



# Seasonal Readiness Workshop: Summer 2026

May 6, 2026

# Agenda

- 1. Welcome** – JT Smith, Executive Director, MISO System Operations
- 2. Seasonal Assessments**
  - Weather – Adam Simkowski/Ella Dankanics, MISO Meteorologists
  - Generation – Andy Taylor, Manager, MISO Resource Adequacy
  - Transmission – Fisseha Zewdu, Sr. Engineer, MISO Operations Planning
- 3. Seasonal Risk / Uncertainty Management** – Matt Campbell, Manager, Operations Risk Assessment
- 4. Emergency Procedure & Technical Training Updates**
  - Capacity Emergency Changes – Don Hunter, Manager, MISO Control Room Operations
  - 202(c) Emergency Orders – Don Hunter, Manager, MISO Control Room Operations
  - Transmission System Emergency Procedure Updates – Clayton Umlor, Manager, MISO Reliability Coordination
  - Technical Development – Anita Hurst, Sr. Manager, MISO Technical Development
- 5. Q&A**



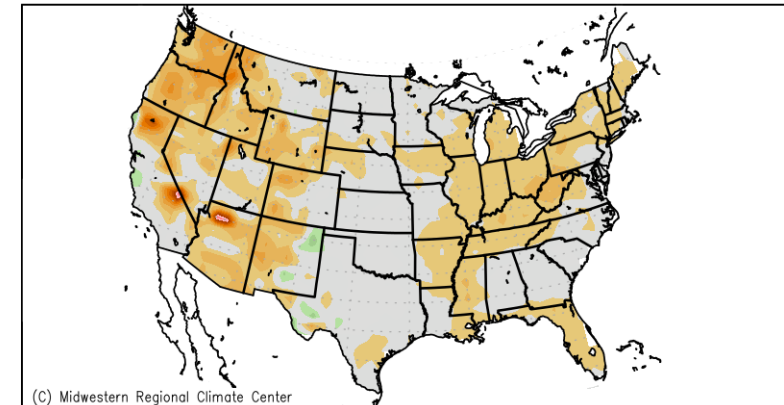
## Seasonal Assessment: Weather

Adam Simkowski and Ella Dankanics, MISO Meteorologists

# Despite Above Normal Precipitation, La Niña Drove Above Normal Temperatures Across MISO's Footprint

- Last summer, we experienced:
- Above normal temperatures across the North/Central Region
- Slightly above normal temperatures in the South Region
- There were 6 days recorded above 90°F Systemwide temperature
- Near to slightly above normal precipitation was observed across much of the MISO footprint

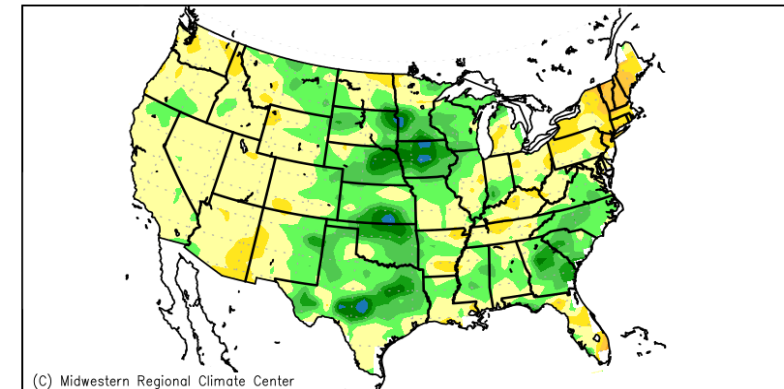
Average Temperature (°F): Departure from Mean  
June 1, 2025 to August 31, 2025



Mean period is 1991–2020.



Accumulated Precipitation (in): Departure from Mean  
June 1, 2025 to August 31, 2025



Mean period is 1991–2020.



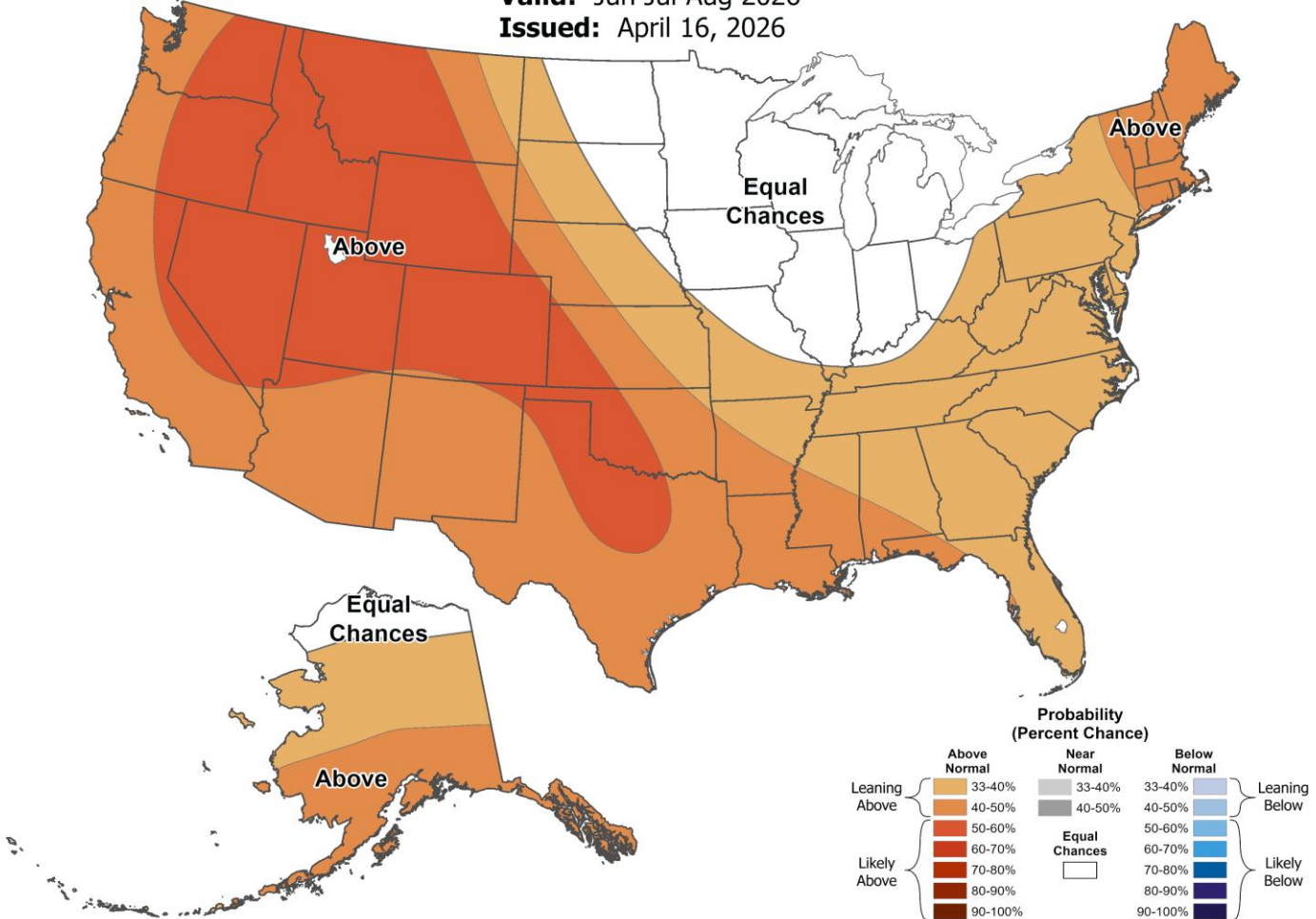
NOAA is forecasting above normal temperatures for June through August in MISO's South Region with near normal temperatures across MISO's North/Central Region holding the core of the heat in the intermountain West



