



System Operations Report

Hong Chen

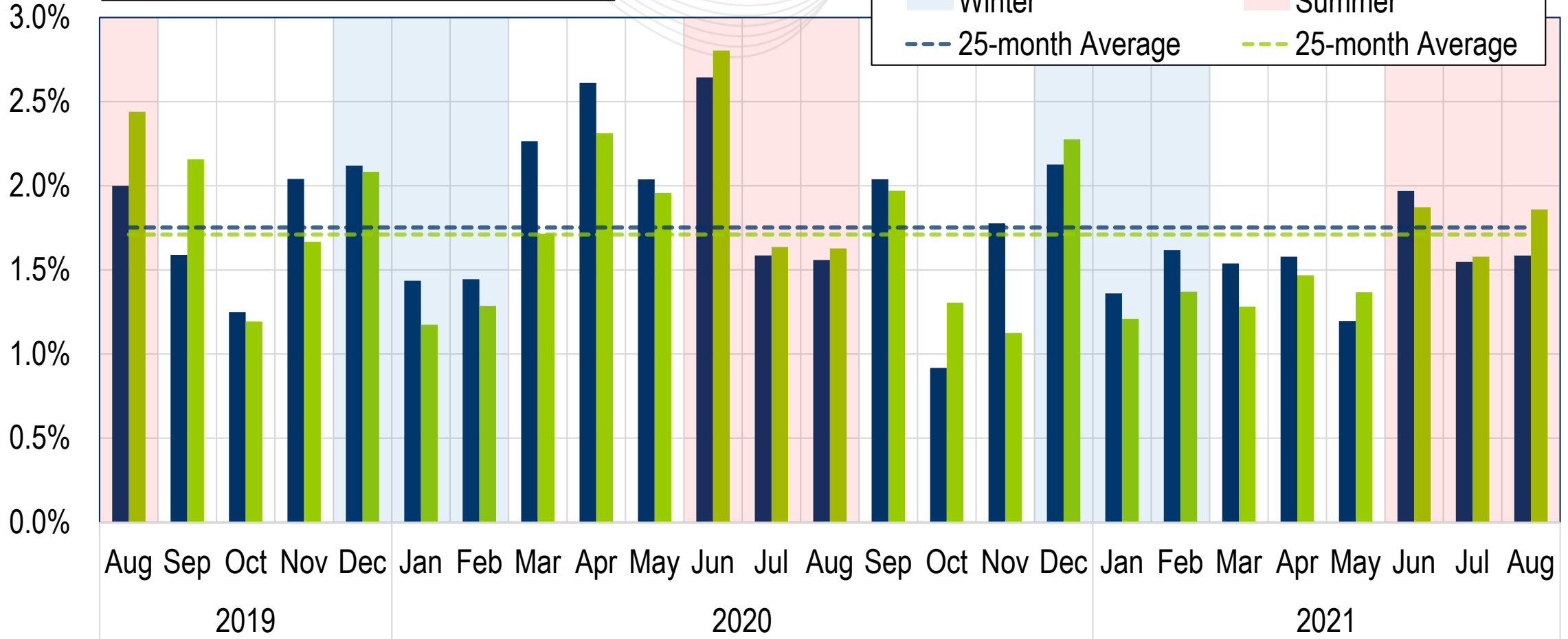
Senior Lead Engineer, Markets Coordination

