



MISO Monthly Operations Update

January 2019

January 2019 Summary

- MISO's reliability, markets and operational functions performed well
 - Average temperatures were near norms, with extreme cold weather conditions at the end of the month
 - Instantaneous Peak Load of 101.0 GW was realized on January 30
 - New all-time wind peak output of 16.3 GW reached on January 8 Previous record of 15.6 GW set on March 31, 2018
 - Extreme cold moved through the North and Central Regions on January 30 -31, where temperatures fell below -30°F in some parts
 - Resulting high load, unavailable generation, and uncertainty in both load and supply created challenges.
 - Proactive measures and emergency procedures helped to maintain reliability
 - MISO declared a Maximum Generation Event for the North/Central Region on Jan 30 - 31
- Please use the link below for a summary of monthly market and operational performance

<https://www.misoenergy.org/markets-and-operations/#nt=%2Fmarketsandopstype%3AMarket%20Analysis%2Fmarketanalysis%3AMonthly%20Market%20Operations%20Reports&t=10&p=0&s=FileName&sd=desc>

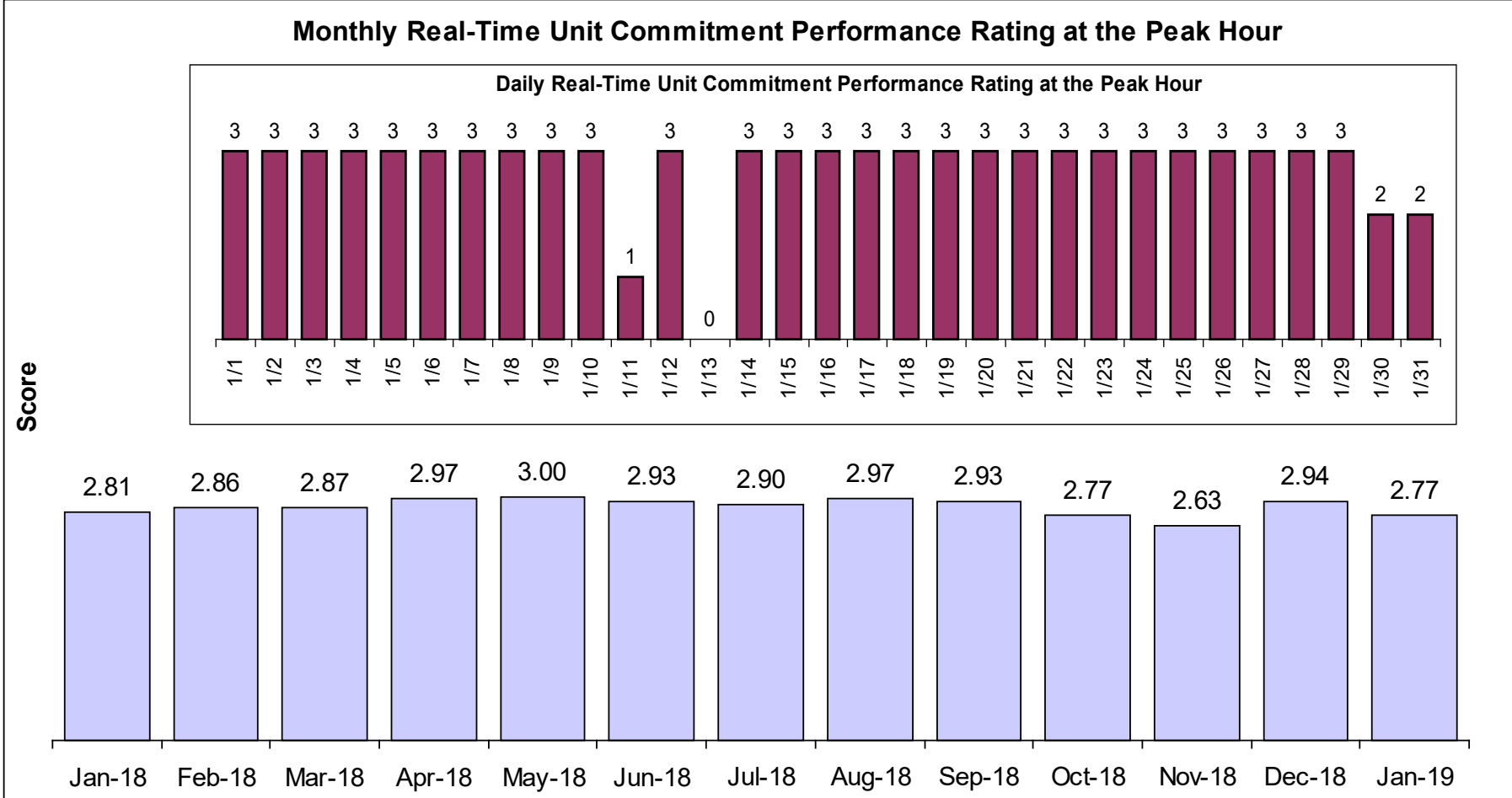
Copy and paste the link

MISO Inadvertent Balance

Month/Year	Net	On-Peak	Off-Peak
Jan-18	17,068	6,231	10,837
Feb-18	38,596	25,187	13,409
Mar-18	34,824	18,727	16,097
Apr-18	24,799	15,229	9,570
May -18	20,626	13,242	7,384
Jun-18	-12,563	-3,482	-9,081
Jul-18	-5,285	1,906	-7,191
Aug-18	23,707	17,306	6,401
Sep-18	4,993	9,881	-4,888
Oct-18	23,967	20,140	3,827
Nov-18	1,425	3,539	-2,114
Dec-18			
Jan-19			
Running Total from 2009	-98,642	-88,085	-10,557