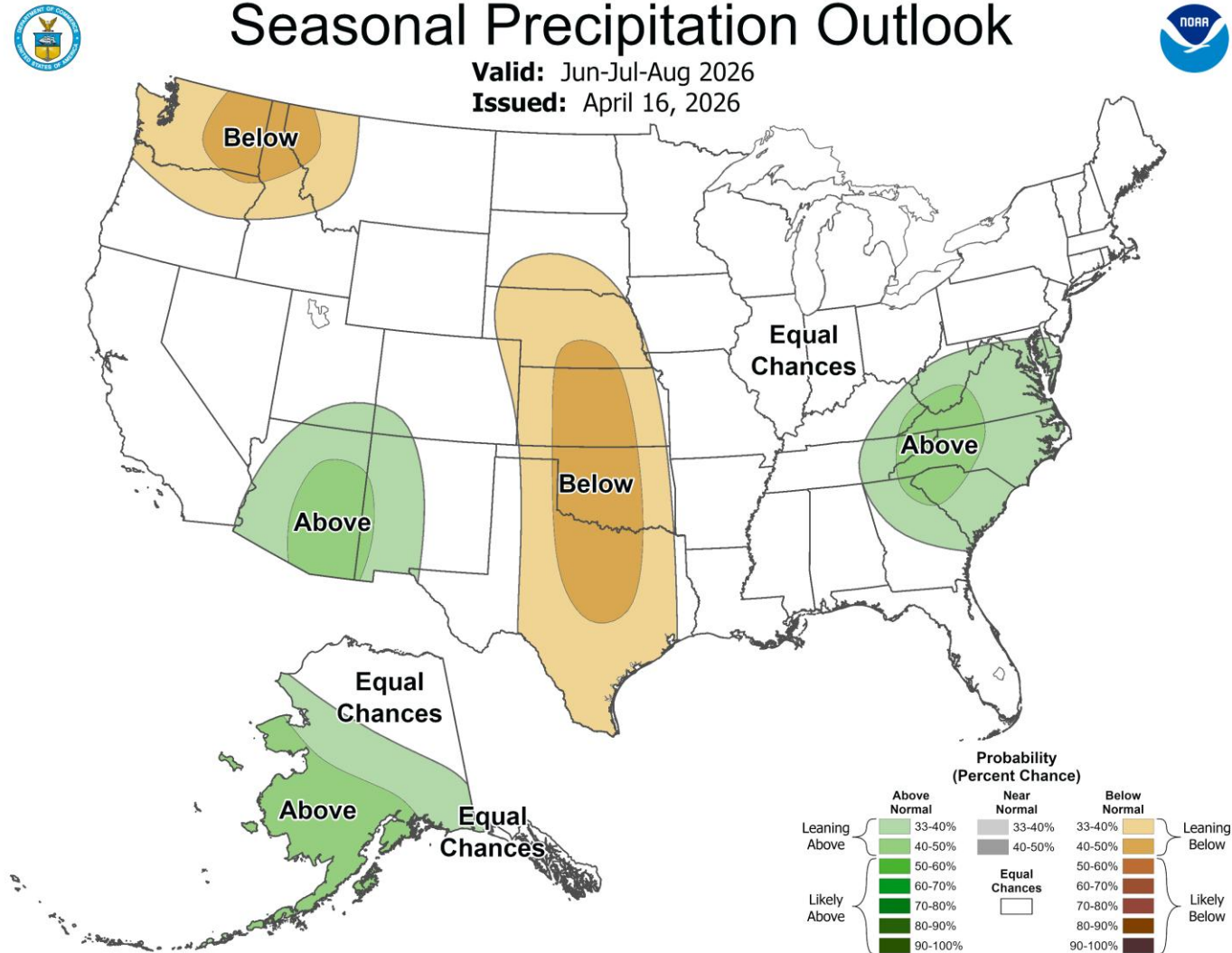
# Seasonal Temperature Outlook



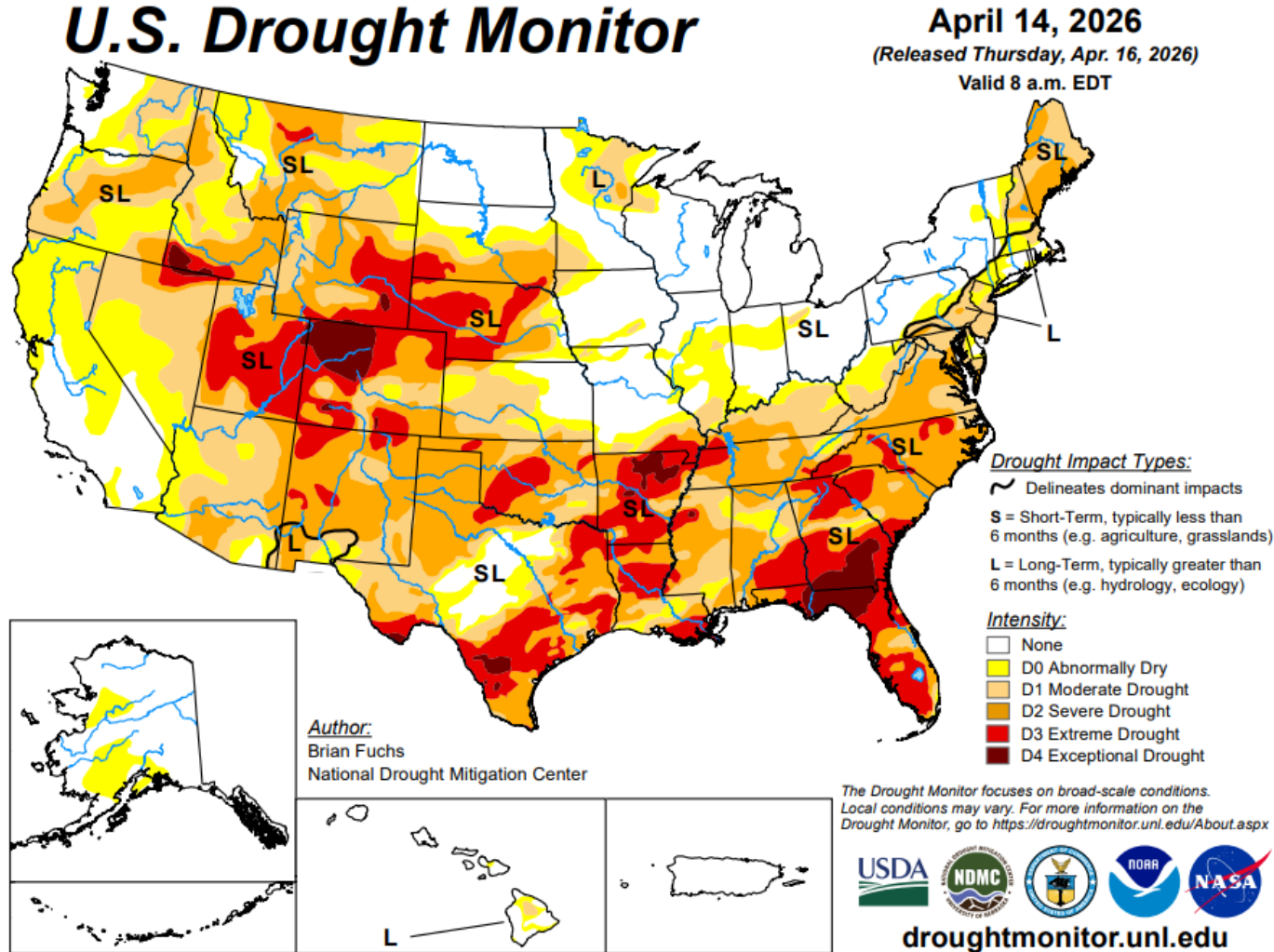
**Valid:** Jun-Jul-Aug 2026  
**Issued:** April 16, 2026



