

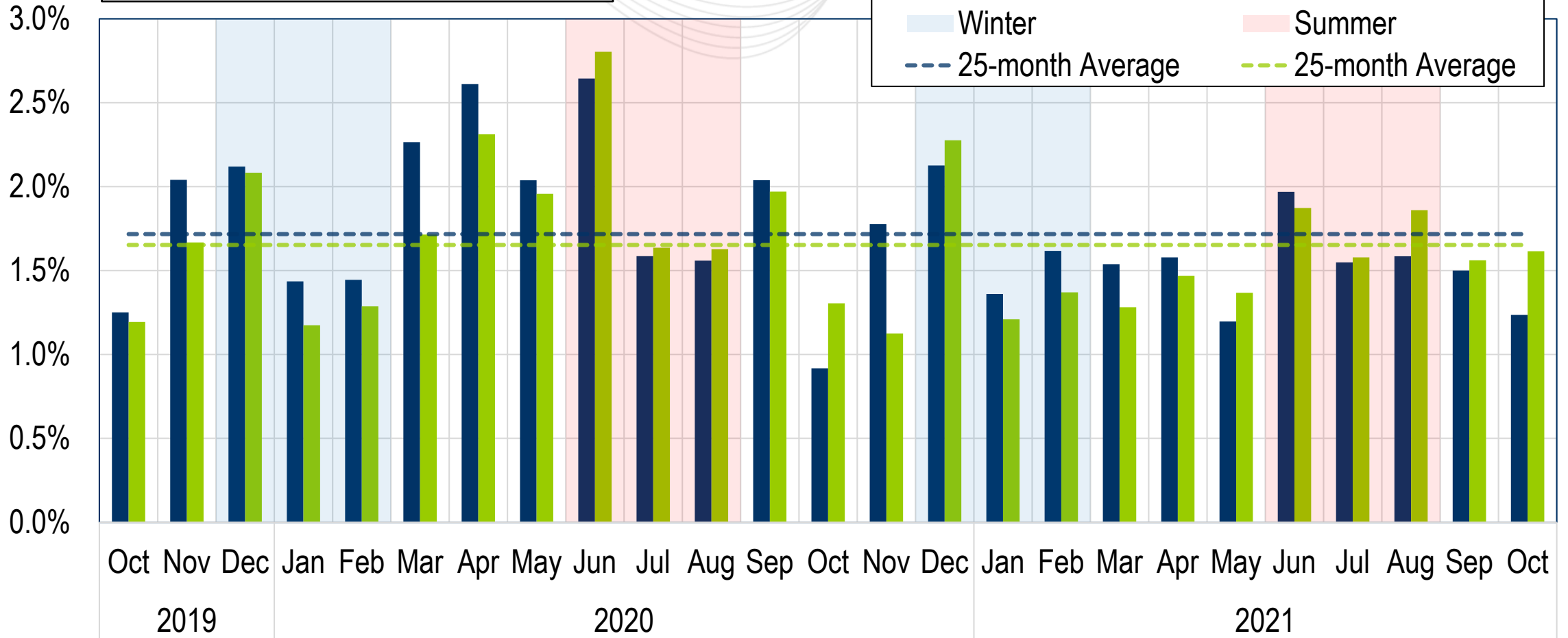


# System Operations Report

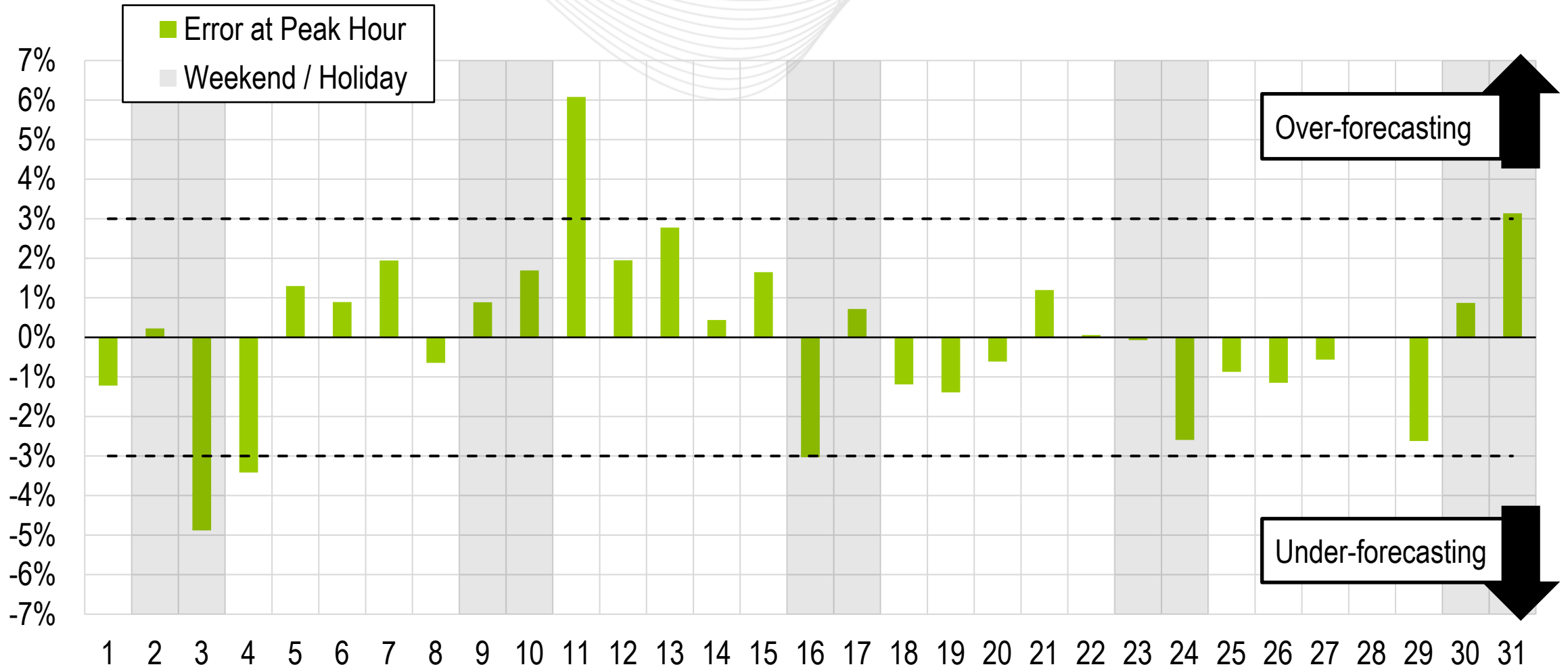
Hong Chen  
Senior Lead Engineer, Markets Coordination  
