


Everything You Wanted to Know About Generator Interconnections but Were Afraid to Ask!

September 2011

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

Pacific Power | Rocky Mountain Power

Power Delivery System

Transmission Line
46-kV to 500-kV

MW produced by
Generation Facility

Step-Down
Substation

Distribution Line
12.5-kV to 34.5-kV

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Generation Interconnections

- Not net metering - customer is selling power to PacifiCorp or another entity.

- Managed by Transmission Services
  - ___________ manages distribution/transmission interconnections
  - Tom Fishback manages transmission interconnections

- Primary purpose is to manage the process by which PacifiCorp provides non-discriminatory access to all entities that desire to build a generation facility and interconnect to PacifiCorp's electric system.

- Required independent of where the power is being delivered.

Types of Customer Owned Generation

Type	**Applies to**	**Regulation**
Distribution Interconnection Projects	Generators that want to connect to a **distribution facility** and wants to sell their power to PacifiCorp or others. **Responsibility – ______________**	State PUC (Default to FERC Order 2006)
Transmission Small Generator Interconnect	Generators ≤ 20 MW that want to connect to a **transmission facility** covered by a FERC approved open access tariff. **Responsibility – ______________**	FERC Order 2006
Transmission Large Generator Interconnect	Generators > 20 MW that want to connect to a **transmission facility** covered by a FERC approved open access tariff. **Responsibility – Tom Fishback**	FERC Order 2003
Net Metering	*Generator size varies by state.* ***Customer does not want to sell power, only wants generation to offset their use.*** **Responsibility – Eric Anderson**	*State PUC*

Jurisdiction for Interconnection

- Distribution – state jurisdictional – Oregon specific regulations start with 860-082-0005.
- Transmission - FERC jurisdictional, *unless entity is registered as a qualified facility (QF).*
- Either transmission or distribution may be qualified facilities if they meet certain federal criteria.
  - http://www.ferc.gov/industries/electric/gen-info/qual-fac/what-is.asp

What is a Qualifying Facility (QF)?

– A **Qualifying Facility (QF)** is a generating facility which meets the requirements for QF status under the Public Utility Regulatory Policies Act of 1978 (PURPA) and part 292 of the Commission's Regulations (18 C.F.R. Part 292), and which has obtained certification of its QF status.
  - Can either be a Co-Generation Facility or a Small Power Production facility (<80 MW), sells electricity to the host utility, and is not owned by an entity primarily engaged in generation.
  - May be under the jurisdiction of the respective state, if outside of state jurisdiction, default to FERC jurisdiction.

– Benefits can be:
  - Avoided cost rate for power produced and sold to the host utility.
  - Exemption from certain federal rules and requirements of the Federal Power Act (FPA).

Three Types of Agreements Required

1. Interconnection Agreement – allows you to connect your generator to the power company's lines.
2. Power Purchase Agreement – governs the sale of your electricity to the power company (doesn't apply for net metering).
3. Transmission Service Agreement – moves power across the wires (typically taken care of by the company purchasing the power from the generator).

Generator Interconnection Policy

– All generator interconnection requests are managed through the interconnection queue (Available on OASIS).

- Generator interconnections (transmission - large and small) - MUST be processed according to the Open Access Transmission Tariff (OATT) – FERC jurisdictional.

- Generator interconnections (qualified facilities and distribution) - Absent a state standard, will be processed according to the OATT study procedure for consistency and efficiency.

Purpose of Interconnection Queues

- Treat all customers equally.
  - Requests managed in the order received.
  - Common interconnection requirements.
- Maintain safety of the system.
- Maintain reliability of the system.
- Ensure appropriate cost responsibility for interconnection costs.
- Comply with appropriate regulations

Small Generator Studies

- FERC Order 2006 applies to generators of less than 20 MW. Created 3 study processes for utility to review the proposed interconnection of a generation facility:
  - ≤ 10 kW inverter process.
  - ≤ 2 MW fast track process - customer's facility meets codes, standards and certification requirements of attachments 3 and 4 to Order 2006.
  - Standard Study process - all others, or used if entity does not pass the inverter or fact track process.
- Oregon State Process applies to generators that are up to 10MW and are either connecting to the distribution system or will be a qualified facility connecting to transmission.
  - Four Tier process based upon the size of the project.