MC Webinar

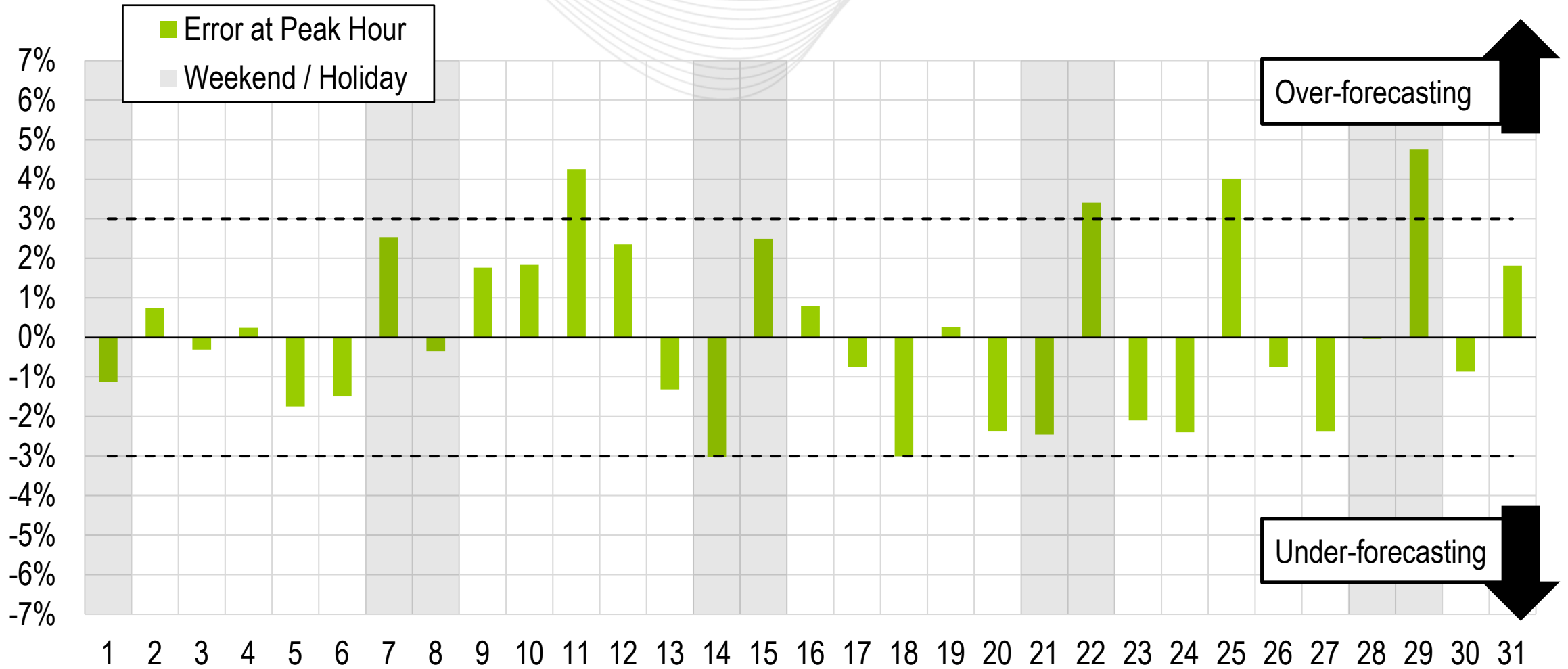
September 27, 2021

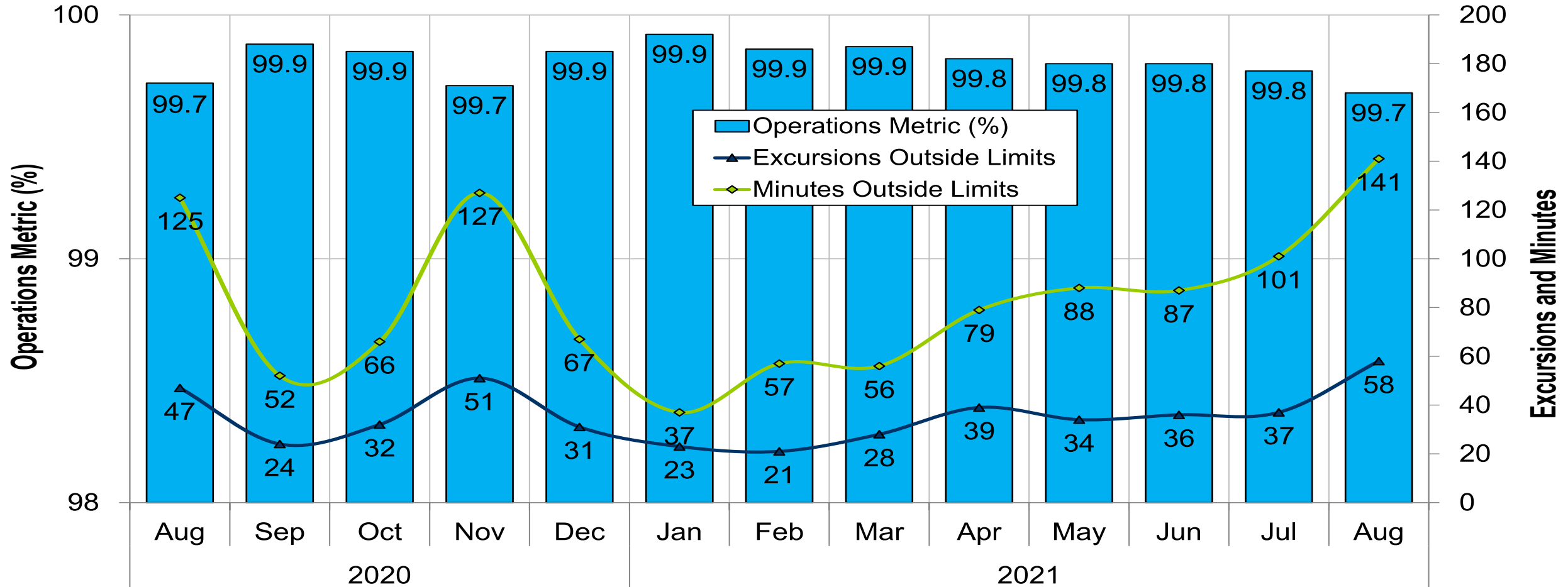
August 2021
 Hourly Error: **1.59%** Peak Error: **1.86%**