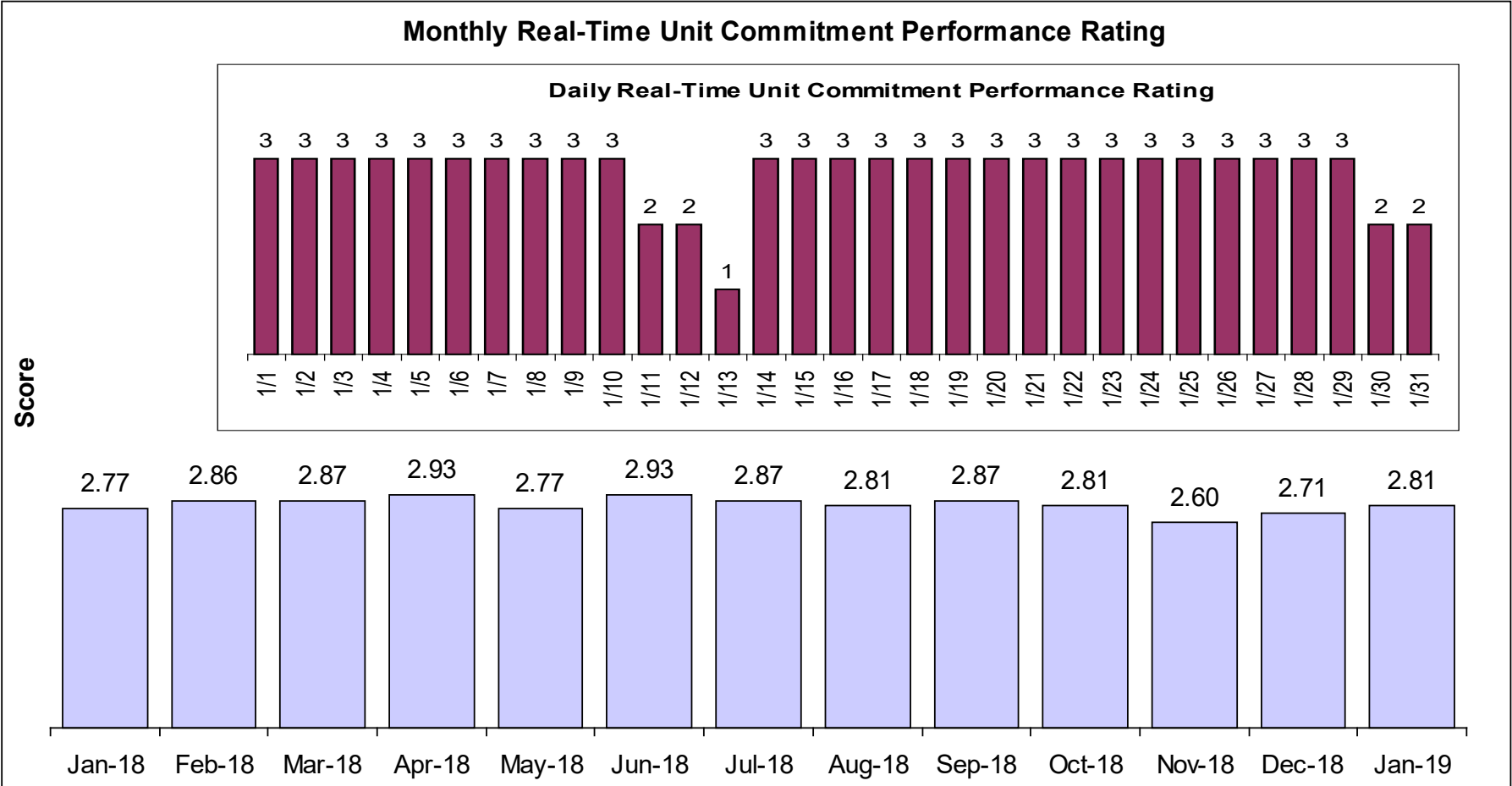
From NERC Tool as of February 05, 2019

RT Peak Load Hour Unit Commitment Performance



Score Interpretation 3:Excellent; 2:Good; 1: Needs improvement; 0: Unacceptable

RT All Hour Unit Commitment Performance



Score Interpretation 3:Excellent; 2:Good; 1: Needs improvement; 0: Unacceptable

Unit Commitment Performance

- Real-Time Peak Hour Unit Commitment Performance scores were above target levels for all but two days in January
 - **January 11:** Committed resources remained online over the valley of the winter load curve to meet the evening ramp demand
 - **January 13:** Resources were committed in response to a forecasted peak load that came in earlier than expected, resulting in excess online capacity.
