System Operations Report

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

June 2021
Hourly Error: 1.97%  Peak Error: 1.87%

Graph showing the average load forecast error from June 2019 to June 2021, distinguishing between All Hours, Peak Hours Only, Winter, Summer, 25-month Average, and 25-month Average.
Daily Peak Forecast Error (June)

- Over-forecasting
- Under-forecasting

Error at Peak Hour

Weekend / Holiday
PJM’s BAAL performance has exceeded the goal of 99% for each month in 2021.
• Two spinning events in the month of June
• Zero reserve sharing events with the Northeast Power Coordinating Council (NPCC)
• The following Emergency Procedures occurred in June:
  – 23 Post-Contingency Local Load Relief Warnings (PCLLRW)
  – 5 Hot Weather Alerts
  – 2 High System Voltages
  – 1 Shortage Case Approved
• 1 Shortage Case Approved

• The approved Shortage Case occurred on:
  – 06/02/21: Effective for 17:00-17:05 pricing interval (1)
    – During the peak load time, a large unit tripped and load became higher.
The 13-month average forced outage rate is 4.03% or 7,978 MW.
The 13-month average total outage rate is 14.74% or 29,223 MW.
2020-2021 Planned Emergency, Unplanned, and Total Outages by Ticket

Note: “Unplanned Outages” include tripped facilities. One tripping event may involve multiple facilities.
PCLLRW Count Vs. Peak Load – Daily Values For 3 Months

- RTO Peak Load
- PCLLRW Count

MW (Thousands)

04/01/21 05/01/21 06/01/21
### Tier 1 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>06/21/21</td>
<td>01:54:26</td>
<td>02:01:23</td>
<td>00:06:57</td>
<td>RTO</td>
<td>2340.8</td>
<td>1764.1</td>
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<tr>
<td>2</td>
<td>06/22/21</td>
<td>23:33:42</td>
<td>23:38:25</td>
<td>00:04:43</td>
<td>RTO</td>
<td>2277.0</td>
<td>1367.8</td>
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</tbody>
</table>

### Tier 2 Response

<table>
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<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>06/21/21</td>
<td>01:54:26</td>
<td>02:01:23</td>
<td>00:06:57</td>
<td>RTO</td>
<td>30.0</td>
<td>30.0</td>
<td>0.0</td>
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<tr>
<td>2</td>
<td>06/22/21</td>
<td>23:33:42</td>
<td>23:38:25</td>
<td>00:04:43</td>
<td>RTO</td>
<td>0.0</td>
<td>0.0</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_{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 4.03% or 7,978 MW.
The 13-month average total outage rate is 14.74% or 29,223 MW.
Presenter: Hong Chen, Hong.Chen@pjm.com

SME: David Kimmel, David.Kimmel@pjm.com

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Member Hotline
(610) 666 – 8980
(866) 400 – 8980
custsvc@pjm.com