PCLLRW Behind The Meter Generation (BtMG)
Objectives

- Review the PCLLRW tool with Behind The Meter Generation (BtMG) reporting
Behind the Meter Generation (BtMG)

- Customer owned generation resources that meet the customer’s needs without drawing energy from the grid (solar, distributed gen, batteries…etc.)

- Excess energy is then sold to the grid
  - The Public Utility Regulatory Policies Act of 1978 (PURPA)
    - required public utilities to purchase any power produced
      - A qualifying facility is a co-gen or renewable below 80 MW
      - In RTOs, a utility is exempt from purchase obligations for any facility above 20 MW
Today PJM has limited visibility into the operation of non-wholesale Distributed Energy Resources (DERs).

**DERs in the Wholesale Market**

Aggregated DERs brought to market participate as generation or Demand Response

- Energy, Capacity or Ancillary Service markets

**DERs not in the Wholesale Market**

- General locational awareness of some non-market DERs but not operation of
- Additional DERs not in wholesale market
Visibility helps **measurement and forecasting** in Operations, Markets, and Planning

- **Operations:** Communicates real-time performance of injections or withdrawals from the grid
- **Markets:** Enhances regional least-cost dispatch solutions for the wholesale market
- **Planning:** Improves efficiency of long-term transmission expansion planning
Sept. 2013: Behind-the-meter unit mitigates transmission constraint
• Roughly 95% of all DERs are PV systems

• Intermittent resources, particularly when clustered, can lead to stability issues for voltage and frequency

• High Intermittent resource penetration also creates new shorter, steeper ramps during the operating day as intermittent penetration levels increase and central station plants will need to move up and down quickly to address
Figure 1: Feeder readings on a clear day with no PV connected.
Figure 2: Feeder readings on a clear day with 1.9 MW of PV connected.
Figure 3: Feeder readings on a cloudy day with 1.9 MW of PV connected.
Impact of Increasing Wind and Solar Penetration

- The BES can be impacted due to the **variability** and **uncertainty** of wind and solar resources
  - Proper operational planning is required to address these issues
- Minute by minute
  - Additional generation is required to provide regulation
- Intra-hour
  - Conventional generators must adjust unit output
- Day Ahead
  - Forecast errors could result in over/under scheduling of generation
As part of PJM’s ongoing initiatives to better model BtMG resources for improved operational control

- PJLLRW dfaxes now have BtMG/solar resources posted where available
- Based on data reported to PJM
  - Historical not real-time output values
  - Can be used to potentially mitigate operational issues
PJM Manual 13

The purpose is to provide advance notice to a Transmission Owner(s) (TOs) of the potential for manual load dump in their area(s).

PJM Dispatch provides the load distribution factor report to the impacted TO dispatcher(s) via PJM’s PCLLRW application and via e-mail.

PJM will include...

The Transmission Owner verified Behind the Meter Generation (BtMG) information in the Post Contingency Local Load Relief Warning (“PCLLRW”) tool or other as applicable.

PJM dispatch will NOT instruct the TO to schedule BtMG, other than for existing Non-Retail BtMG provisions. This information is provided for awareness only, unless for existing Non-Retail BtMG provisions.
On the main page there is a button to access the BtMG Data.
Behind-the-Meter page

Information includes:
- Equipment Name
- Transmission Zone
- Municipality status
- Plant Capacity
- Closest Substation
- State and County Location

Select the arrow in the “Details” column for each Generator to get more information.
<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Time-to-start information (hrs.)</th>
<th>Run status (Normal, Must run)</th>
<th>Utility Name</th>
<th>Transmission or Distribution Owner name and contact information</th>
<th>Geographic Coordinates</th>
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Load Shed Plan display

If a PCLLRW has BtMG data associated with it, the information will be located at the bottom of the Load Shed Plan.

All BtMG data can be accessed at any time with this link.
Questions?

PJM Client Management & Services
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The Member Community is PJM’s self-service portal for members to search for answers to their questions or to track and/or open cases with Client Management & Services