# NOAA anticipates normal precipitation rates across the majority of MISO's footprint



# US drought conditions will need to be monitored as pervasive drought can exacerbate heat concerns over MISO footprint



Circled years are the best historical analog (reference) years to this upcoming summer

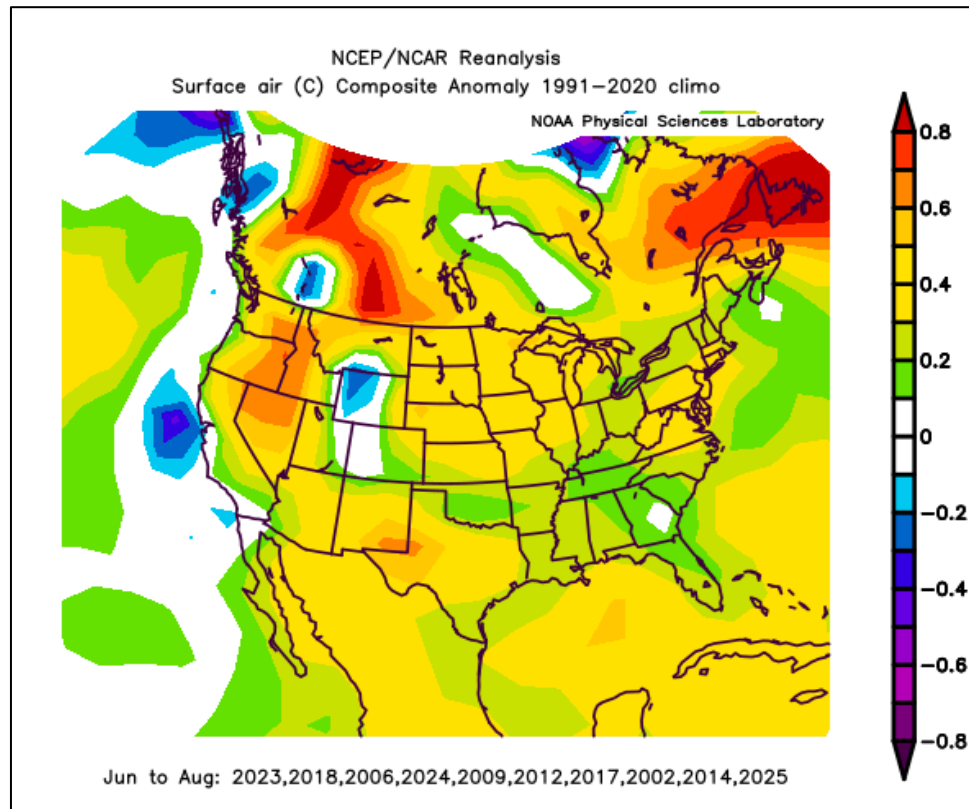
**Analog years for Summer 2026**

Year(s)	Vendor A	Vendor A Rank	Vendor B	Vendor B Rank
	2023	1	2015	1
	2018	2	2023	2
	2006	3	2009	3
	2024	4	1951	4
	2009	5	1997	5
	2012	6	2006	6
	2017	7	2002	7
	2002	8	1963	8
	2014	9	2012	9
	2025	10	1991	10

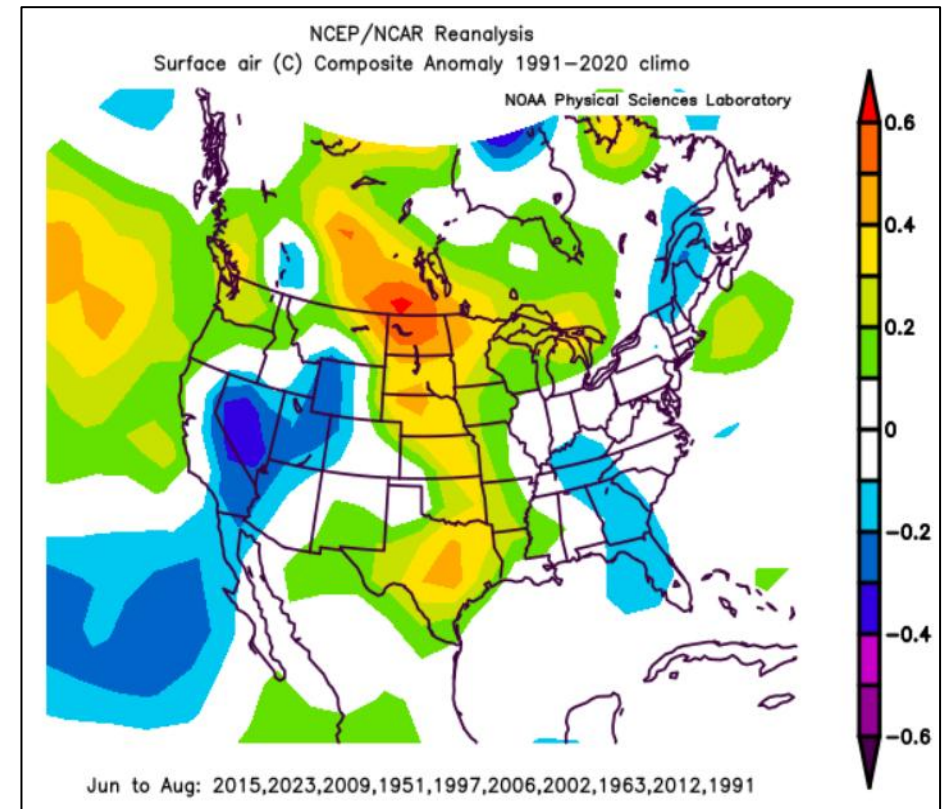
Cool MISO Summer
Warm MISO Summer
Normal MISO Summer

While both vendors' analog year selections favor heat across MISO's footprint, their selections were created in late winter with more El Niño uncertainty. With high certainty of El Niño now, top analog years are under-weighted in the images below.

