DR Hub Update

Demand Response Subcommittee
Andrea Yeaton
September 25, 2018
Release Schedule/Known bugs in Train

• **October 2018 Release**
  Train – Thursday, September 13th - **Completed**
  Prod – Tuesday, October 16th

• **Known bugs in Train, fix scheduled for week of Sept. 24, 2018**
  – WPL can be calculated when Completed is checked and Product = CP DR
  – WPL Calculation Report timestamp is in GMT instead of EPT
  – Meter Data tab: Upload Meter Data “Calculate Winter Peak Load “ checkbox does not calculate the WPL for any locations in the meter data file
New Location fields:

- Business Segment: “Multiple Dwelling Unit” added to dropdown
- Registration Input section new field: Max Load (kW) – Optional Field
  - CSP’s best estimate of annual peak load
    - Examples:
      » Summer billed demand from EDC bill
      » Engineering estimate when coming up with curtailment strategy
    - Please don’t use estimate from PLC because sometimes the PLCs are low for customers that typically peak shave
– Generator Attributes Section

• Support for multiple generators (10 max), if more than 10, list largest first and on last one combine the rest.

• New fields – Required
  – Non-Retail BTMG – Required, dropdown (Yes/No), Generator typically located in municipal electric system or electric cooperative that is used to serve municipal or cooperative load. Generator is used to serve multiple retail electricity customers with use of distribution system.
  – Backup Generator Only – Required, dropdown (Yes/No), Generator is only for emergency backup to maintain electricity when disconnected from the grid or for PJM Demand Response.

• New fields - Optional
  – Nameplate (kW) – Generator’s full capability
  – Note (500 character limit)
Batteries

– Battery Attributes - New Section
  • Required
    – Max Output (kW) – max amount to be used for Demand Response
  • Optional
    – Battery Capacity (kW 1C) – discharge current will discharge the entire battery in 1 hour
    – Vintage – the year the battery was manufactured
    – Chemistry
      » Lithium-Ion, Lithium-Air, Lithium-Metal, Lithium-Sulfur, Lead Acid, Zinc-Ion, Sodium-Ion, Sodium-Metal Halide, Magnesium-Ion, Magnesium-Lithium Hybrid, Zinc-Manganese Oxide, Vanadium-Redox Flow, Zinc-Polyiodide Flow, Organic Aqueous Flow
    – Type
      » Electric Vehicle, PV system, Stand alone
    – Note (500 character limit)
Automated Winter Peak Load (WPL) Calculation

- Winter Peak Load Calculation
  - PJM is automating the Winter Peak Load calculation for Capacity Performance and Base registrations based on meter data uploaded by CSP
    - The CSP will no longer enter the WPL value on the registration
  - CSP uploads the meter data for the 5 Winter Peak Load days for DY-2
  - When all meter data is available for a Load Management registration’s location, WPL calculation field is automatically updated at any of the following times:
    - Meter data is uploaded from the Registration (CBL Test Section)
    - Calculate Winter Peak Load button is clicked at top of registration detail page
    - Meter data is uploaded from the Meter Data tab and “Calculate Winter Peak Load” is checked
    - A new job runs at 1 pm and 8 pm each day to evaluate if enough data is available to calculate WPL
Automated Winter Peak Load Calculation

• If meter data does not exist for DY-2, contact PJM.
• New “DY” field on Location section of registration shows which meter data was used to calculate WPL (DY-2, DY-1, Manual)
• WPL Calculation Report will show meter data used and WPL calculation, visible to CSP and EDC
• For Web Services, new endpoint to calculate the WPL
• WPL field on the Location is still editable by CSP, but does not copy to registrations
  – Will be used for economic registrations if eligible for bonus payment
Automated Winter Peak Load Calculation