- Real-Time All Hour Unit Commitment Performance scores were below target levels for one day in January
 - **January 13:** Resources were committed in response to a forecasted peak load that came in earlier than expected, resulting in excess online capacity

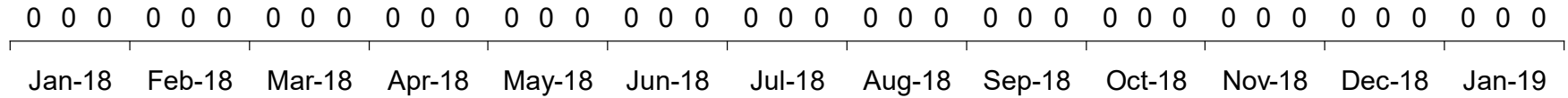
Generation Notifications

Minimum Generation Actions

Supply surplus situations during light load periods when on-line resources need to operate at Emergency Minimum levels or be decommitted as to not over burden the interconnected system.

■ Alerts* ■ Warnings* ■ Events*

Count

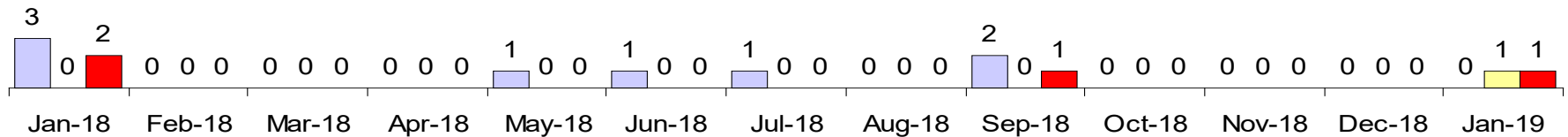


Maximum Generation Actions

System-wide or transmission contingency related capacity shortages that may jeopardize the reliable operation of all or part of the MISO system.