## Vendor A

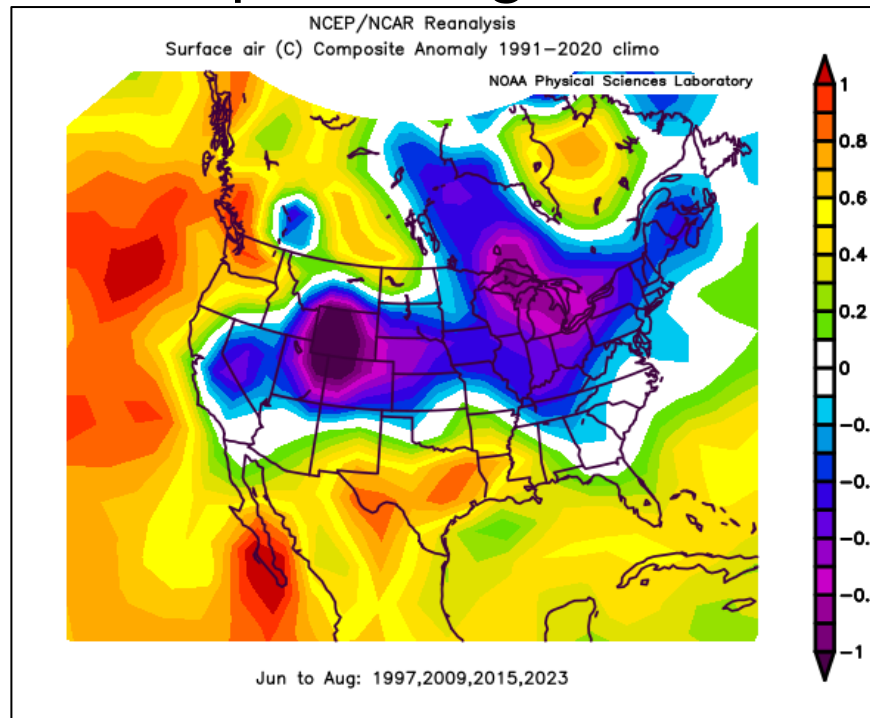


## Vendor B



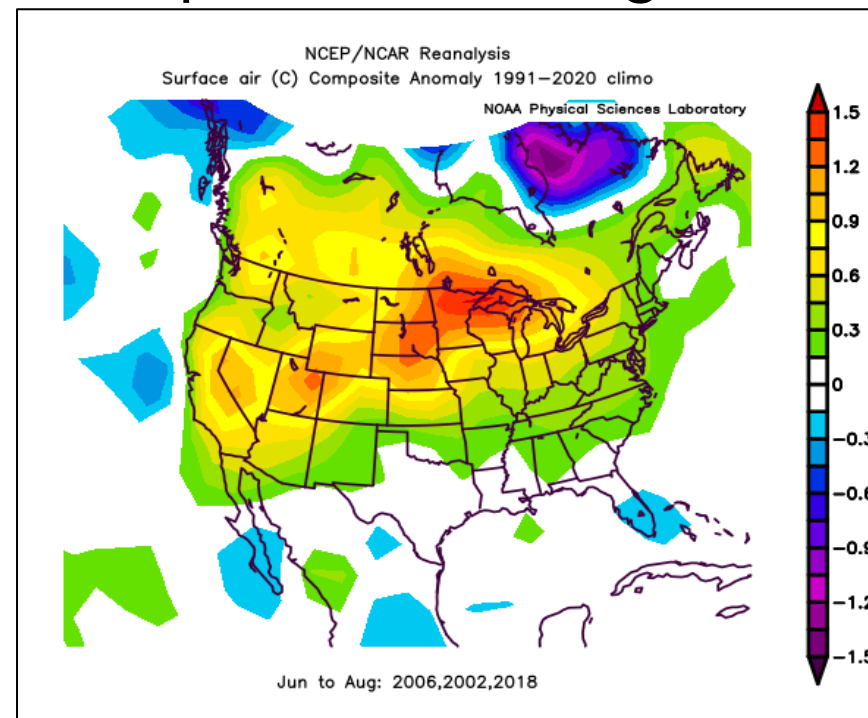
MISO's analysis of historical analog years from each vendor support a cooler to average summer for MISO's North/Central Region, but there is a higher likelihood for above normal temperatures in MISO's South Region

### Top 4 Analog Years



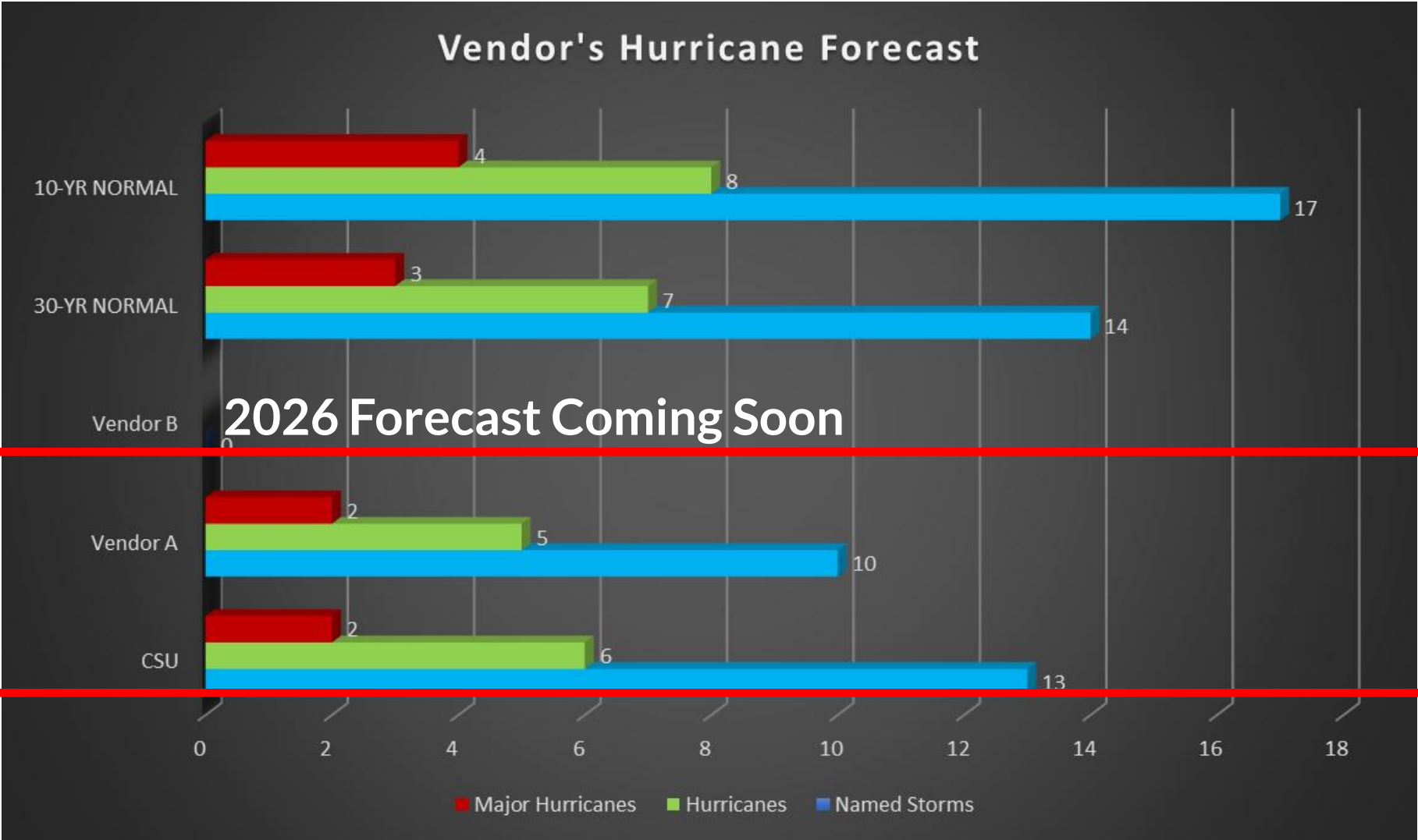
- More likely scenario
- Good agreement with vendors forecast on TX/LA heat