Process

1. Application/validation
2. Scoping meeting
3. Determination of study path for the project
    1. Fast Track / Tier 1 / Tier 2/ Tier 3 Study
    2. Feasibility study (optional)
    3. System impact study
    4. Facility study
4. Interconnection agreement
5. Engineering, procurement and construction

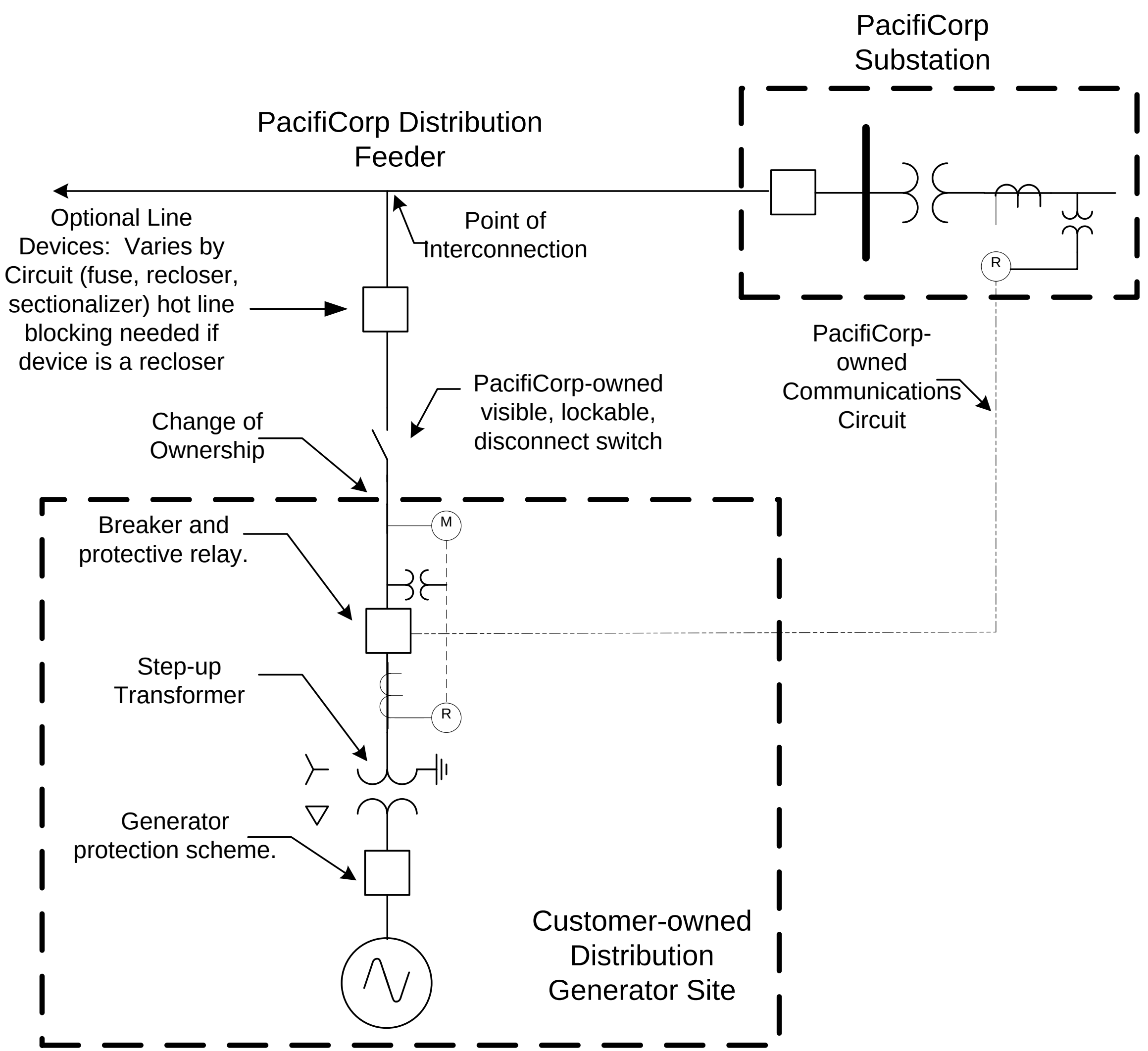
Timing – Steps 1-4 can require up to one year or more

