System Operations Report

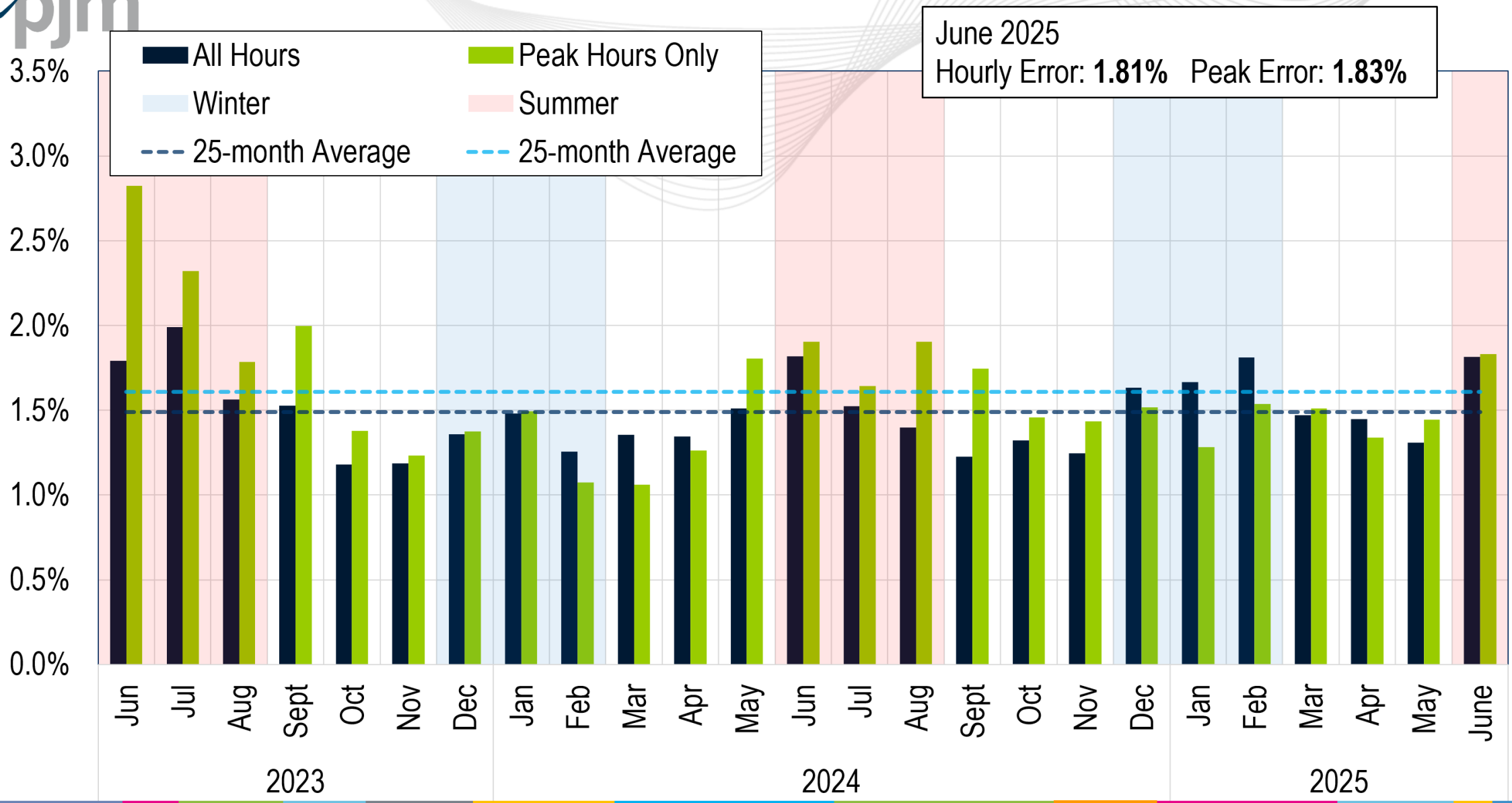
Marcus Smith, Lead Engineer – Markets Coordination