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



Daily Peak Forecast Error (August)

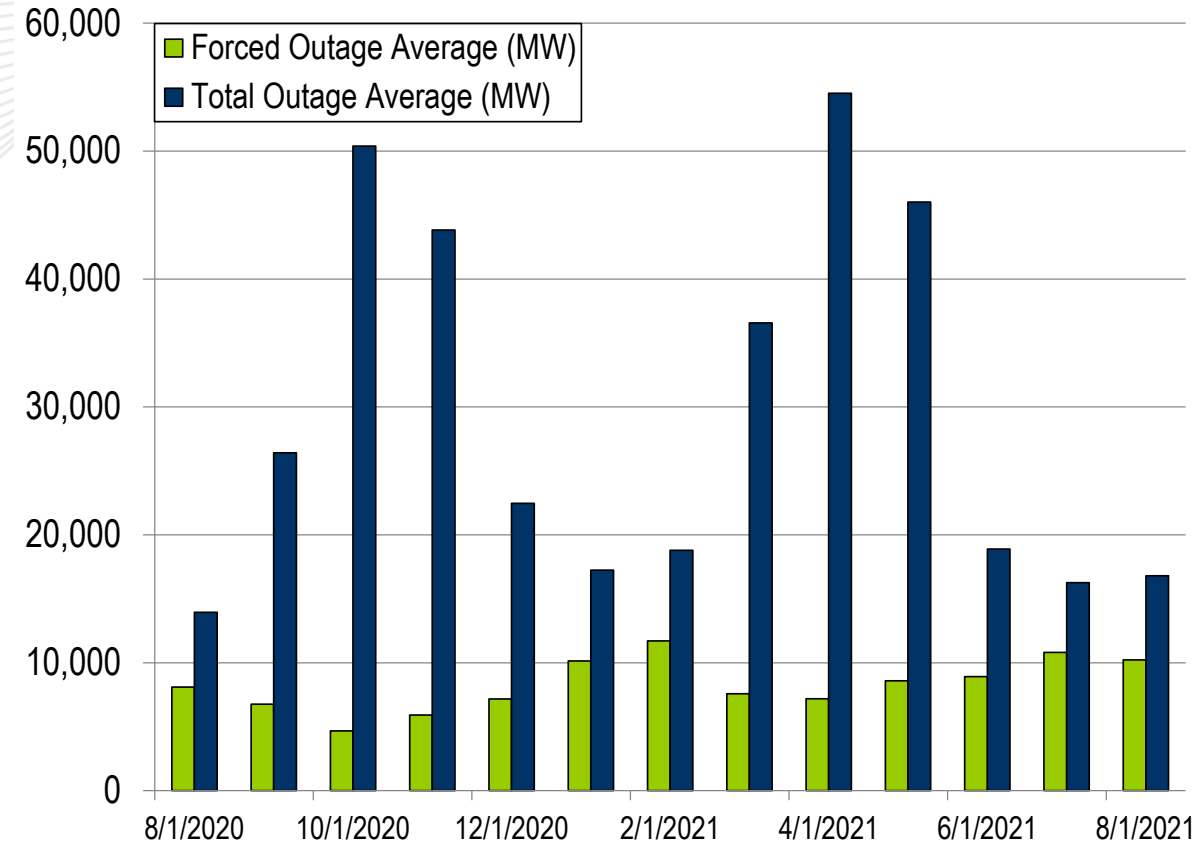
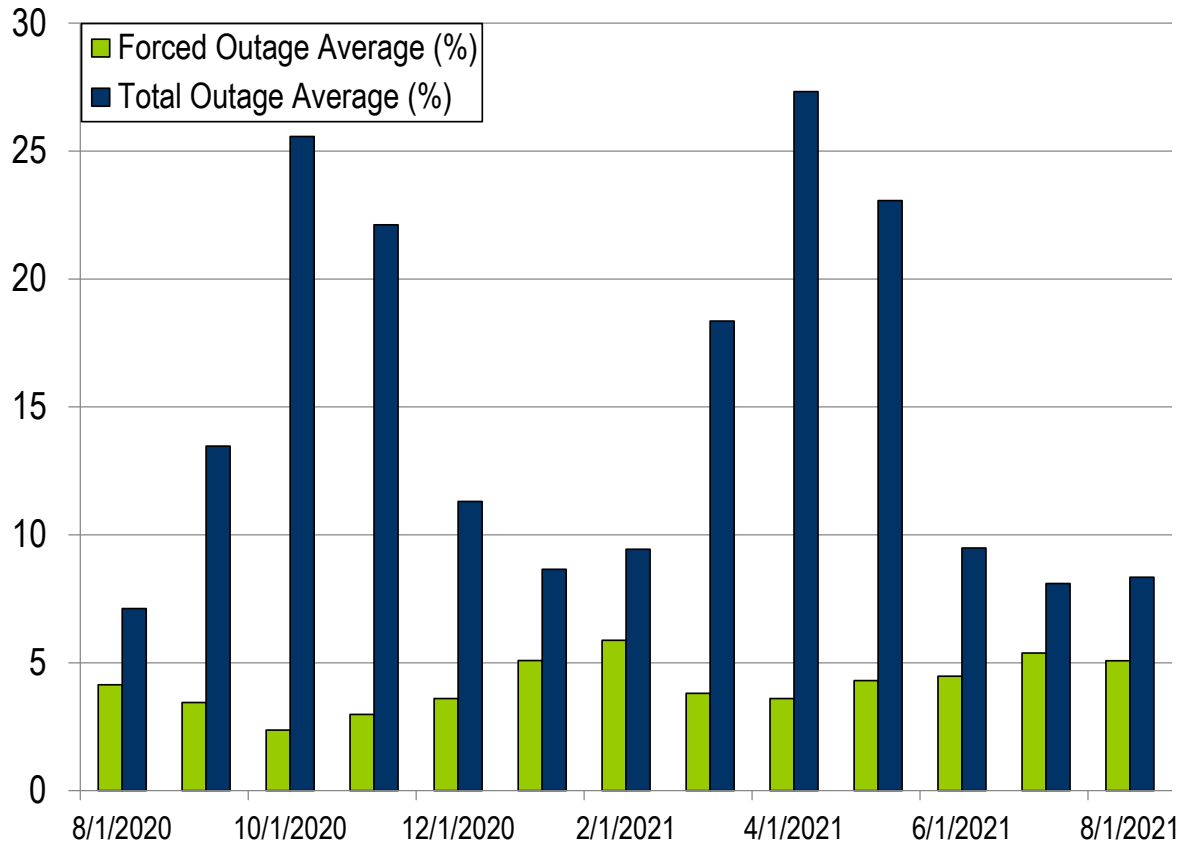




PJM's BAAL performance has exceeded the goal of 99% for each month in 2021.