MC Webinar  
November 15, 2021

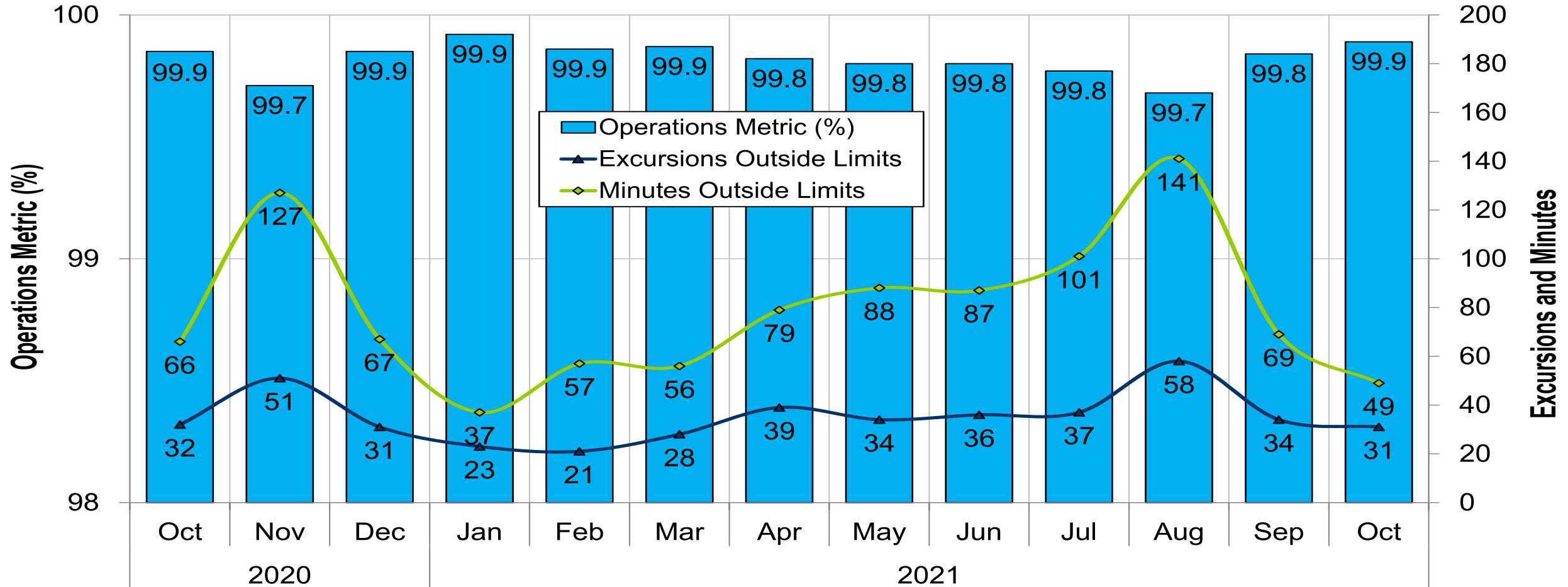
October 2021  
 Hourly Error: **1.24%** Peak Error: **1.62%**