### Top 3 Warm Analog Years



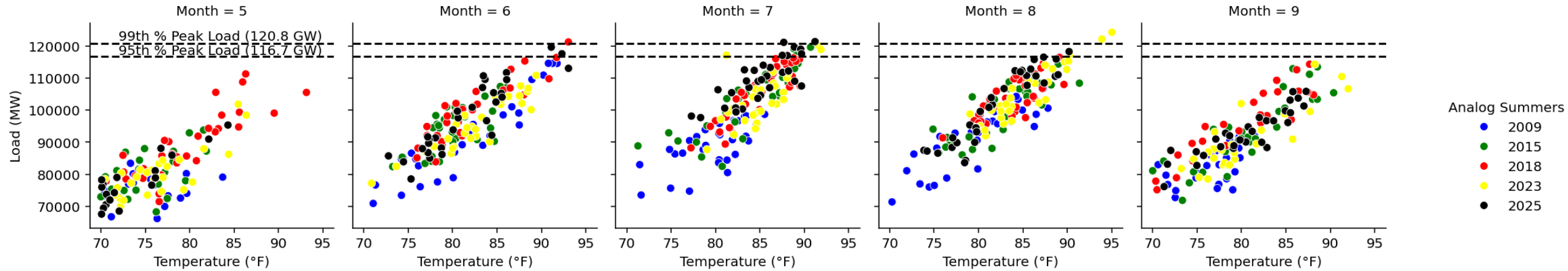
- Less likely scenario
- Heat extends from the intermountain west to MISO North/Central Region

A slightly below normal hurricane season is expected from all vendors; threats to MISO are best evaluated in a two-week forecast window

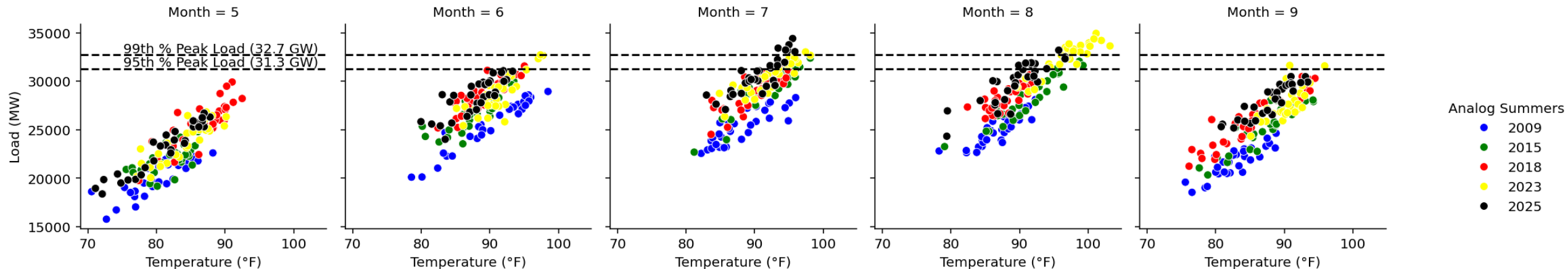


# Systemwide, comparing top analog years to last year and lower match 2018, top analog years contain minimal hours reaching 99<sup>th</sup> percentile peak load. TX/LA heat did bring South load at/above 99<sup>th</sup> percentile in top years

MISO System Peak Load vs. Temperature Analog Summer when Temp  $\geq 70^\circ\text{F}$