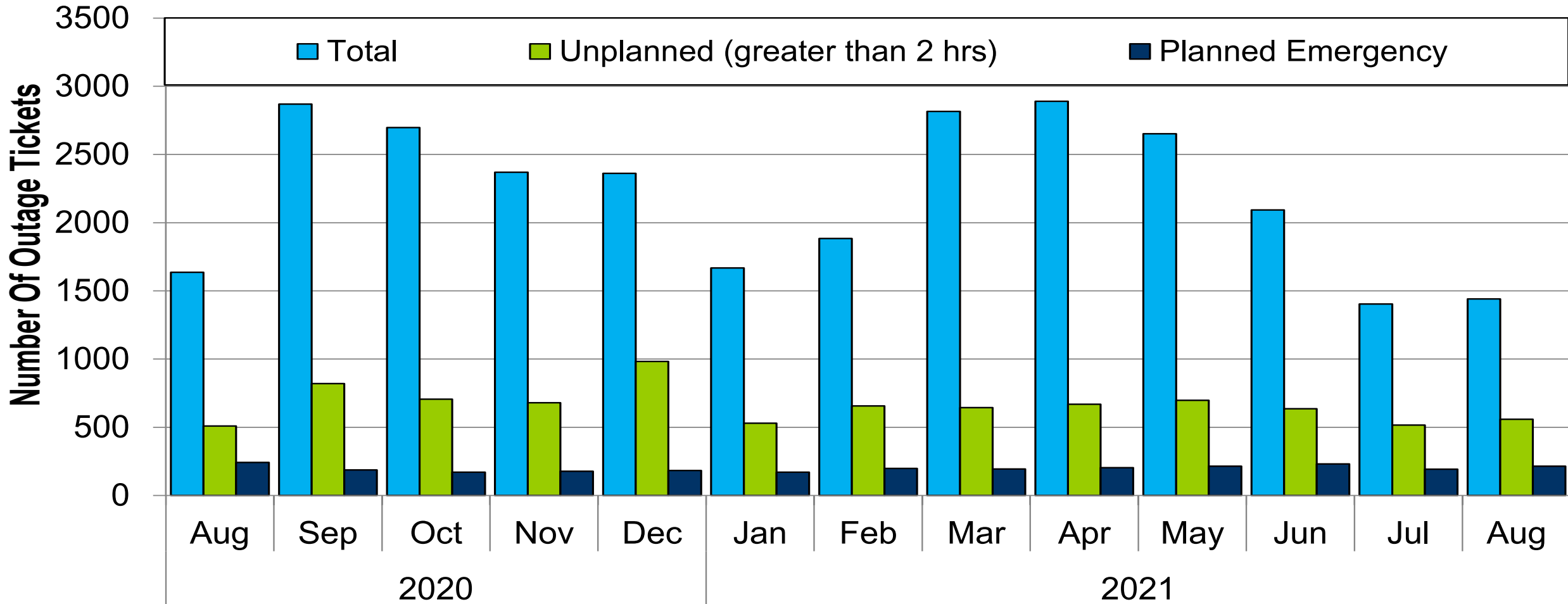
- Two spinning events
- Three reserve sharing events with the Northeast Power Coordinating Council (NPCC)
- The following Emergency Procedures occurred:
 - 20 Post-Contingency Local Load Relief Warnings (PCLLRW)
 - 9 Hot Weather Alerts
 - 6 Shortage Case Approved

- 6 Shortage Cases Approved
- The approved Shortage Case occurred on:
 - 08/20/21:
 - 1 Shortage Case for 16:15
 - 1 Shortage Case for 16:20
 - During peak load time, one large unit tripped, load came in higher suddenly, and a transformer constraint was binding
 - 08/20/21:
 - 1 Shortage Case for 18:00
 - One large unit tripped and case needed to provide ACE control
 - 08/23/21:
 - 1 Shortage Case for 16:50
 - 1 Shortage Case for 16:55
 - 1 Shortage Case for 17:00
 - During the peak load time, two large units tripped as load was increasing, and Actual Net Interchange increased 1,000+ MW in 10 minutes