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



# Daily Peak Forecast Error (October)

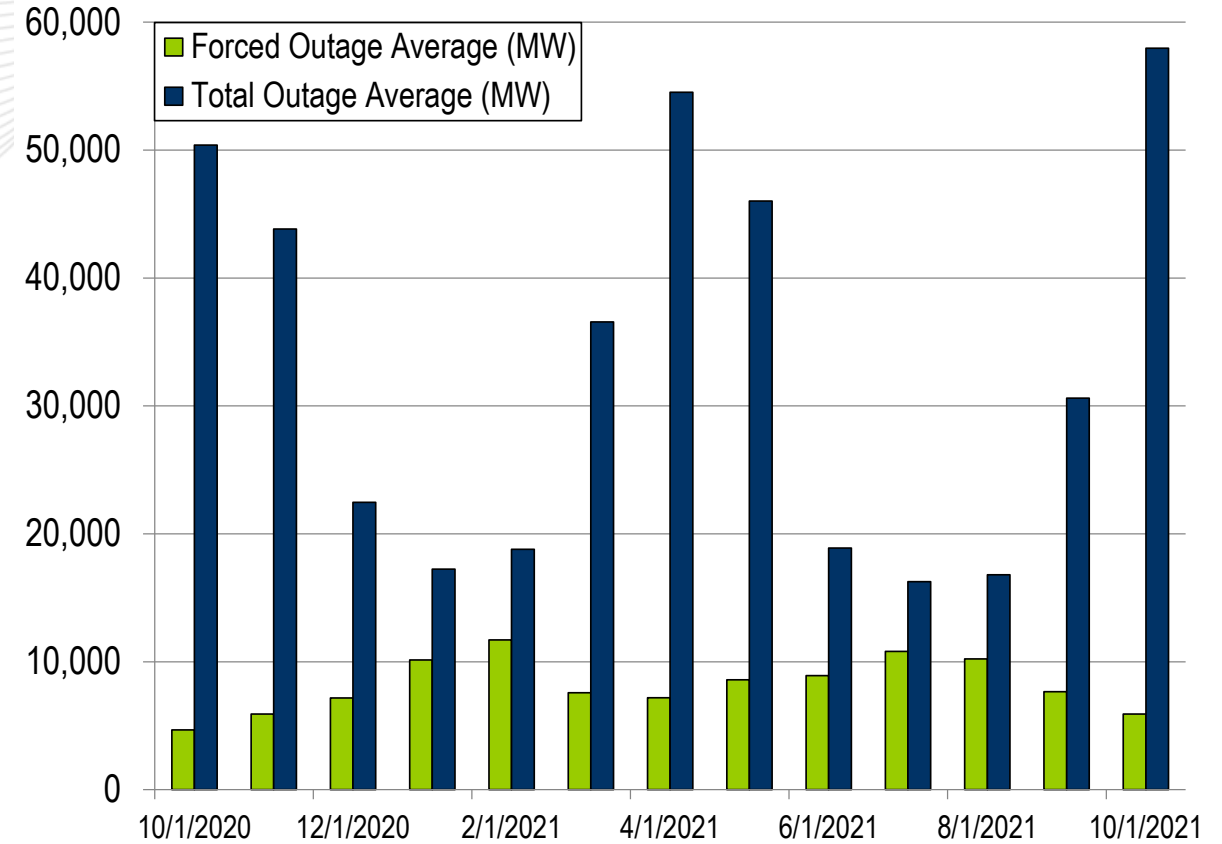
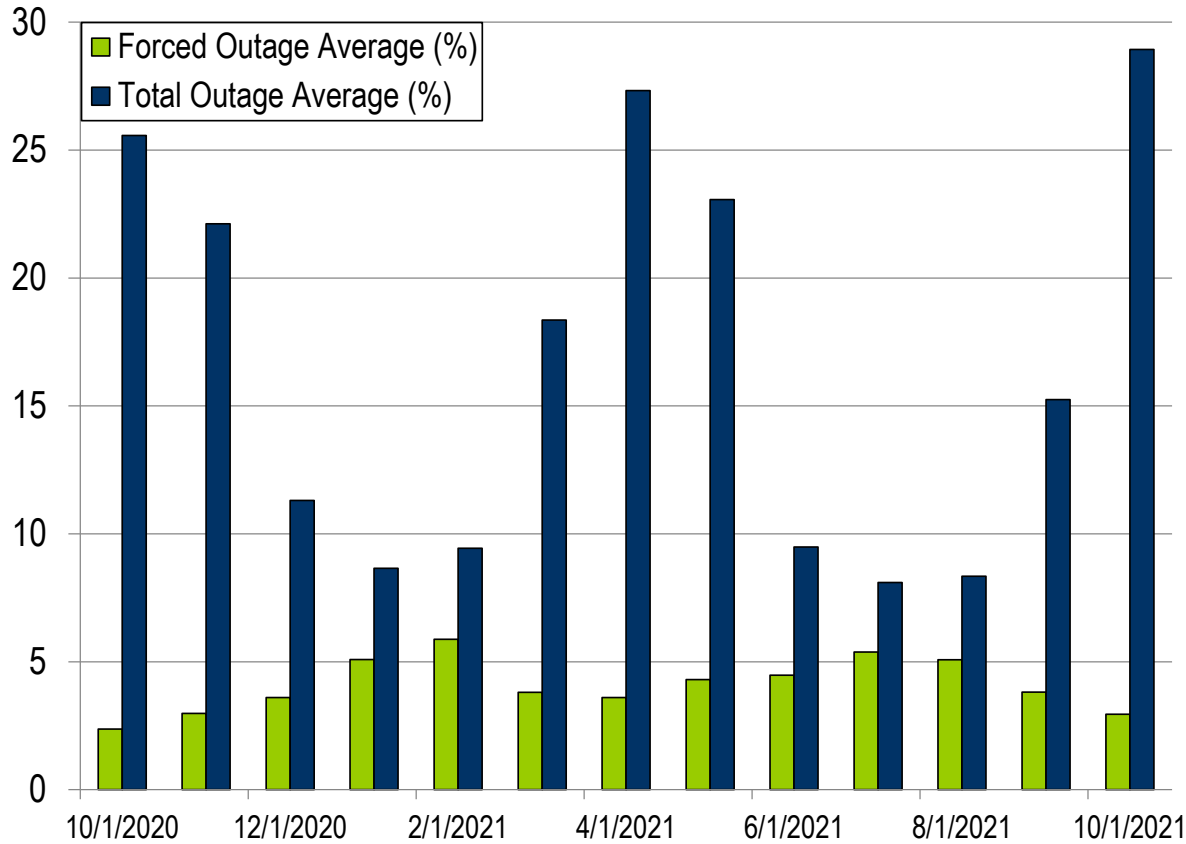




PJM's BAAL performance has exceeded the goal of 99% for each month in 2021.