■ Alerts* ■ Warnings* ■ Events*

Count



* Alerts – forecasting specific emergency situations in a future time-frame

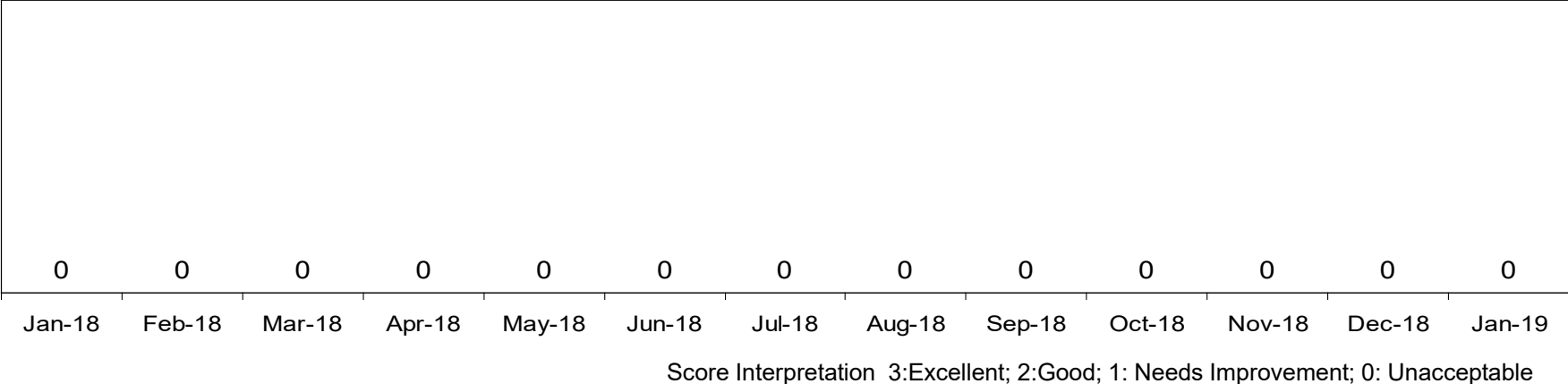
* Warnings – experiencing initial stages of an emergency situation and taking action