David Kimmel, Sr. Engineer II – Performance Compliance

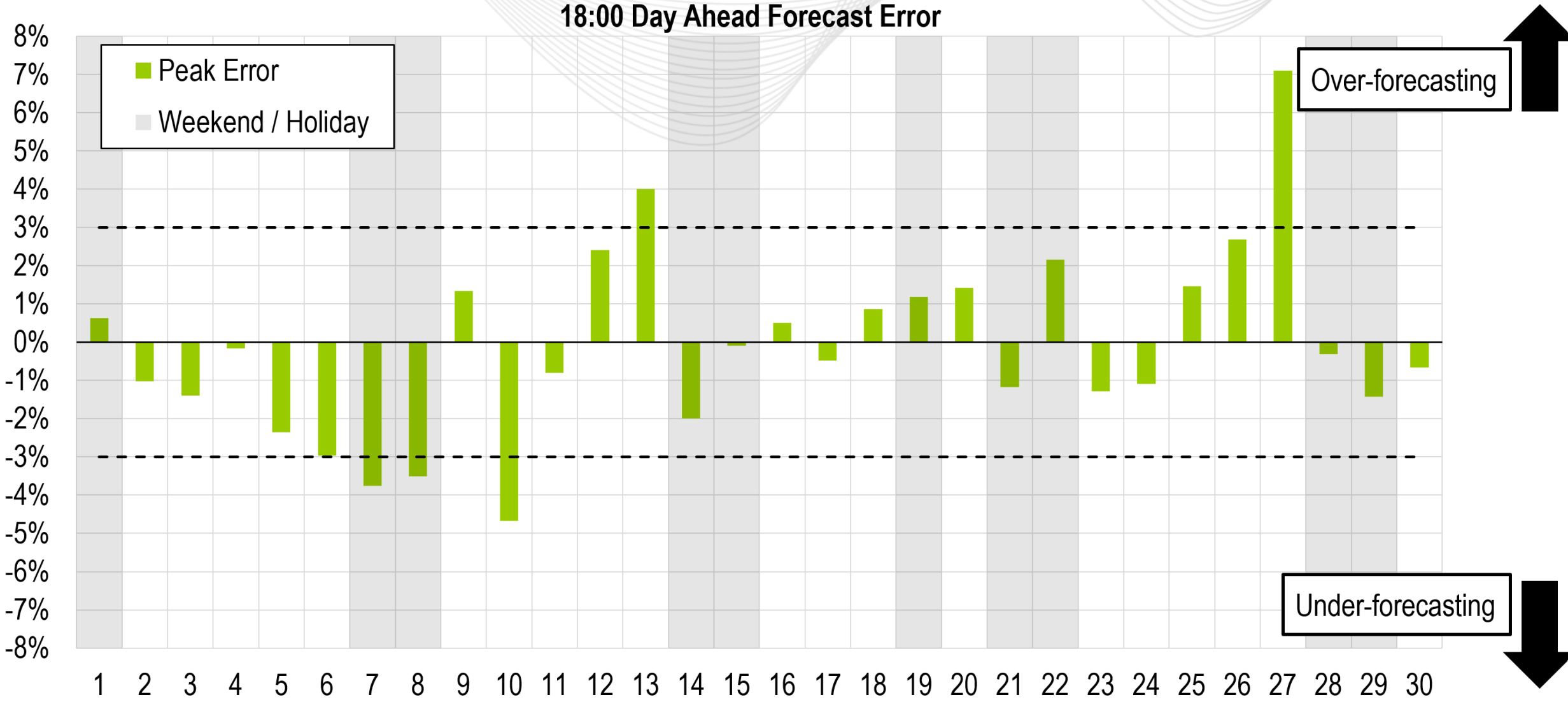
Operating Committee

July 10th, 2025

Average Load Forecast Error



Daily Peak Forecast Error (June)



Days Exceeding 3% Forecast Error at Peak Hour

Over-forecasting

June 13

Temperatures in the west came in 6-8°F cooler than forecast, leading to lower loads and over-forecasting

June 27

Big downward change in loads after heat wave with much cooler conditions, temperatures 3-12°F cooler than forecast, led to over-forecasting

Under-forecasting

June 7

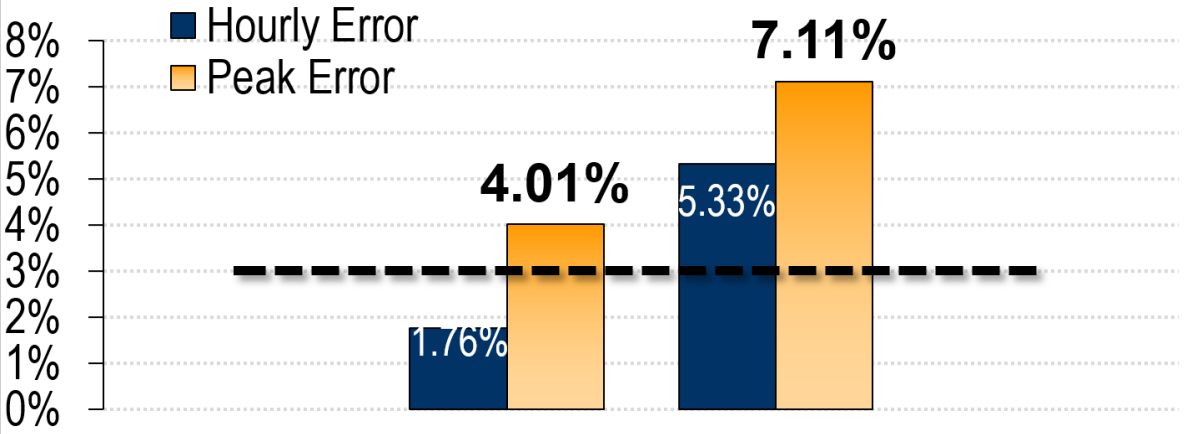
Temperatures came in 4-5°F warmer than forecast, leading to higher than expected loads