- Timeframes when WPL will be automatically calculated
  - Load Management registrations with Product = Capacity Performance
    » “Completed” checkbox has not been checked and status is New, Denied, Withdrawn, Pending or Confirmed
    » “DY” is “2” (DY-2 data used) or blank (WPL has never been calculated)
  - Load Management registrations with Product = Base
    » Delivery Year has not started
      » Status is New, Denied, Withdrawn, Pending or Confirmed
      » “DY” is “2” (DY-2 data used) or blank (WPL has never been calculated)
    » After Delivery Year has started
      » WPL will only be calculated if “DY” is blank (WPL has never been calculated)
• **Web Services**
  – XSD [Release Notes](#)
  – New XSD
  – New [Command Line Interface](#)
  – **Summary of Changes:**
    • Using the new XSD is required. Previous XSD is unsupported and may no longer work.
    • Added new endpoint to calculate Winter Peak Load after meter data has been uploaded (by registration id)
    • Added support for new fields on the Location (see Location field details above)
• Fixed Bugs
  – EDC Registration Review: 2 Day warning email to *small* EDCs incorrectly stated the registration would auto-confirm in 2 days instead of auto-denied
  – Base registration incorrectly requiring a Winter Peak Load when updating the Summer Managed Load
• DR Hub Screenshots and Examples
### New Business Segment

#### Location Information
- **Location**: gen and battery examples
- **EDC Account Number**: 4475653543
- **Location ID**: 64372
- **Address Line 1**: 10 Yeaton Drive
- **City**: Andrea
- **State**: PA

#### Business Segment
- **Business Segment**: Multiple Dwelling Unit

#### Options
- Cancel
- Save
- Register
- Copy
New Location Functionality

New Field: Max Load (kW)

Load Reduction Method

Manufacturing (kW) 0.000 0.000
Lighting (kW) 35.000 35.000
HVAC (kW) 40.000 40.000
Water Heaters (kW) 0.000 0.000
Refrigeration (kW) 0.000 0.000

Number of Generators 0 1

Plug Load (kW) 100.000

Batteries (kWh) 500.00

Click icon to open Generator Section
Pop-up for Generator Information
### Generator Attributes

<table>
<thead>
<tr>
<th>Actions</th>
<th>ID</th>
<th>Name</th>
<th>Non-Retail BTMG</th>
<th>Max Output (kW)</th>
<th>Nameplate (kW)</th>
<th>Backup Generator Only</th>
<th>Generator Type</th>
<th>Fuel Type</th>
<th>Vintage</th>
<th>Retrofit Year</th>
<th>Permit Status</th>
<th>Permit Type</th>
<th>EIA 860 Plant Code</th>
<th>EIA 860 Generator ID</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>41628</td>
<td>Gen 1</td>
<td>false</td>
<td>750</td>
<td>900</td>
<td>false</td>
<td>Internal Combustion Engine</td>
<td>Diesel</td>
<td>2011</td>
<td></td>
<td>Available</td>
<td>Non Emergency</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>41629</td>
<td>Gen 2</td>
<td>false</td>
<td>250</td>
<td>1000</td>
<td>false</td>
<td>Internal Combustion Engine</td>
<td>Diesel</td>
<td>1999</td>
<td>2017</td>
<td>Available</td>
<td>Non Emergency</td>
<td></td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

### Battery Attributes

<table>
<thead>
<tr>
<th>Actions</th>
<th>ID</th>
<th>Max Output (kW)</th>
<th>Battery Capacity (kW HR)</th>
<th>Vintage</th>
<th>Chemistry</th>
<th>Type</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>543</td>
<td>500</td>
<td>20</td>
<td>2015</td>
<td>Lithium-Ion</td>
<td>Stand Alone</td>
<td>No</td>
</tr>
</tbody>
</table>
Creating a Generator and Battery for a Location via XML