* Events – experiencing an emergency situation and taking action

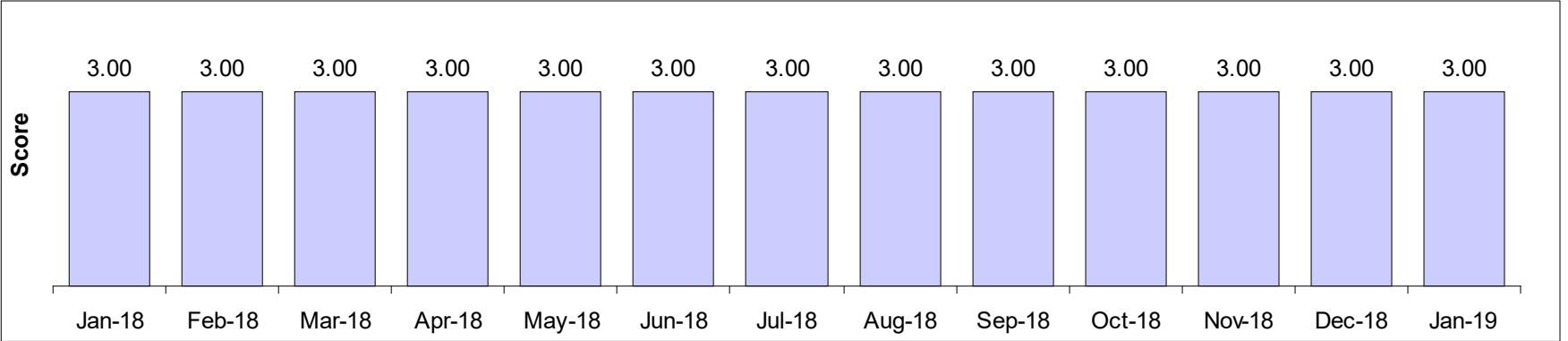
Tie Line and BAAL Performance

Tie Line Error

Events when 15 minute average tie-line error exceeded +/- 1000 MW

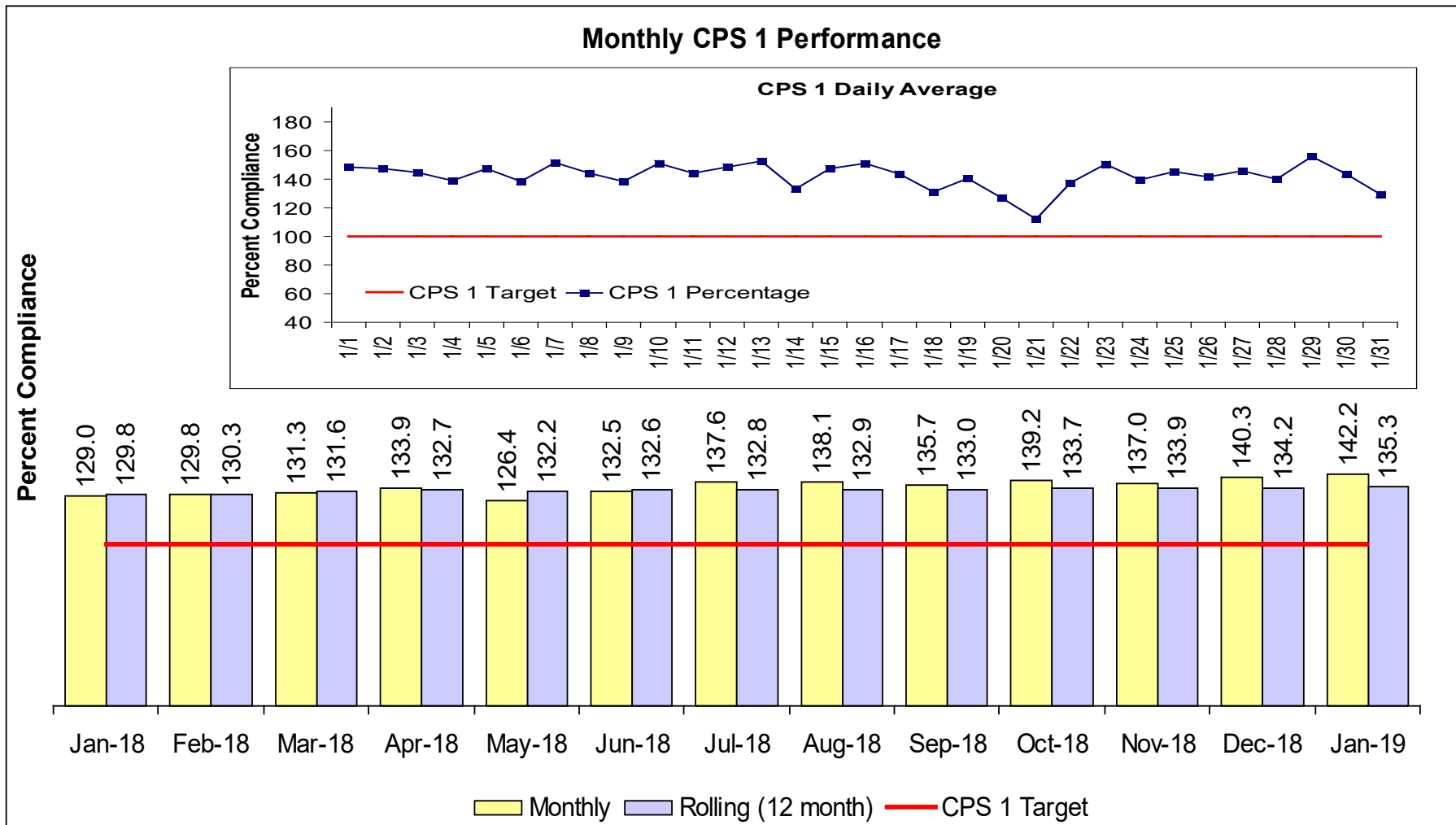


Balancing Authority Area Control Error Limit Performance



The Balancing Authority Area Control Error Limit (BAAL) measures control performance over the short-term. Exceeding BAAL for a continuous time period greater than 30 minutes constitutes a non-compliant event. The daily MISO BAAL performance rating is the lowest scored incident of the day.

