System Operations Report

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MC Webinar
January 24, 2022
Average Load Forecast Error

December 2021
Hourly Error: 1.70%  Peak Error: 1.62%
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 2021.
• One spinning event
• Two reserve sharing events with the Northeast Power Coordinating Council (NPCC)
• The following Emergency Procedures occurred:
  – 5 Post-Contingency Local Load Relief Warnings (PCLLRW)
  – 2 High System Voltages
  – 3 Shortage Cases Approved
• 3 Shortage Cases Approved

• The approved Shortage Cases occurred on:
  – 12/07/21:
    – 1 Shortage Case for 17:30
    – Approaching evening peak load
  – 12/08/21:
    – 1 Shortage Case for 09:10
    – 1 Shortage Case for 09:15
    – Morning peak load came in higher than forecast, reduced generation, reduced interchange, and Synchronized Reserve event occurred during same time
The 13-month average forced outage rate is 4.34% or 8,684 MW. The 13-month average total outage rate is 15.83% or 31,646 MW.
Note: “Unplanned Outages” include tripped facilities. One tripping event may involve multiple facilities.
PCLLRW Count Vs. Peak Load – Daily Values For 3 Months

MW (Thousands)

PCLLRW Count

RTO Peak Load

10/01/21 11/01/21 12/01/21
*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>
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<tbody>
<tr>
<td>1</td>
<td>12/08/21</td>
<td>09:04:06</td>
<td>09:11:55</td>
<td>00:07:49</td>
<td>RTO</td>
<td>481.6</td>
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<th>Event</th>
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<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>
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<tbody>
<tr>
<td>1</td>
<td>12/08/21</td>
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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_{LOW} or BAAL_{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 4.34% or 8,684 MW. The 13-month average total outage rate is 15.83% or 31,646 MW.
PCLLRW Count Vs. Peak Load – Daily Values For 13 Months
PROTECT THE POWER GRID
THINK BEFORE YOU CLICK!

Be alert to malicious phishing emails.

Report suspicious email activity to PJM.
(610) 666-2244 / it_ops_ctr_shift@pjm.com