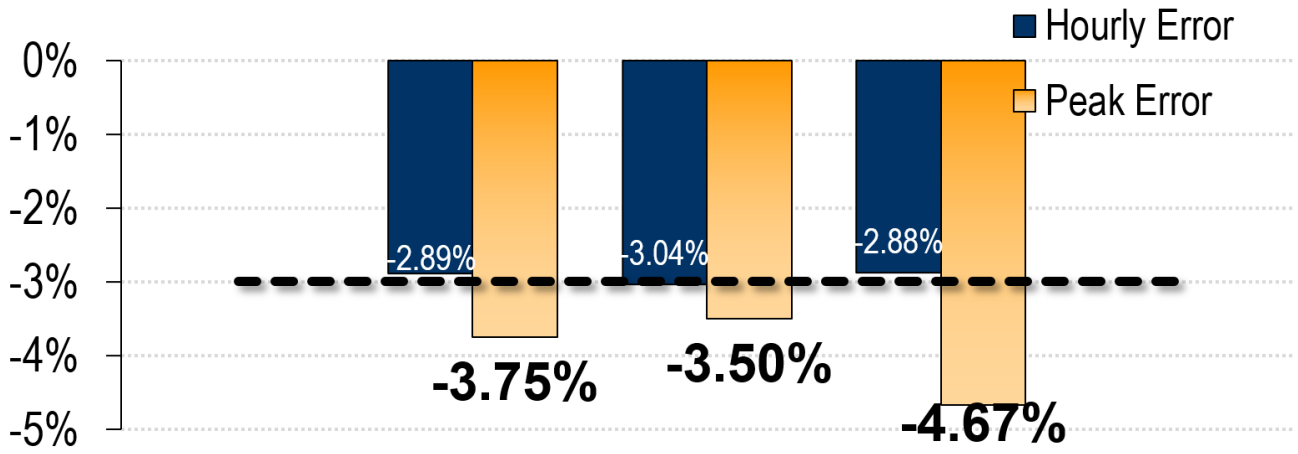
June 8

Warmer than forecast temperatures and previous days with warm and humid conditions led to higher load response