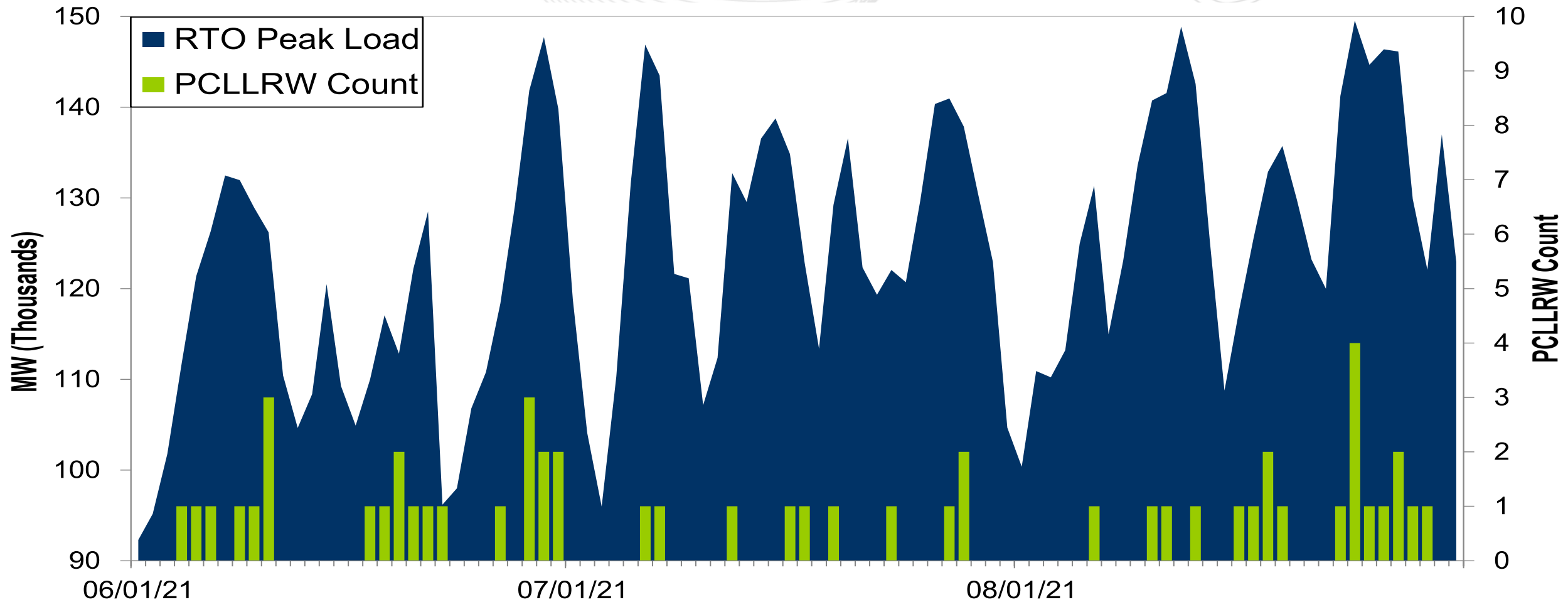
The 13-month average forced outage rate is 4.16% or 8,274 MW.
 The 13-month average total outage rate is 14.80% or 29,413 MW.

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	08/23/21	16:44:13	17:01:50	00:17:37	RTO	879.8	597.5
2	08/24/21	10:37:39	10:45:48	00:08:09	RTO	903.7	658.3

