.00 plus \$2.00 per kilowatt** of the net metering facility's capacity, plus the reasonable cost of any required minor modifications
  - The facility has a capacity of two megawatts or less; and
  - The facility does not qualify or failed to meet Level 2 interconnection review procedures.
  - Studies: Load flow; Short-circuit; Circuit protection and coordination

## Renewable Power Schedule 201 – Agreement Process

- Register with FERC for QF Status
- Apply for Grid Interconnection
- Sign Interconnection Agreement
- Complete Interconnection
- Complete witness test with PGE
- Look over power sales options
  - Fixed Price Option
  - Market Based Price Option
- Choose Power Purchase Agreement
- Sign PPA

## Oregon Small Generator Interconnection Rules

- **General Provisions**
  - For generation grid interconnection 10MWs or less
  - Power must be no-export or sold to PGE under Schedule 201 – (FERC QF rules) – N/A to merchant plants
  - IEEE 1547 (2003 ed) based
  - Requires specific record keeping, queuing priorities & reporting
  - Isolation device 480 V or Less – lockable, status clear & accessible by PGE
  - Isolation device greater than 480 V– Visible-Break, lockable, status clear & accessible by PGE
  - Monitoring/telemetry – 3MW and Up
  - Customer pays
    - Application fee, study costs, equipment, metering, system upgrades and adverse system impacts

## Proposed New Oregon Small Generator Interconnection Rules

- **Tier 1**
  - Application Fee: \$100
  - Inverter Based, lab tested & not connected to transmission line
  - Must use existing public utility facilities
  - Key Screening Criteria
    - Can't exceed 15% of Line Section annual peak load
    - Can't exceed 25 kW
    - No construction of utility facilities required
    - Witness test option by utility

## Proposed New Oregon Small Generator Interconnection Rules

- **Tier 2**
  - Application Fee: \$500
  - Less than 2MW, radial circuit, lab/field tested equipment
  - Key Screening Criteria
    - Can't exceed 15% of Line Section annual peak load
    - Lesser of 5% peak load or 50kW on Spot Network
    - Can't contribute more than 10% fault current to circuit
    - High-speed reclosing on feeder may move project to Tier 4
    - Minor construction of utility facilities required
    - Witness test option by utility must be within 10 days of commissioning

## Proposed New Oregon Small Generator Interconnection Rules

- **Tier 3 – No Export (All Power Used on Site)**
  - Application Fee: \$1,000
  - Less than 10MW, set for non-export
  - Key Screening Criteria
    - Reverse power relays and <50kW on Area Network
    - Reverse power relays or other protection preventing export on radial feeders
    - Minor construction of utility facilities required
    - Witness test option by utility must be within 10 days of commissioning with 20 days notice by customer

## Proposed New Oregon Small Generator Interconnection Rules

- **Tier 4**
  - Application Fee: \$1,000
  - Less than 10MW
  - Studies that may be required
    - Scoping Meeting
    - Interconnection Feasibility – preliminary sys impact & costs
    - Interconnection System Impact – detailed impact on system
    - Interconnection Facilities Study – always required
    - Witness test option by utility must be within 10 days of commissioning with 20 days notice by customer

## Queuing – What you need to know

- Net Metering and Small Generator Treated Equally
  - Date Complete Application Received
- First on a Feeder could Save Money
- Tipping Point:
  - 15% of Line Section annual peak load
  - Beyond that you may move to next Level / Tier
  - May incur Substation Modification Costs

## Provisions for Identical Projects

- For Developers with multiple projects in Oregon
  - Look at Field-Tested Equipment Section in new rules

## PGE Grid Interconnect/PPA Contacts

- Distribution System grid interconnects < 10 MWs
  - **Distributed Resources** – Mark Osborn
    - Schedule 201 standard PPA - Kelly Cox / Thomas Farringer
    - Net Metering – Bruce Barney / Thomas Farringer
- Transmission Line grid interconnects any size
  - **Transmission/Reliability Svcs** – George Hutcherson
- Special Power Purchase Agreements/Off System Purchases/Merchant Plants
  - **Risk Management-Power Supply** – Bruce True
- Website: [www.portlandgeneral.com/renewables\\_efficiency/generate\\_power/business/default.aspx](http://www.portlandgeneral.com/renewables_efficiency/generate_power/business/default.aspx)
- Or, just search on "Generate Your Own Power" at [portlandgeneral.com](http://portlandgeneral.com)