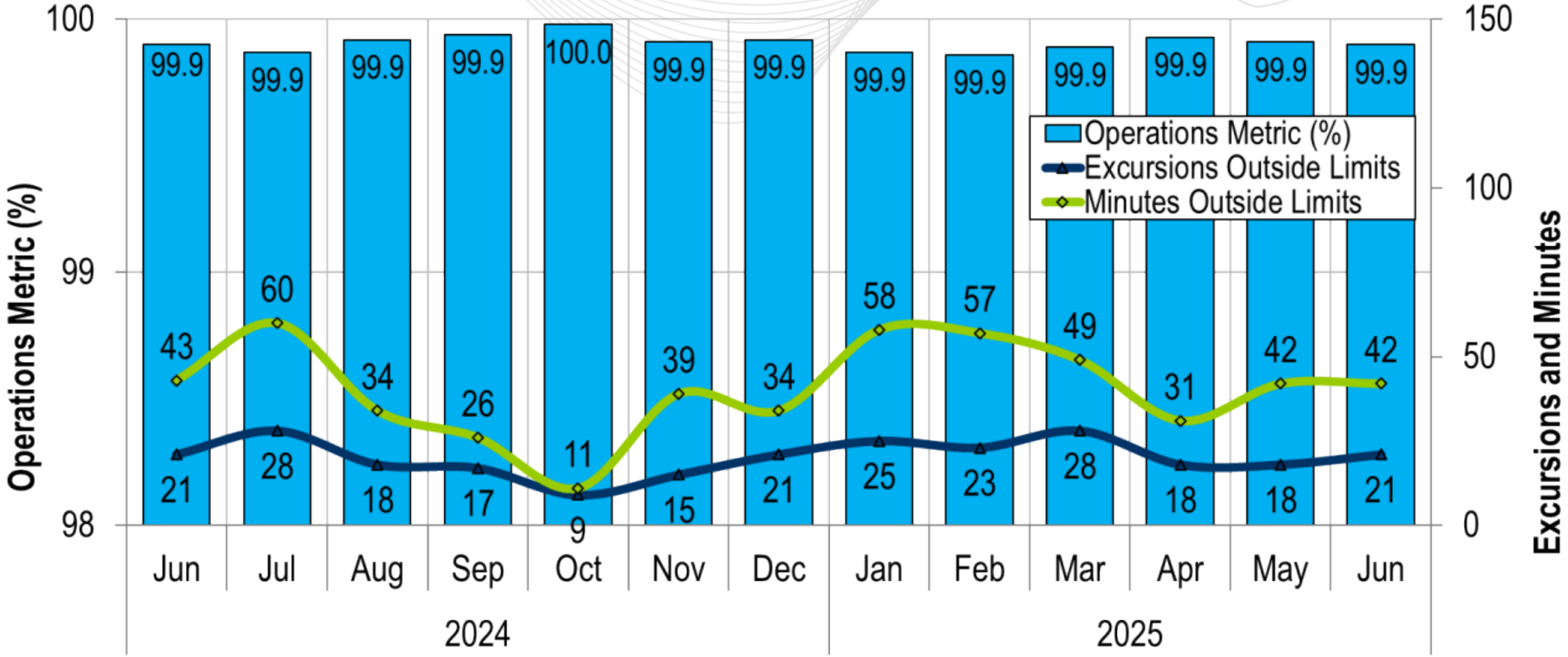
June 10

Temperatures came in 2-4°F warmer than forecast leading up to peak hour with high humidity. Led to higher than anticipated loads.





Monthly BAAL Performance Score



PJM's BAAL performance has exceeded the goal of 99% for each month in 2024 and 2025.

Operational Summary

- The following Emergency Procedures occurred:
  - 1 Spin Event
  - 4 Shared Reserve event
  - 3 NERC EEA Level 1
  - 3 Maximum Generation Emergency Alerts
  - 12 Pre-Emergency Load Management Reduction Actions
  - 1 High System Voltage Action
  - 2 Hot Weather Alerts
  - 3 Geomagnetic Disturbance Warning
  - 65 Post Contingency Local Load Relief Warnings