Step 5 can requires 6 to 24 months

Small Generator – Estimate of Timeframe and Costs

Task	Purpose of Study	Business Days	Estimated Deposits*
Application submitted - review for completeness, hold scoping meeting.		20 - 35 Business days	$1,000
Tier 1 / Tier 2/ Tier 3/ Fast Track / Feasibility /System Impact / Facilities Studies - input provided from engineers regarding project, report prepared and submitted to customer.	Various engineering reviews and development of the scope of work required for the project.	55 - 100 Business days depending on the number and depth of the required studies	Varies depending on the jurisdiction of the project and the number of studies required. Can be between $1000 - $25,000
Interconnection Agreement		10 - 35 Business days	Unknown at this time
Construction - construction of facilities PacifiCorp deems necessary to interconnect generator.		Unknown at this time	Unknown at this time
Total timeframe and estimated deposits		**225 - 355 Business days**	**$27,000 - $42,000**

Typical Distribution Interconnection



Cost Responsibility

- Customer pay actual study costs, regardless of requested deposits.
  - Upon completion of the study, account is reconciled and a refund or invoice is compiled.
- Distribution interconnections pay all costs of modifications required for interconnection and delivery.
- QFs pay all costs of modifications required for interconnection and delivery.
- Transmission interconnections pay all costs of modifications, but receive transmission credits for network upgrades.

Setting Expectations

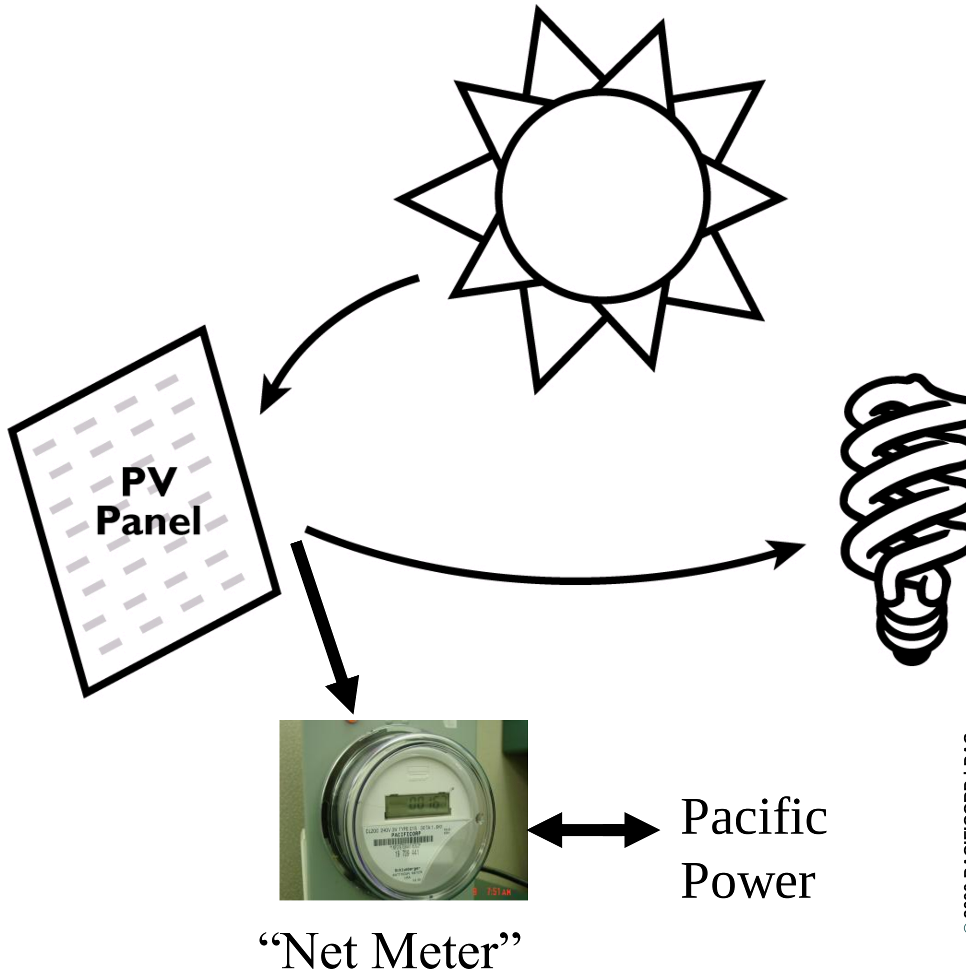
- Interconnection study process <u>can</u> require up to a year
- Construction begins <u>after</u> interconnection agreements are signed and can require one to two years to complete
- Interconnection customers should contact transmission services for interconnection timelines <u>prior to committing to power purchase agreement</u> delivery dates