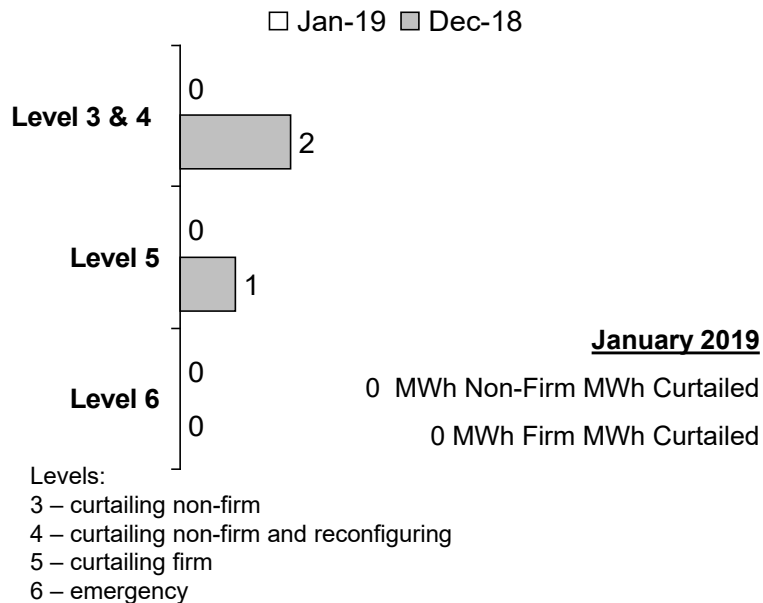
CPS1 Performance



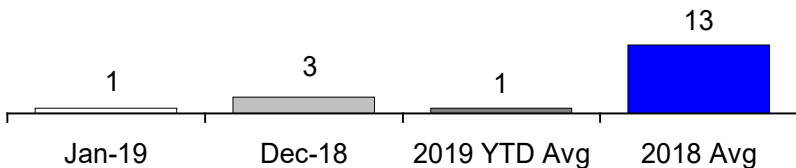
Per NERC Standard BAL-001-0 and MISO OP-044, the MISO will monitor CPS 1 performance and implement actions to ensure the MISO's rolling 12-month CPS 1 performance exceeds 100%

Reliability — Other Metrics

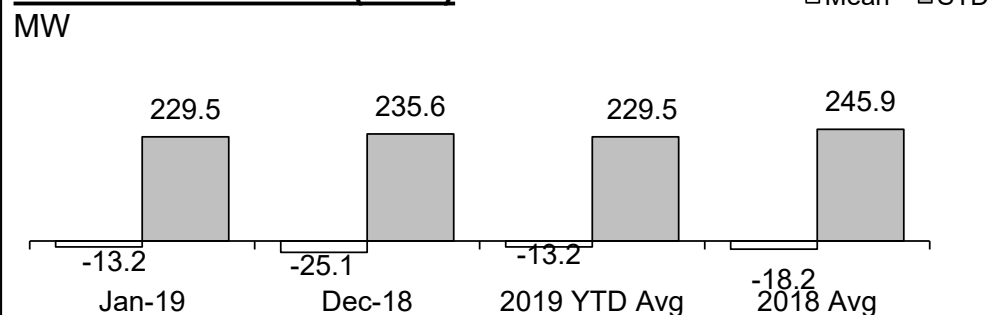
Transmission Loading Relief (TLR) Events



Manual Redispatches (Count)

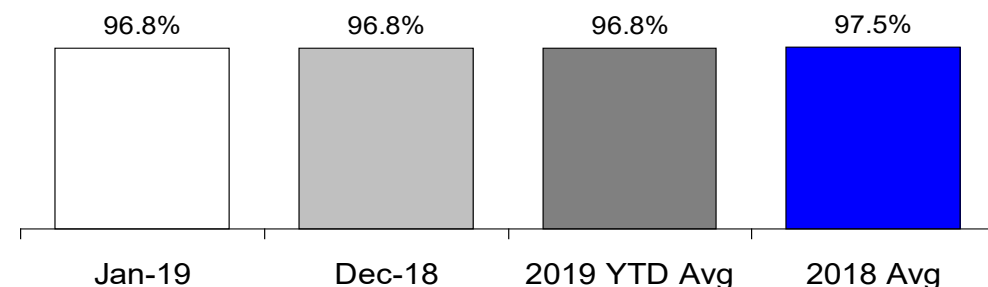


Area Control Error (ACE)



Unit Commitment Efficiency

Percentage of days with online generation held to target and sufficient to meet demand and constraints



Contingency Reserve Sharing

of ARS events