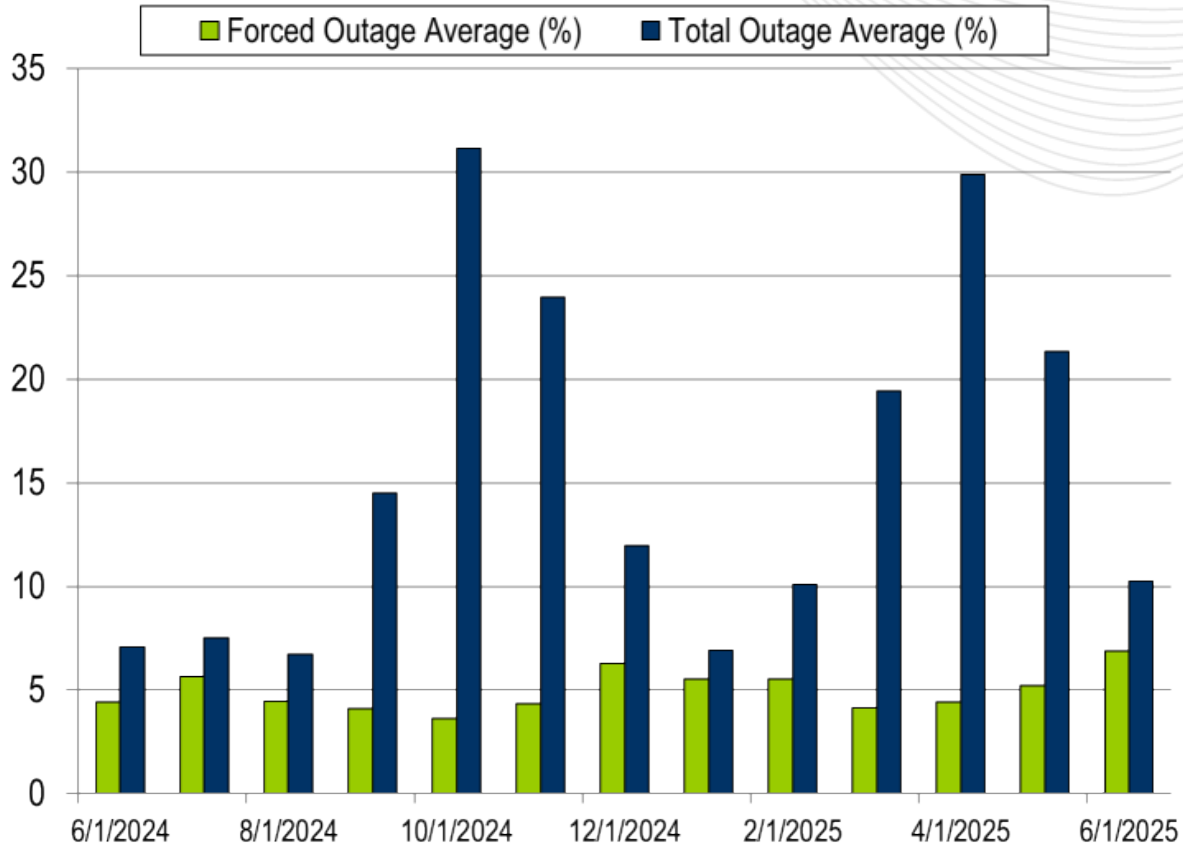
Shortage Case Approvals

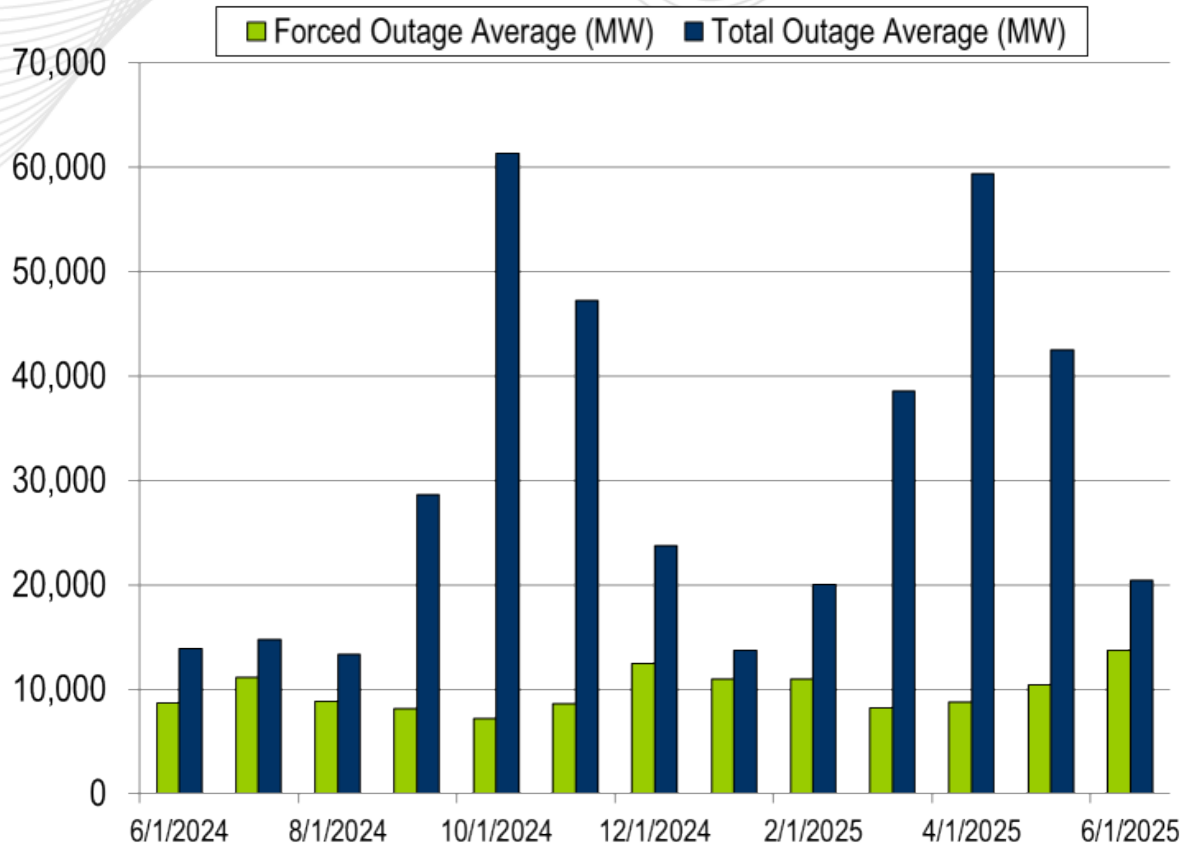
- 69 Shortage Cases Approved
- The approved Shortage Cases occurred on:
  - 06/22/2025:
    - 4 shortage cases approved
    - Factors: 100 percent spinning in PJM for low ACE, mainly due to system conditions with back-to-back ramps out while solar ramping off
  - 06/23/2025
    - 28 shortage cases approved
    - Factors: Mainly due to system capacity, maximum generation emergency/load management alert and an EEA1 were issued by PJM during this time

Shortage Case Approvals

- The approved Shortage Cases occurred on:
  - 06/24/2025
    - 33 shortage cases approved
    - Factors: Mainly due to system capacity, maximum generation emergency/load management alert and an EEA1 were issued by PJM during this time
  - 06/25/2025
    - 3 Shortage cases approved
    - Factors: Competing congestion
  - 06/30/2025
    - 1 shortage case approved
    - Factors: Low ACE, solar manually dispatched down for congestion, hydro generation moves, coupled with load coming in