Customer Options to Shorten Timelines

- Skip the feasibility study
- Execute engineering and procurement agreements to advance design time and procurement of materials.
- Customer to build company-owned facilities (to our standards with our approved contractors) – customer then assumes schedule risk
- Customer to procure long lead materials required by the project, such as breakers and metering CTs and PTs
- Return agreements, deposits and technical data promptly

Net Metering of Customer Generation

- Eliminates need for a customer-owned energy storage system.
- Reduces cost of customer's system.
- Tracks electricity provided by the utility as well as electricity sent to the utility system.



Net Metering – Oregon

- Residential customers – not more than 25 kW.
- Commercial customers – not more than 2,000 kW.
- Level 1, 2 & 3 – Levels based on size and series of qualifying conditions.
- OR Schedule 135 & OR Statute 860-039.
- See Eric Anderson for details

Contacts

- Distribution & Small Interconnections (below 20MW)
  - ____________________
  - ________________@pacificorp.com
  - (877) 722-5001 x _____ or (503) 813-_____
- Transmission Interconnections (above 20MW)
  - Tom Fishback
  - tom.fishback@pacificorp.com
  - (877) 722-5001 x 6102 or (503) 813-6102
- Power Purchase Agreements
  - Bruce Griswold
  - bruce.griswold@pacificorp.com
  - (877) 722-5001 x 5218 or (503) 813-5218
- Net Metering
  - Eric Anderson
  - eric.anderson@pacificorp.com
  - (877) 722-5001 x 6730 or (503) 813-6730

References

- PacifiCorp’s Transmission Services Webpage
  - http://www.pacificorp.com/Article/Article71371.html
- Small Generator Interconnection Request Application Form
  - http://www.pacificorp.com/File/File71374.pdf
- OASIS Webpage
  - http://www.oasis.pacificorp.com/oasis/ppw/main.htmlx
  - Current GI Queue
    - http://www.oasis.pacificorp.com/oasis/ppw/lgia/pacificorplgiaq.htm
- PacifiCorp FERC Electric Tariff, Seventh Revised Volume No. 11, Pro Forma Open Access Transmission Tariff (OATT)
  - http://www.pacificorp.com/File/File43326.pdf
- PacifiCorp Net Metering
  - http://www.pacificpower.net/Article/Article39589.html

Questions?