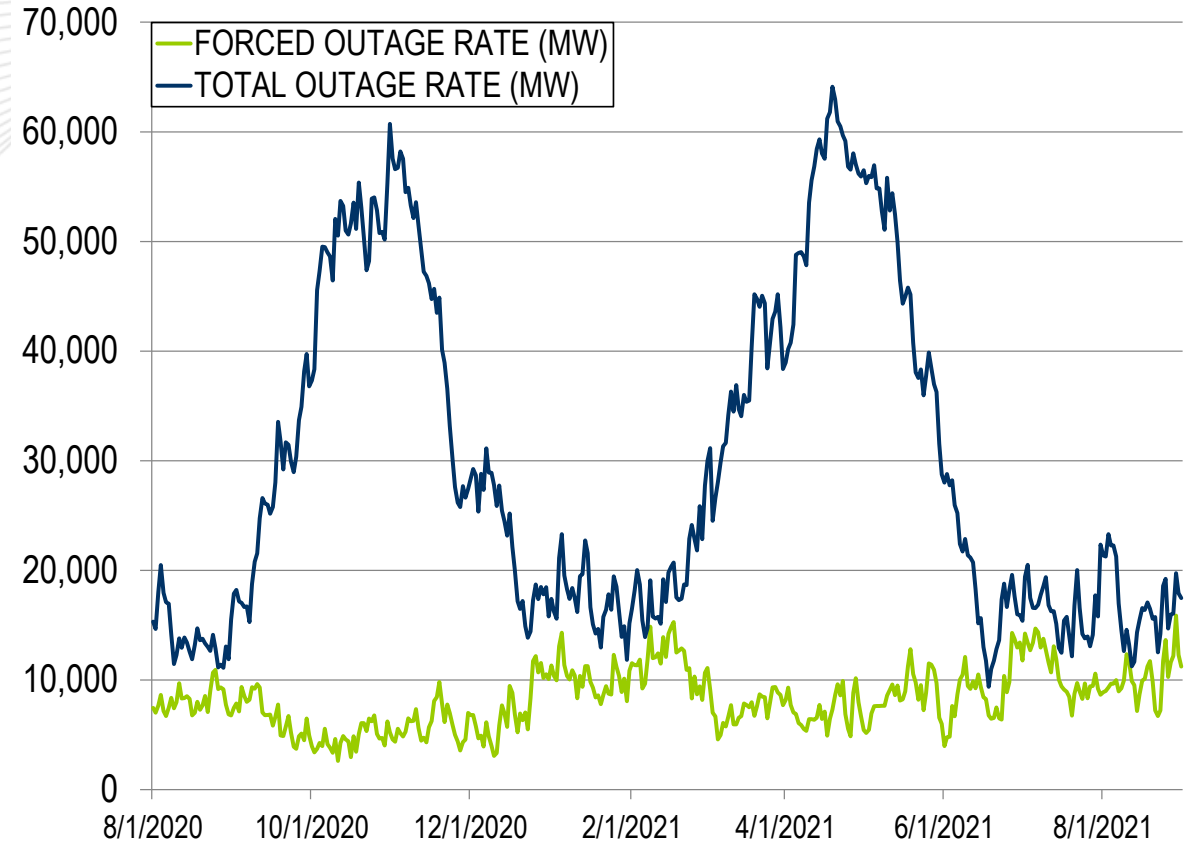
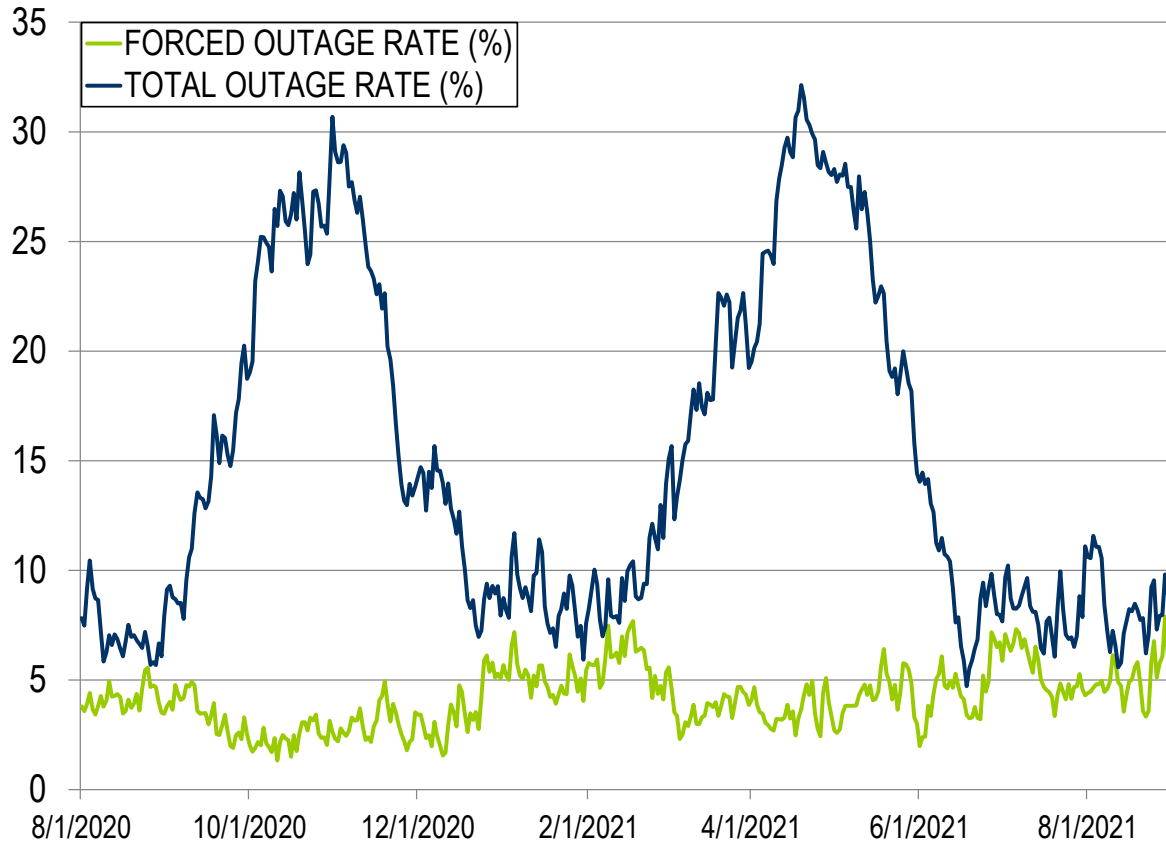
Event	Date	Start Time	End Time	Duration	Region	Tier 2 Assigned (MW)	Tier 2 Response (MW)	Tier 2 Penalty (MW)
1	08/23/21	16:44:13	17:01:50	00:17:37	RTO	896.2	667.1	229.1
2	08/24/21	10:37:39	10:45:48	00:08:09	RTO	1119.9	1119.9	0.0