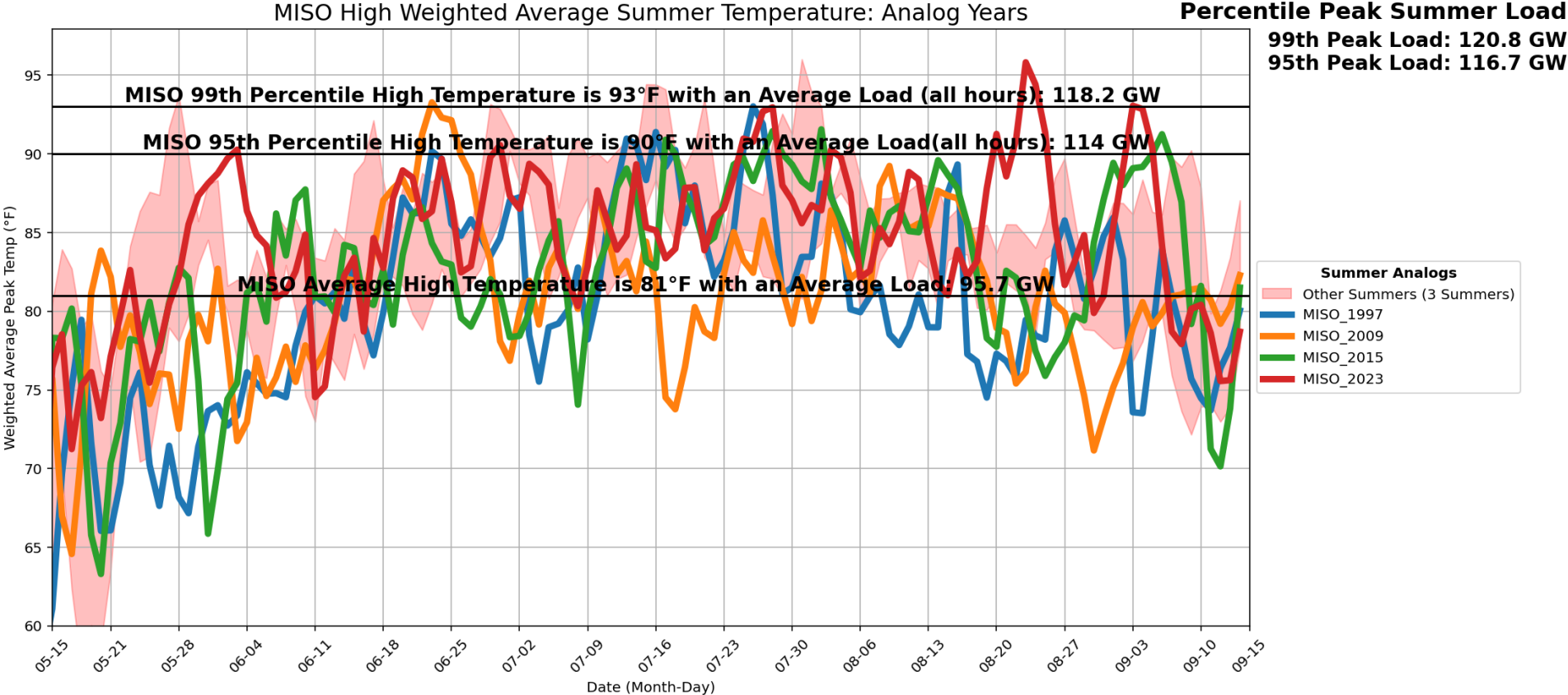


SOUTH Peak Load vs. Temperature Analog Summer when Temp  $\geq 70^\circ\text{F}$



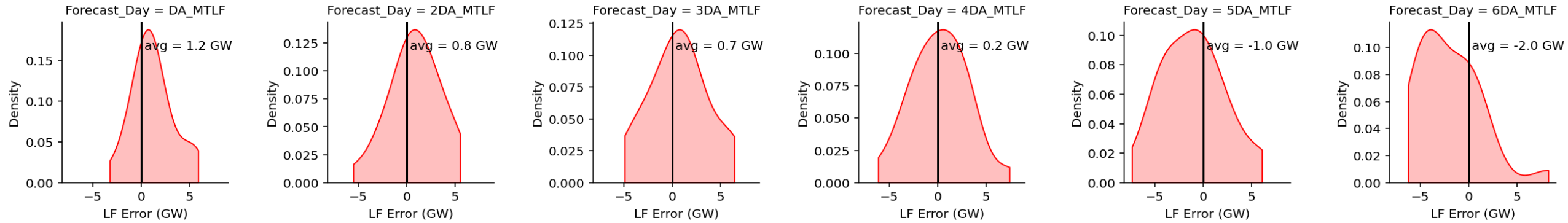
# Key analog summers saw daily peak temperatures above the 95th percentile high temperature threshold, but few periods at 99th percentile high temperature threshold

*The top analog year (2023) had major MISO heatwave reaching above the 99th percentile average load threshold driven by TX/LA heat dome*

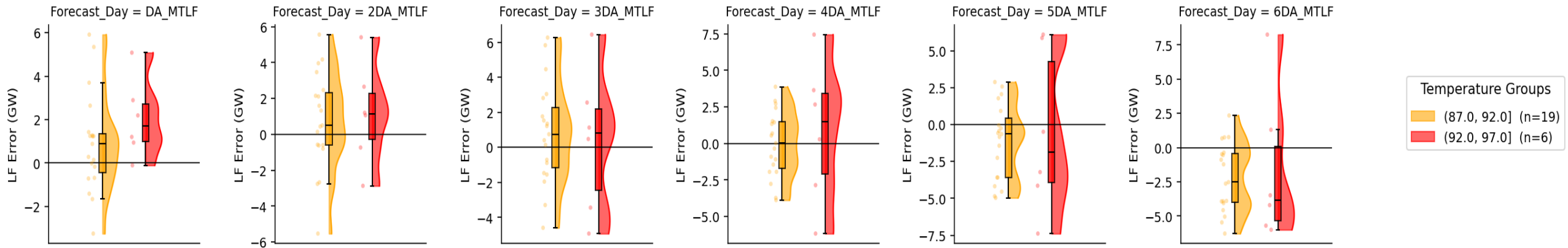


# Summer peak load forecast bias is positive at DA and 2-DA primarily due to storm risks where peak load $\geq 95^{\text{th}}$ percentile (117 GW)

**MISO Peak Summer MTLF Forecast Bias (Forecast - Actual) where Actual Load  $\geq 117$  GW (2021-2025) | 25 unique days**



**MISO Peak Summer MTLF Forecast Bias (Forecast - Actual) by Temperature Group where Actual Load  $\geq 117$  GW (2021-2025)**



Temperature Groups  
 (87.0, 92.0] (n=19)  
 (92.0, 97.0] (n=6)

# Adam and Ella's Opinion

- While normal to below normal summer is expected in the North/Central, heat waves will be more likely and confined to the South region, especially if drought conditions persist.
- 2023 being the top analog had a similar orientation to this year's expectations. In August of that year, the South heat dome expanded north encompassing MISO's footprint producing our all-time peak load (not reconstituted). We'll monitor that risk closely this summer with El Niño strength.
- Solar growth will continue throughout the summer. Wind generation is forecast to be **below normal** and risks around the **daily cycle** (AM ramp down, PM ramp up) with ample solar will produce challenging Net Load ramps.
- With warm ocean waters over the Caribbean and Gulf, risks for 'homegrown' storms will have to be monitored closely despite a projected below normal season.

# Summary

- A normal to slightly below normal summer is expected in the North/Central region with above normal temperatures in MISO South.
- Despite cooler signals for the Midwest and Plains, with heat more likely in the southern Plains and Gulf Coast, heat can expand northward periodically.
- Monitoring the development and strength of El Niño will provide confidence on both the cooler North/Central signal and lower tropical development potential.
- A near to slightly-below-normal hurricane season is expected in the Atlantic Basin this hurricane season.

Contact: Adam Simkowski, [asimkowski@misoenergy.org](mailto:asimkowski@misoenergy.org)  
Ella Dankanics, [edankanics@misoenergy.org](mailto:edankanics@misoenergy.org)

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## Seasonal Assessment: Generation

Andy Taylor, Manager, MISO Resource Adequacy

# Seasonal Capacity Outlook – Summer 2026

LRZ	Price (\$/MW-Day)
1-7	\$424.30
8,10	\$384.10
9	\$412.10

Initial PRMR	ZRC Offered + FRAP	Final PRMR
137,922.8	142,553.1	142,374.3

- Implementation of the Reliability-Based Demand Curve has resulted in significant value for capacity beyond the 1-in-10 LOLE Requirement.
- Initial PRMR represents the traditional 1-in-10 LOLE Requirement.
- 4,451.5 ZRCs cleared beyond the 1-in-10 LOLE Requirement, resulting in the Final PRMR noted above.