XML Snippet used to Create a New Location with a single Generator and Battery.

```xml
<!-- Battery and Generator Reduction Info Fields/Values are not required when adding a battery or generator(s) -->
<!-- <reductionInfo>
   <reductionType>BATTERIES</reductionType>
   <reductionValue>0</reductionValue>
</reductionInfo>
<!-- <reductionInfo>
   <reductionType>GENERATOR</reductionType>
   <reductionValue>0</reductionValue>
</reductionInfo> -->

<!-- <generatorCount>0</generatorCount> --> <!-- Count not required when adding generator(s) -->
<generatorInfo>
   <name>Big Gen 1</name>
   <nonRetailBtag>true</nonRetailBtag>
   <maxOutput>500</maxOutput>
   <nameplate>550</nameplate>
   <backupGeneratorOnly>true</backupGeneratorOnly>
   <generatorType>Internal Combustion Engine</generatorType>
   <fuelType>Diesel</fuelType>
   <vintage>2012</vintage>
   <retrofitYear>2018</retrofitYear>
   <permitStatus AVAILABLE</permitStatus>
   <permitType>EMERGENCY ONLY</permitType>
   <ea860PlantCode>3456789</ea860PlantCode>
   <ea860GeneratorId>33433</ea860GeneratorId>
   <note>Test Generator with a note.</note>
</generatorInfo>

<!-- Sample Battery -->
<batteryInfo>
   <maxOutput>100</maxOutput>
   <capacity>125</capacity>
   <vintage>2017</vintage>
   <chemistry>LITHIUM_AIR</chemistry>
   <type>STAND ALONE</type>
   <note>Test Battery with a note.</note>
</batteryInfo>
```
Resulting XML download of the new Location. Note the ID, fields, Count and Reduction Values.

```xml
<reductionInfo>
    <reductionType>BATTERIES</reductionType>
    <reductionValue>100</reductionValue>
</reductionInfo>

<reductionInfo>
    <reductionType>GENERATOR</reductionType>
    <reductionValue>500</reductionValue>
</reductionInfo>

<generatorInfo>
    <generatorCount>1</generatorCount>
    <id>41630</id>
    <name>Big Gen 4</name>
    <nonRetailBtmg>true</nonRetailBtmg>
    <maxOutput>500</maxOutput>
    <nameplate>550</nameplate>
    <backupGeneratorOnly>true</backupGeneratorOnly>
    <generatorType>Internal Combustion Engine</generatorType>
    <fuelType>Diesel</fuelType>
    <vintage>2012</vintage>
    <retrofitYear>2018</retrofitYear>
    <permitStatus>AVAILABLE</permitStatus>
    <permitType>EMERGENCY ONLY</permitType>
    <eia860PlantCode>3456789</eia860PlantCode>
    <eia860GeneratorId>33449</eia860GeneratorId>
    <note>Test Generator with a note.</note>
</generatorInfo>

<batteryInfo>
    <id>544</id>
    <maxOutput>100</maxOutput>
    <capacity>125</capacity>
    <vintage>2017</vintage>
    <chemistry>LITHIUM AIR</chemistry>
    <type>STAND ALONE</type>
    <note>Test Battery with a note.</note>
</batteryInfo>
```
### New “DY” field

- **“2”** = DY – 2 meter data used
- **“1”** = DY – 1 meter data used
- **“M”** = value was calculated outside of DY-2 or DY-1 data
Click icon to get Winter Peak Load Calculation report
| Date     | HE1  | HE2  | HE3  | HE4  | HE5  | HE6  | HE7  | HE8  | HE9  | HE10 | HE11 | HE12 | HE13 | HE14 | HE15 | HE16 | HE17 | HE18 | HE19 | HE20 | Avg 21 | Peak 21 |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|
| 1/1/2020 | 45   | 47   | 44   | 43   | 44   | 46   | 45   | 47   | 46   | 47   | 47   | 48   | 45   | 45   | 43   | 43   | 42   | 44   | 45   | 47    | 50      |
| 1/2/2020 | 35   | 33   | 34   | 35   | 35   | 34   | 33   | 34   | 34   | 33   | 33   | 35   | 35   | 34   | 34   | 33   | 33   | 34   | 34   | 34    | 34      |
| 1/3/2020 | 47   | 45   | 45   | 43   | 43   | 41   | 45   | 47   | 47   | 47   | 47   | 47   | 47   | 47   | 47   | 47   | 47   | 47   | 47   | 47    | 47      |

**Calculated Winter Peak Load for Location**

- **5 Dates used and Included/Excluded**
- **Averages**