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

Appendix

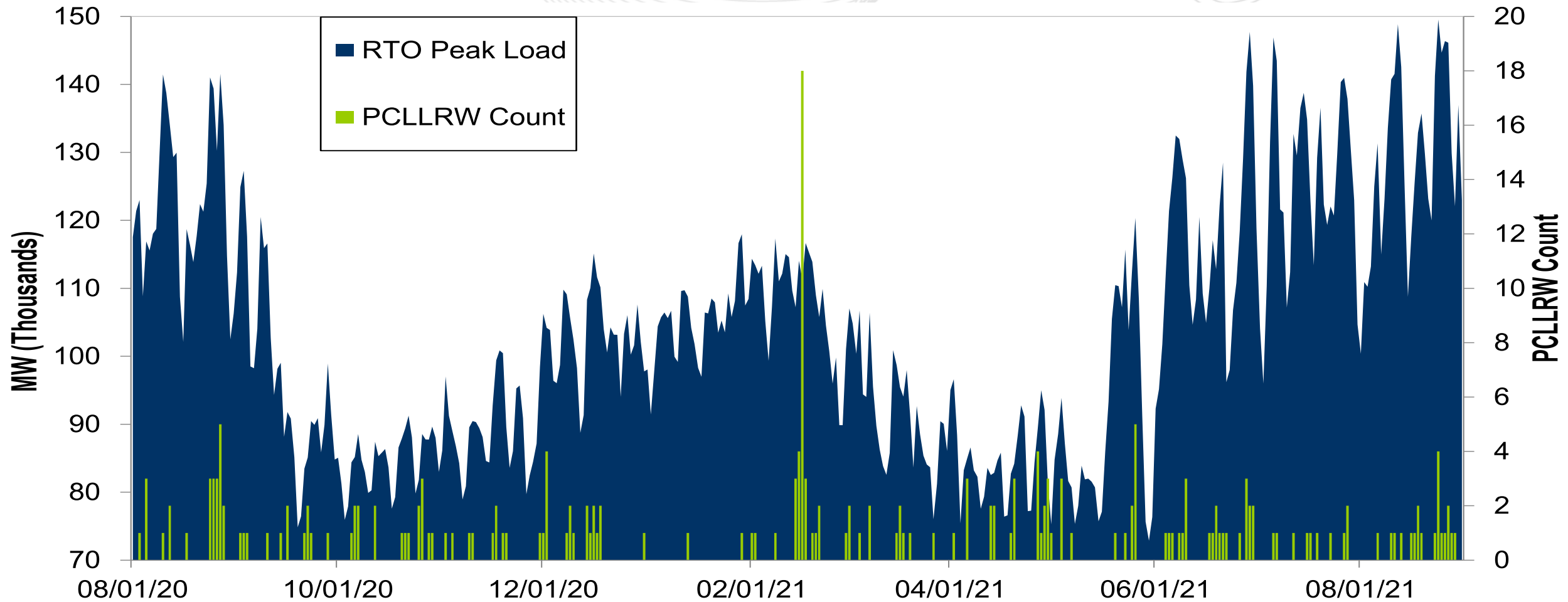
Goal Measurement: Balancing Authority ACE Limit (BAAL)

- 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 4.16% or 8,274 MW.
 The 13-month average total outage rate is 14.80% or 29,413 MW.

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



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