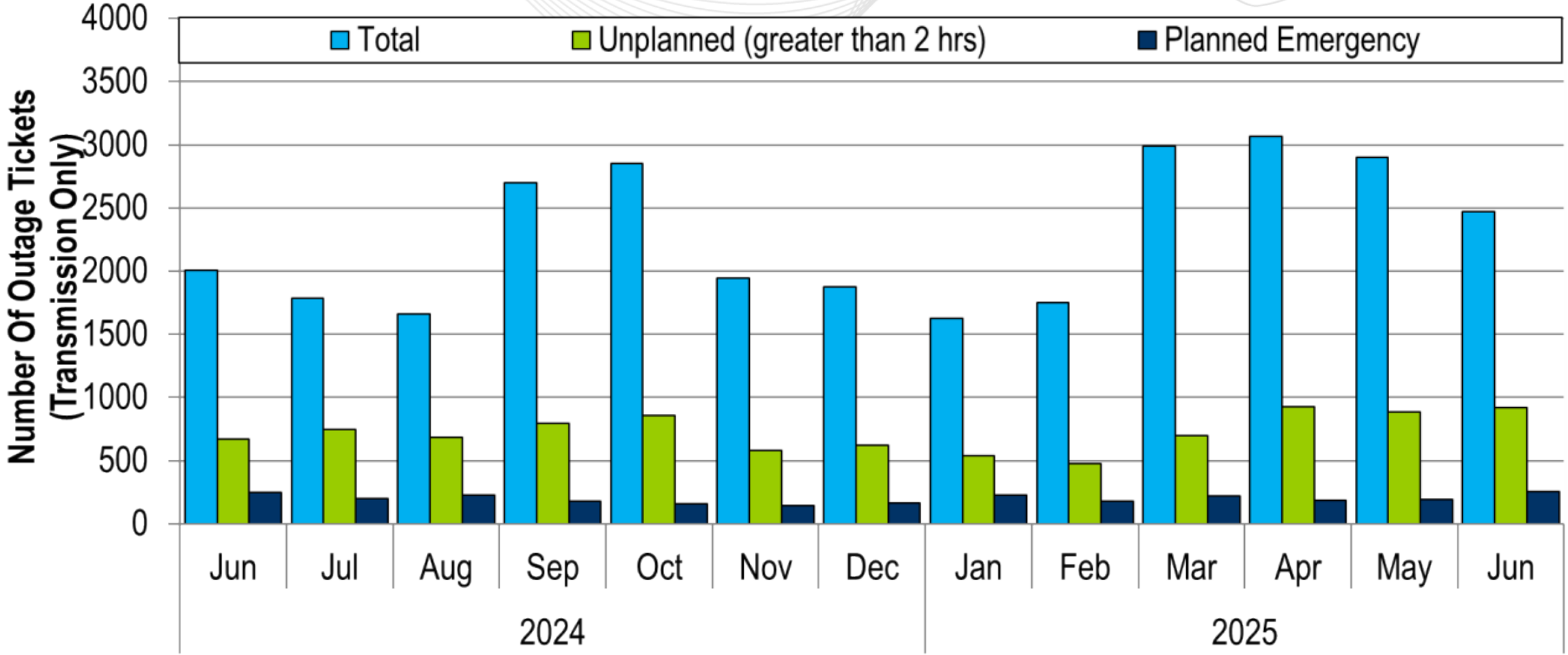
RTO Generation Outage Rate - Monthly





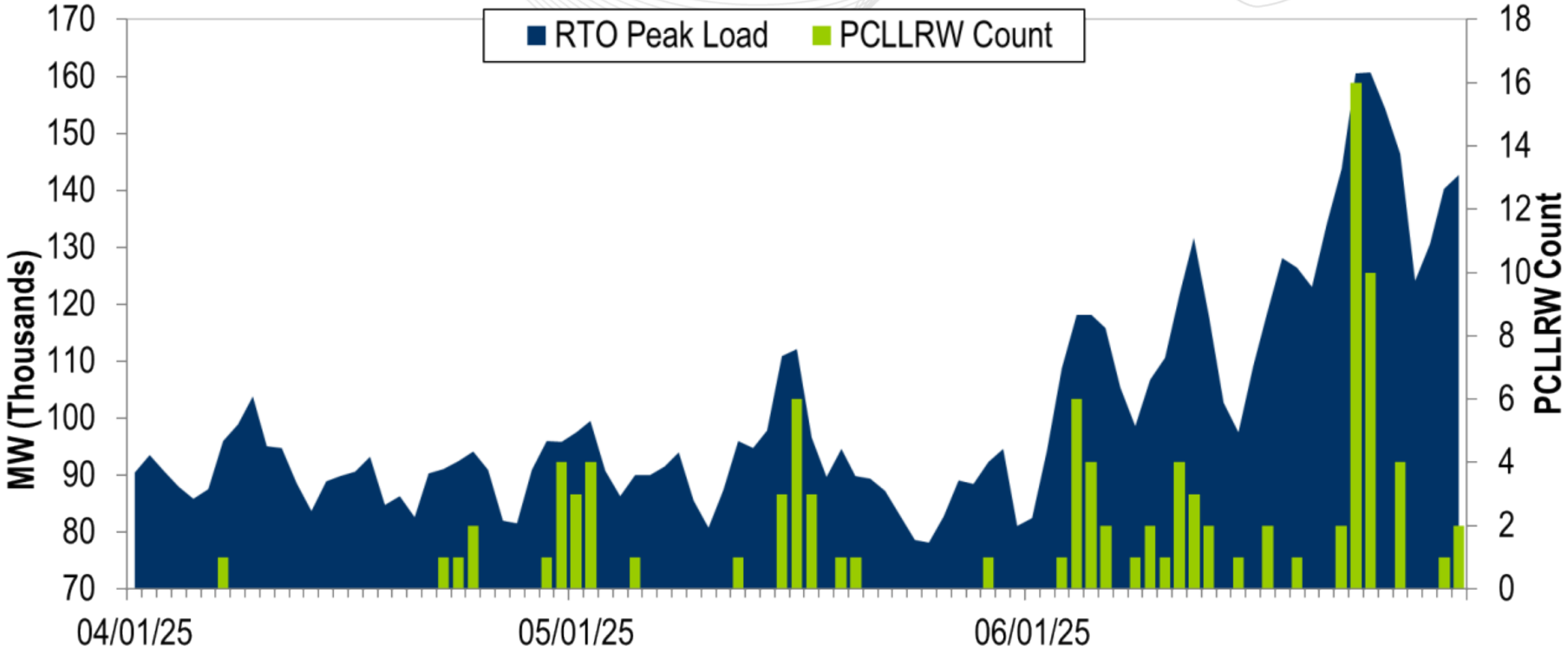
The 13-month average forced outage rate is 4.92% or 9,743 MW.
The 13-month average total outage rate is 15.87% or 31,427 MW.

2024-2025 Planned Emergency, Unplanned, and Total Outages by Ticket (Transmission Only)



Note: “Unplanned Outages" include tripped facilities. One tripping event may involve multiple facilities.

PCLLRW Count Vs. Peak Load – Daily Values For 3 Months



Spin Response

Event	1		
Date	06/22/25		
Start Time	19:37:05		
End Time	19:44:51		
Duration	00:07:46		
Region	RTO		
Resource Type	Gen	DR	Total
Assigned (MW)	1907	418	2325