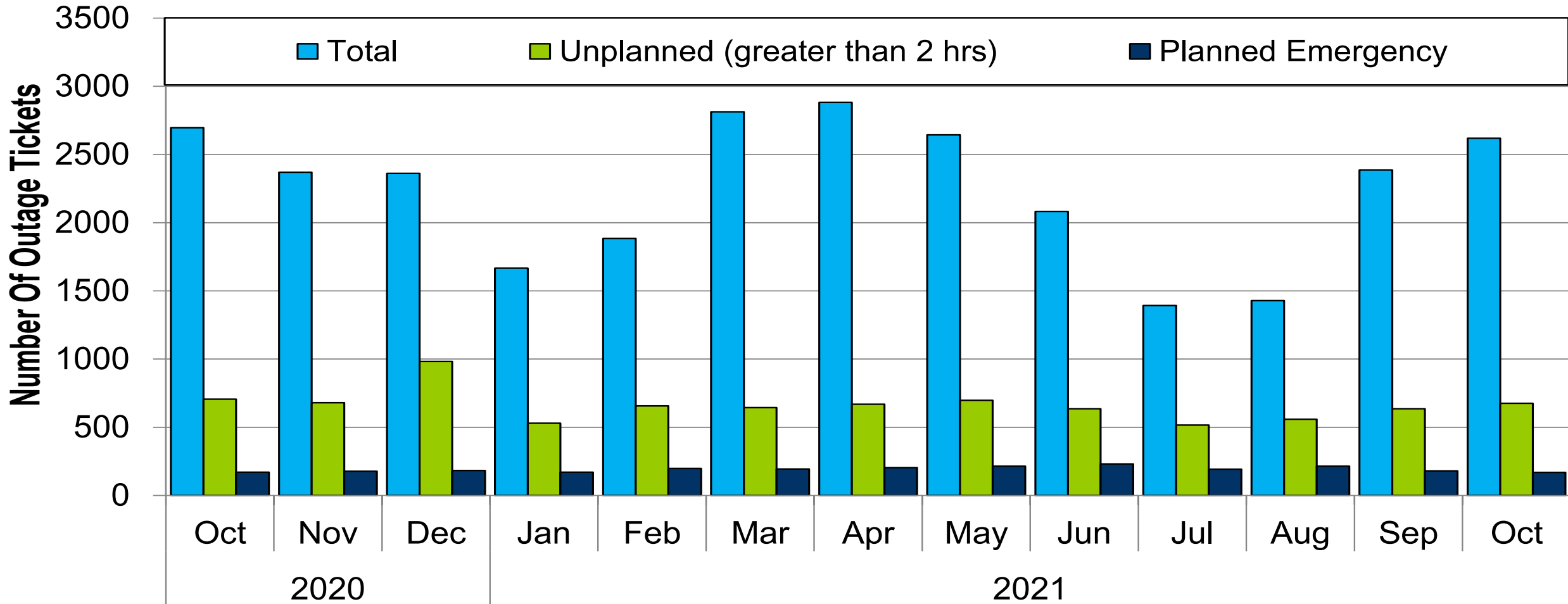
- Two spinning events
- Six reserve sharing events with the Northeast Power Coordinating Council (NPCC)
- The following Emergency Procedures occurred:
  - 11 Post-Contingency Local Load Relief Warnings (PCLLRW)
  - 5 High System Voltages
  - 2 Shortage Cases Approved

- 2 Shortage Cases Approved
- The approved Shortage Cases occurred on:
  - 10/28/21:
    - 1 Shortage Case for 18:40
    - 1 Shortage Case for 18:45
    - Load came in higher than anticipated headed into the peak



The 13-month average forced outage rate is 4.09% or 8,170 MW.  
 The 13-month average total outage rate is 16.45% or 33,176 MW.

