System Operations Report

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MC Webinar
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Average Load Forecast Error

November 2021
Hourly Error: 1.39%  Peak Error: 1.37%

All Hours
Winter
Summer
25-month Average
25-month Average

0.0%
0.5%
1.0%
1.5%
2.0%
2.5%
3.0%

Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov
PJM's BAAL performance has exceeded the goal of 99% for each month in 2021.
• Three spinning events
• One reserve sharing events with the Northeast Power Coordinating Council (NPCC)
• The following Emergency Procedures occurred:
  – 17 Post-Contingency Local Load Relief Warnings (PCLLRW)
  – 1 Geomagnetic Disturbance Warning
  – 3 Shortage Cases Approved
• 3 Shortage Cases Approved

• The approved Shortage Cases occurred on:
  – 11/12/21:
    – 1 Shortage Case for 17:25
    – 1 Shortage Case for 17:30
    – 1 Shortage Case for 17:35
    – Two large units tripped headed into the peak
The 13-month average forced outage rate is 4.26% or 8,509 MW. The 13-month average total outage rate is 16.70% or 33,358 MW.
Note: “Unplanned Outages” include tripped facilities. One tripping event may involve multiple facilities.
PCLLRW Count Vs. Peak Load – Daily Values For 3 Months

- **09/01/21**
- **10/01/21**
- **11/01/21**

**MW (Thousands)**

- RTO Peak Load
- PCLLRW Count

PCLLRW Count Vs. Peak Load - Daily Values For 3 Months.
Spin Response

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Start Time</th>
<th>End Time</th>
<th>Duration</th>
<th>Region</th>
<th>Tier 1 Estimate (MW)</th>
<th>Tier 1 Response (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11/12/21</td>
<td>17:25:18</td>
<td>17:37:23</td>
<td>00:12:05</td>
<td>RTO</td>
<td>510.0</td>
<td>606.7</td>
</tr>
<tr>
<td>2</td>
<td>11/30/21</td>
<td>09:40:24</td>
<td>09:49:57</td>
<td>00:09:33</td>
<td>RTO</td>
<td>899.2</td>
<td>678.3</td>
</tr>
<tr>
<td>3</td>
<td>11/30/21</td>
<td>12:56:47</td>
<td>13:05:13</td>
<td>00:08:26</td>
<td>RTO</td>
<td>948.6</td>
<td>452.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Start Time</th>
<th>End Time</th>
<th>Duration</th>
<th>Region</th>
<th>Tier 2 Assigned (MW)</th>
<th>Tier 2 Response (MW)</th>
<th>Tier 2 Penalty (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11/12/21</td>
<td>17:25:18</td>
<td>17:37:23</td>
<td>00:12:05</td>
<td>RTO</td>
<td>890.7</td>
<td>714.6</td>
<td>176.1</td>
</tr>
<tr>
<td>2</td>
<td>11/30/21</td>
<td>09:40:24</td>
<td>09:49:57</td>
<td>00:09:33</td>
<td>RTO</td>
<td>958.2</td>
<td>958.2</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>11/30/21</td>
<td>12:56:47</td>
<td>13:05:13</td>
<td>00:08:26</td>
<td>RTO</td>
<td>856.4</td>
<td>856.4</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Tier 2 Response is equal to Tier 2 Assigned for events with duration less than ten minutes*
Appendix
Goal Measurement: Balancing Authority ACE Limit (BAAL)

- The purpose of the new BAAL standard is to maintain interconnection frequency within a predefined frequency profile under all conditions (normal and abnormal), to prevent frequency-related instability, unplanned tripping of load or generation, or uncontrolled separation or cascading outages that adversely impact the reliability of the interconnection. NERC requires each balancing authority demonstrate real-time monitoring of ACE and interconnection frequency against associated limits and shall balance its resources and demands in real time so that its Reporting ACE does not exceed the BAAL (BAAL\textsubscript{LOW} or BAAL\textsubscript{HIGH}) for a continuous time period greater than 30 minutes for each event.

- PJM directly measures the total number of BAAL excursions in minutes compared to the total number of minutes within a month. PJM has set a target value for this performance goal at 99% on a daily and monthly basis. In addition, current NERC rules limit the recovery period to no more than 30 minutes for a single event.
The 13-month average forced outage rate is 4.26% or 8,509 MW.
The 13-month average total outage rate is 16.70% or 33,358 MW.
PCLLRW Count Vs. Peak Load – Daily Values For 13 Months
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System Operations Report

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