Estimated Expected Response of Assigned Resources (MW)	1481	325	1806
Actual Response of Assigned Resources (MW)	1062	273	1335
Output Increase of Resources without Assignment (MW)	1468	0	1468
Percent Response To Assignment (%)	56%	65%	57%
Percent Response To Estimated Expected Response (%)	72%	84%	74%
Penalty (MW)	0	0	0

Event Counted Toward Qualifying Events	Qualifying Reason	Individual Percent Response To Assignment (%)	Average Percent Response To Assignment (%)
02/05/25 10:05:15	Duration ≥ 10 minutes	65.1%	65.1%
-	-	-	
-	-	-	

Contact

Load Forecast Report

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Appendix

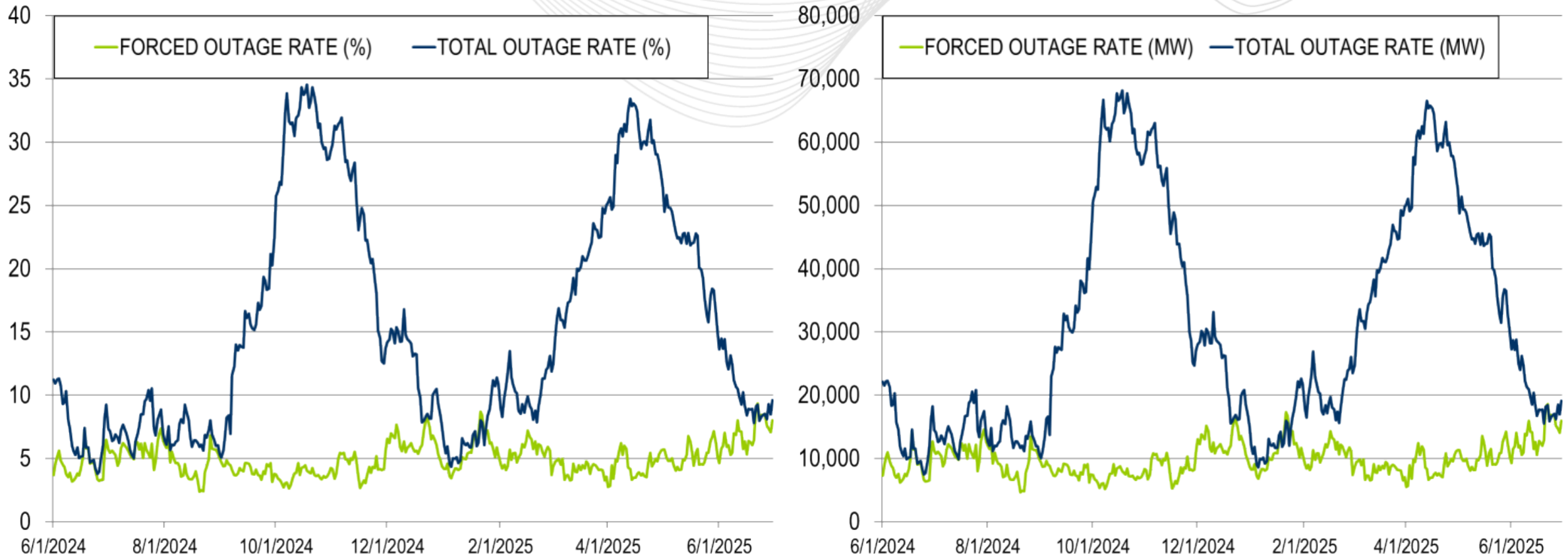
Balancing Authority ACE Limit - Performance Measure