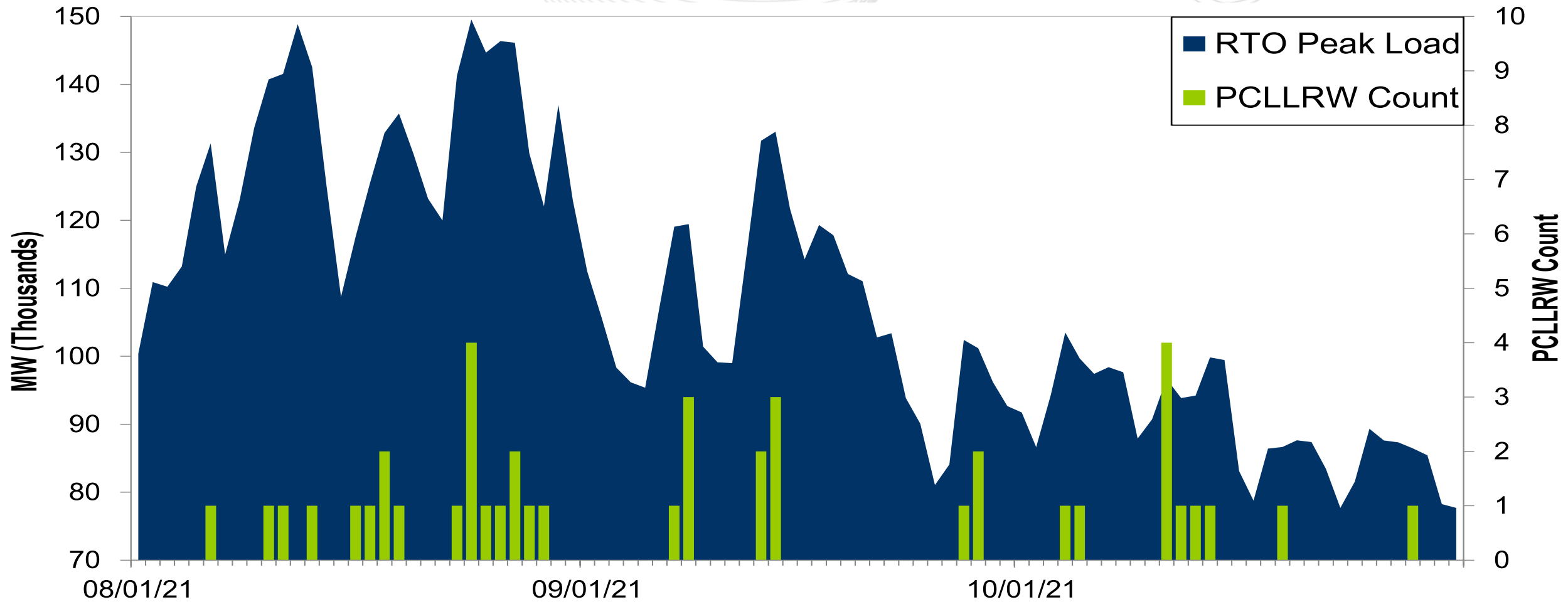
# 2020-2021 Planned Emergency, Unplanned, and Total Outages by Ticket



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



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



Event	Date	Start Time	End Time	Duration	Region	Tier 1 Estimate (MW)	Tier 1 Response (MW)
1	10/11/21	13:23:16	13:32:34	00:09:18	RTO	1215.9	577.8
2	10/16/21	05:30:25	05:38:04	00:07:39	RTO	1060.4	669.1