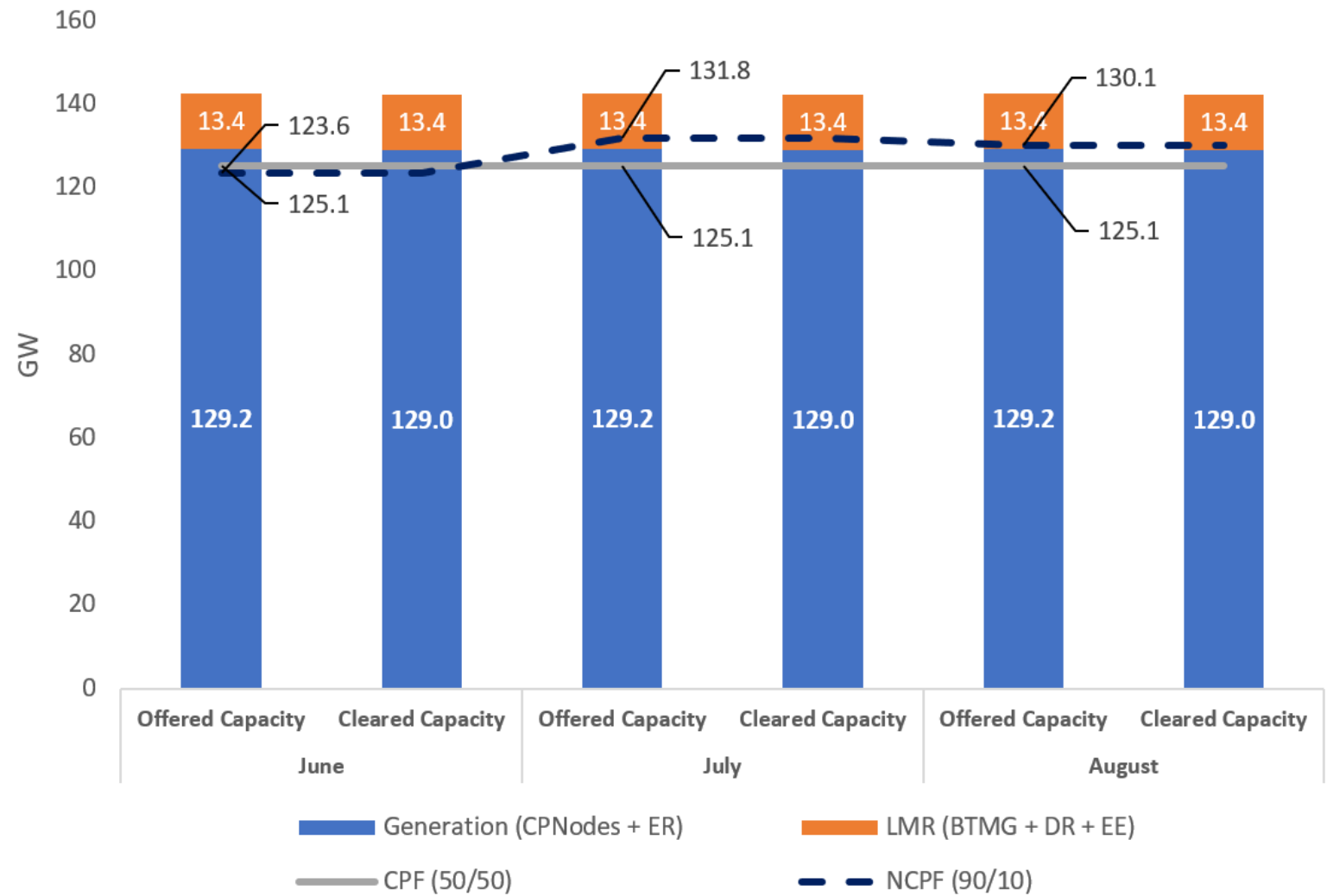
Planning Resource	Offered (ZRC)	Cleared (ZRC)
Generation	124,690.1	124,511.3
External Resources	4,490.6	4,490.6
Behind the Meter Generation	4,272.9	4,272.9
Demand Resources	9,099.5	9,099.5
Energy Efficiency	0.0	0.0
<b>Total</b>	<b>142,553.1</b>	<b>142,374.3</b>

# MISO systemwide accredited capacity compared to demand submitted by LSEs

*Coincident Peak Forecast is submitted by MISO LSEs relative to the MISO seasonal peak and calculated on a seasonal basis*

*Non-Coincident Peak Forecast is the peak load submitted by each LSE per month*

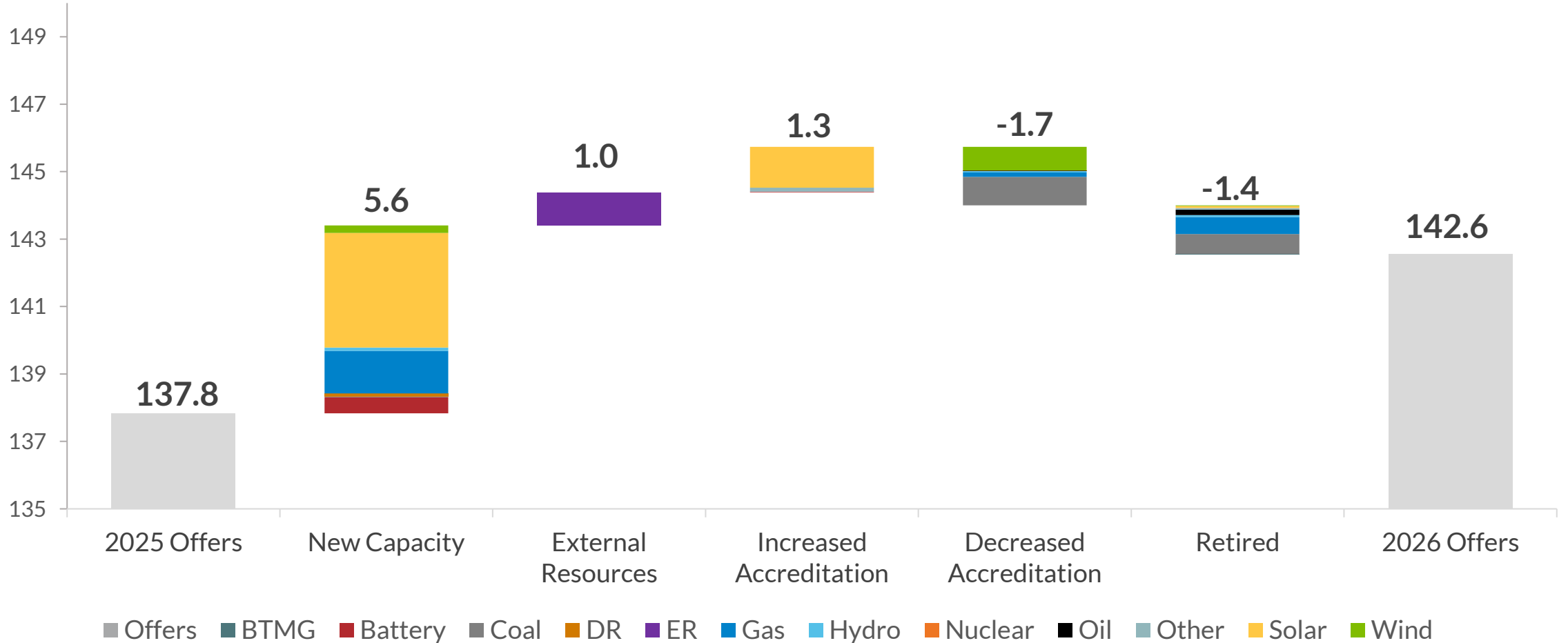
Summer 2026 Generation vs. Load - System-wide



