System Operations Report

Hong Chen
Senior Lead Engineer, Markets Coordination
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Average Load Forecast Error

December 2020
Hourly Error: 2.13%  Peak Error: 2.28%
Daily Peak Forecast Error (December)

- Error at Peak Hour
- Weekend / Holiday

Over-forecasting
Under-forecasting
PJM’s BAAL performance has exceeded the goal of 99% for each month in 2020.
• One spinning event in the month of December
• Three reserve sharing events with the Northeast Power Coordinating Council (NPCC)
• The following Emergency Procedures occurred in December:
  – 18 Post-Contingency Local Load Relief Warnings (PCLLWRW)
  – 1 Conservative Operation
  – 1 Shortage Case Approved
The 13-month average forced outage rate is 3.37% or 6,655 MW. The 13-month average total outage rate is 13.67% or 26,974 MW.
2019-2020 Planned Emergency, Unplanned, and Total Outages by Ticket

Note: “Unplanned Outages” include tripped facilities. One tripping event may involve multiple facilities.
## Spin Response

*Tier 2 Response is equal to Tier 2 Assigned for events with duration less than ten minutes*

<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>12/16/20</td>
<td>11:38:17</td>
<td>11:48:39</td>
<td>00:10:22</td>
<td>MAD</td>
<td>268.4</td>
<td>196.9</td>
</tr>
</tbody>
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<th>Event</th>
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<th>Duration</th>
<th>Region</th>
<th>Tier 2 Assigned (MW)</th>
<th>Tier 2 Response (MW)</th>
<th>Tier 2 Penalty (MW)</th>
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<td>MAD</td>
<td>527.6</td>
<td>413.2</td>
<td>114.4</td>
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</tbody>
</table>
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 ($\text{BAAL}_{\text{LOW}}$ or $\text{BAAL}_{\text{HIGH}}$) 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 3.37% or 6,655 MW.
The 13-month average total outage rate is 13.67% or 26,974 MW.
PCLLRW Count Vs. Peak Load – Daily Values For 13 Months