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.

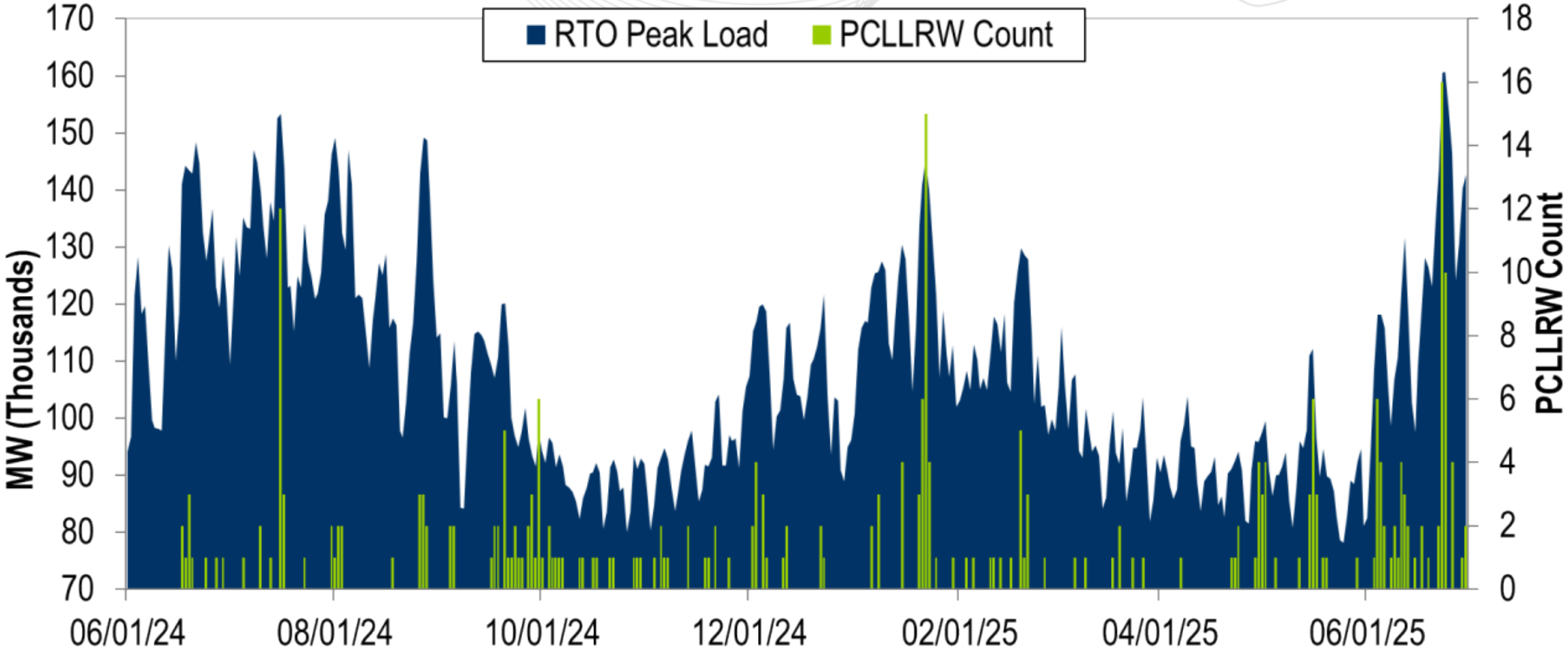
RTO Generation Outage Rate - Daily



The 13-month average forced outage rate is 4.92% or 9,743 MW.

The 13-month average total outage rate is 15.87% or 31,427 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