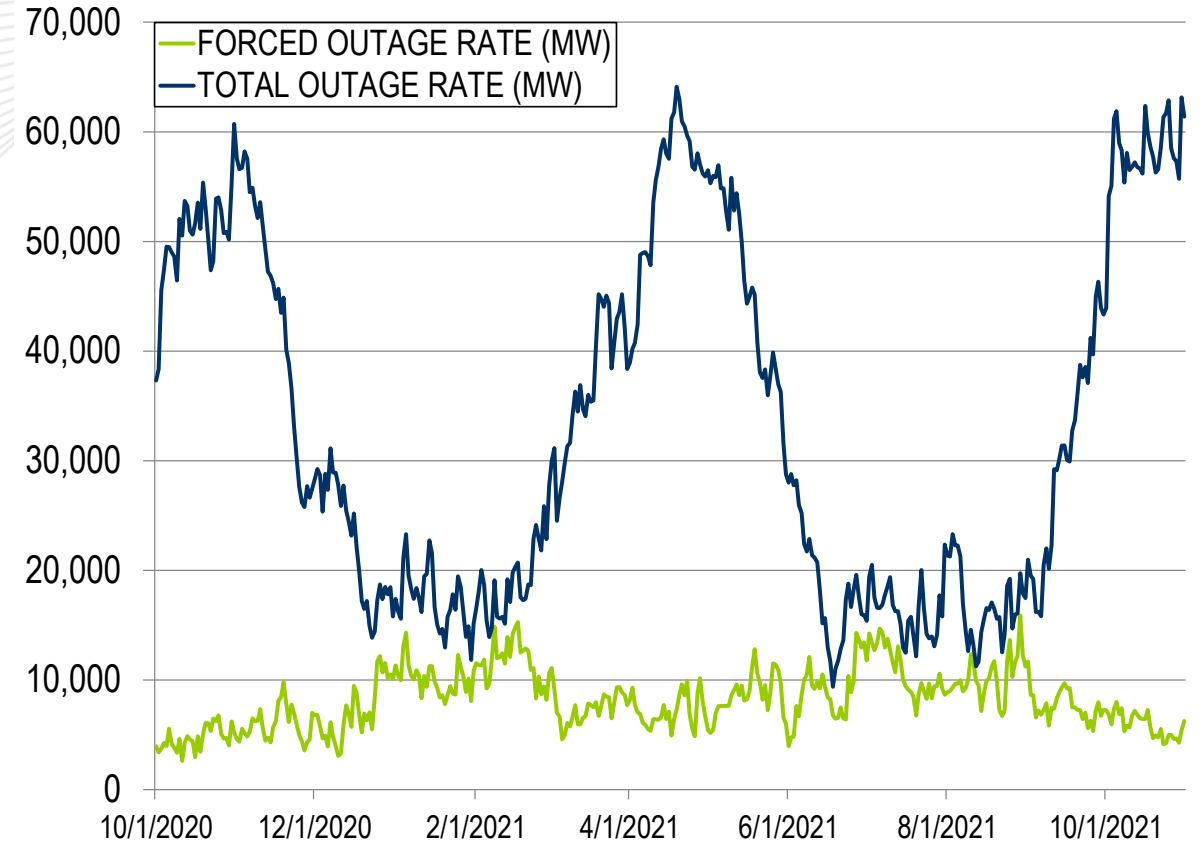
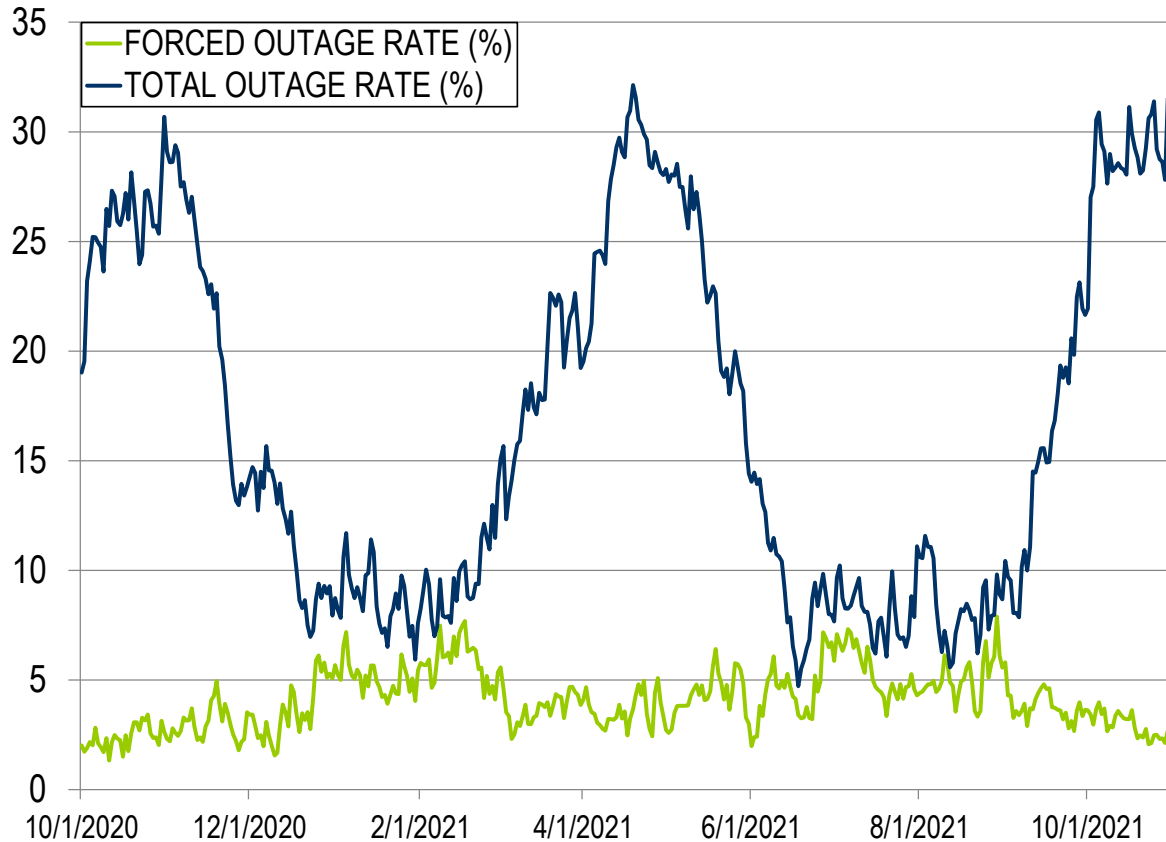
Event	Date	Start Time	End Time	Duration	Region	Tier 2 Assigned (MW)	Tier 2 Response (MW)	Tier 2 Penalty (MW)
1	10/11/21	13:23:16	13:32:34	00:09:18	RTO	893.7	893.7	0.0
2	10/16/21	05:30:25	05:38:04	00:07:39	RTO	852.7	852.7	0.0

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

# Appendix

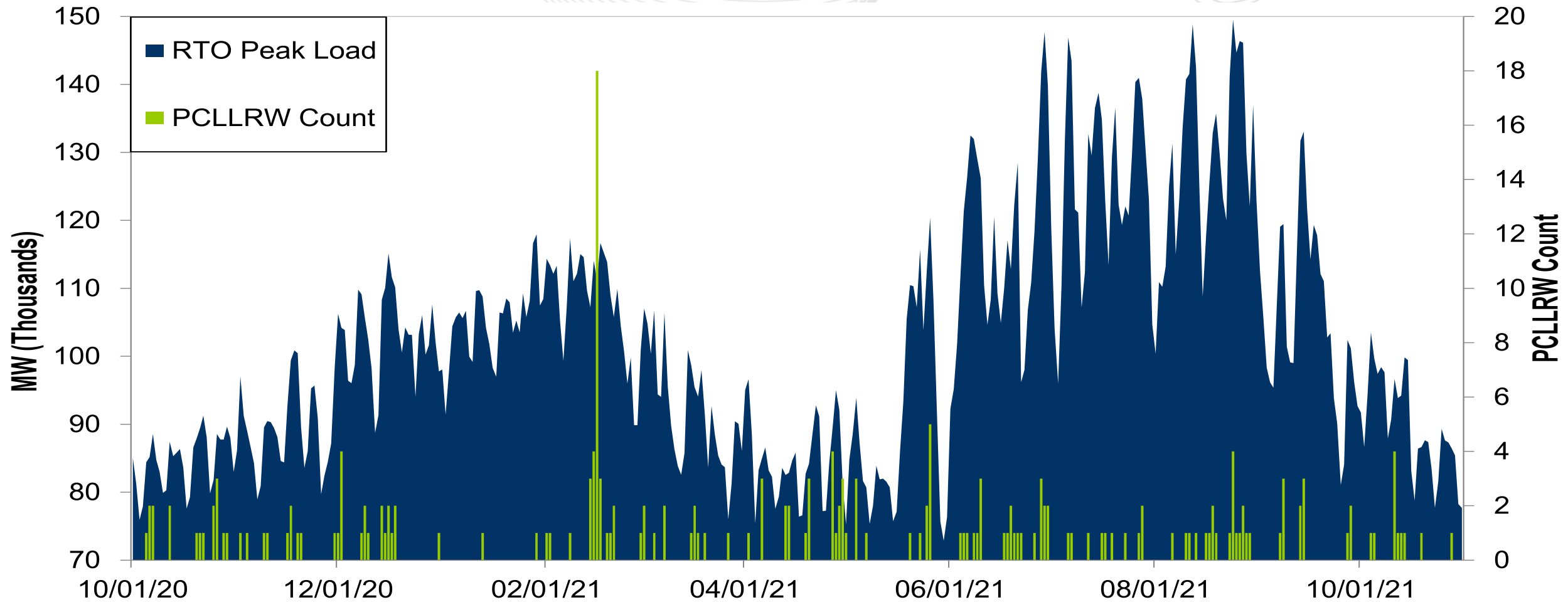
## Goal Measurement: Balancing Authority ACE Limit (BAAL)

- 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 4.09% or 8,170 MW.  
 The 13-month average total outage rate is 16.45% or 33,176 MW.

# PCLLRW Count Vs. Peak Load – Daily Values For 13 Months



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System Operations Report



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