LMR: Load Modifying Resource CPNodes: Commercial Pricing Nodes ER: External Resource  
 BTMG: Behind the Meter Generation DR: Demand Resource EE: Energy Efficiency  
 CPF: Coincident Peak Forecast NCPF: Non-Coincident Peak Forecast

# New capacity additions outpaced decreased accreditation and suspensions/retirements

## Capacity Offered Summer 2026 vs. Summer 2025 (GW)



Contact: Andy Taylor, [ataylor@misoenergy.org](mailto:ataylor@misoenergy.org)



# Seasonal Assessment: Transmission

Fisseha Zewdu, Sr. Engineer, MISO Operations Planning FRES

The Coordinated Seasonal Assessment study is used to identify potential issues and develop plans before these issues occur in real time



### **Purpose:**

Evaluate expected conditions across MISO footprint for summer season

Identify potential limitations and issues for upcoming season and develop operating plans

Coordinate with MISO members



### **Study Focus:**

Steady-State Analysis

Bidirectional Transfer Studies

Load Pocket Studies

# The 2026 summer model was built from the Eastern Interconnection base case with MISO Transmission projects and planned outages applied

## Base Case:

- Built on the 2025/26 Summer ERAG MMWG model
- Generator Retirements approved on or before December 1, 2025, are offline
- Outages: Transmission and Generator Outages are modeled if they are greater than or equal to two months between the months of June through August
- TO's can recommend outages outside the period if deemed necessary

## MOD Projects:

- MTEP Appendix A – Planned
- All the generation interconnection projects applied

## Generation Assumptions:

- Renewables: Wind and Solar units dispatched at their capacity credit levels
- Qualified Facilities (QFs) and MISO South Load Pocket Op Guides honored

Steady State AC Contingency Analysis did not reveal any contingencies without operating plans for the summer season

**Approximately 18,900+ contingencies were studied**

NERC defined Category P1 contingencies

- **P1.1** – three phase faulted generator (>50 MW)
- **P1.2** – three phase faulted transmission circuit
- **P1.3** – three phase faulted transformer
- **P1.4** – three phase faulted shunt device
- **P1.5** – single line to ground dc pole

## MISO regularly runs import studies for the Load Pockets

- The peak load conditions for the three MISO load pockets are simulated:
  - Amite South at 7,592 MWs
  - Down stream of Gypsy (DSG) at 3,247 MWs
  - Western at 2,735 MWs
- Transfer studies into the pockets are performed
- Results are used to identify import limits for the pockets



## Load Pocket transfer results indicate that import limits are in line with current operating guides

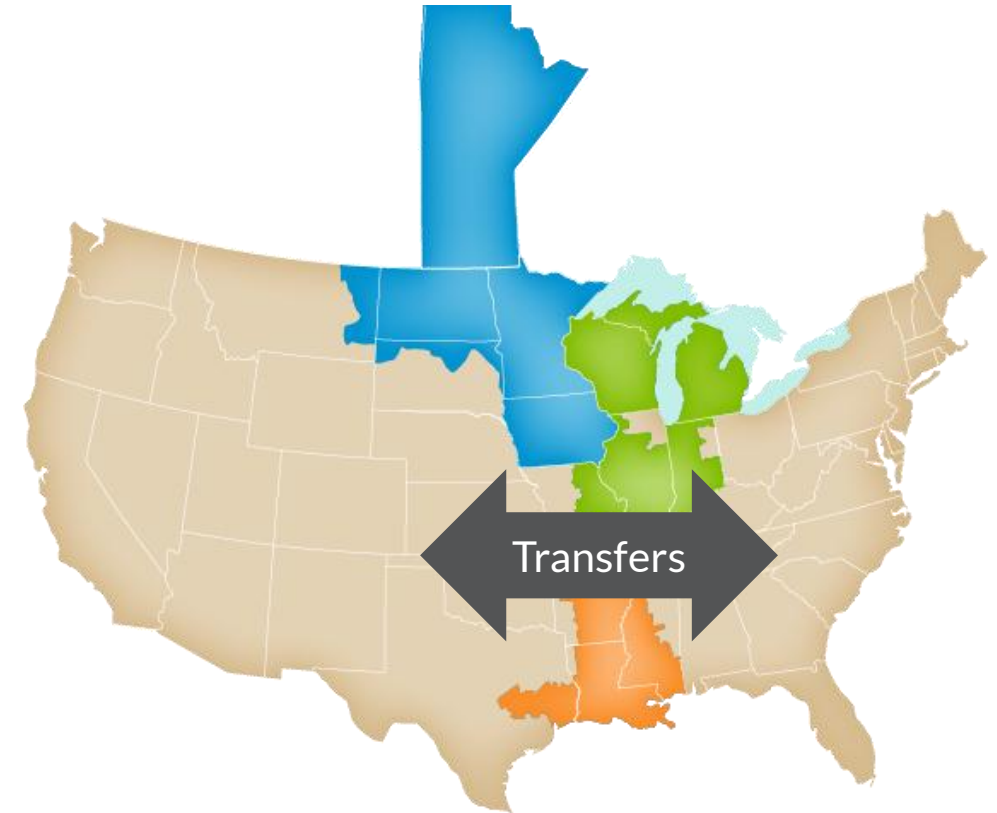
Load Pocket	Monitored Element	Limiting Contingency	Violation Type	Import Capability (MW)
AMITE SOUTH	Slidel – Front Street 230kV	Marion – Hatisburg 230kV and 1SOXY Unit 1	Thermal	3,622
DSG	Good Hope – Prospect 230kV	Waterford – Churchill 230kV and Ninemile Point Unit 5	Thermal	2,365
*Western	Grimes – MT. Zion 138kV	*Cypress – Honey 138kV and MCPS Full Station	Thermal & Voltage	1,234

\* Additional generation or reactive resources are required to maintain voltage/reactive balance under this contingency.

\* The limit is with Frontier generation at full capacity during summer peak loading condition. N1G1 would not solve without it.

## Bidirectional transfer studies across the MISO footprint to identify main constraints with transfers between MISO neighbors

- Transfers across MISO between East and West systems:
  - East system – PJM, SERC (without AECI)
  - West system – SPP and AECI
- Transfer value selected above realistic transfers to identify leading constraints
  - 15,000 MW used
- Flows measured at all tie points and lines bypassing MISO



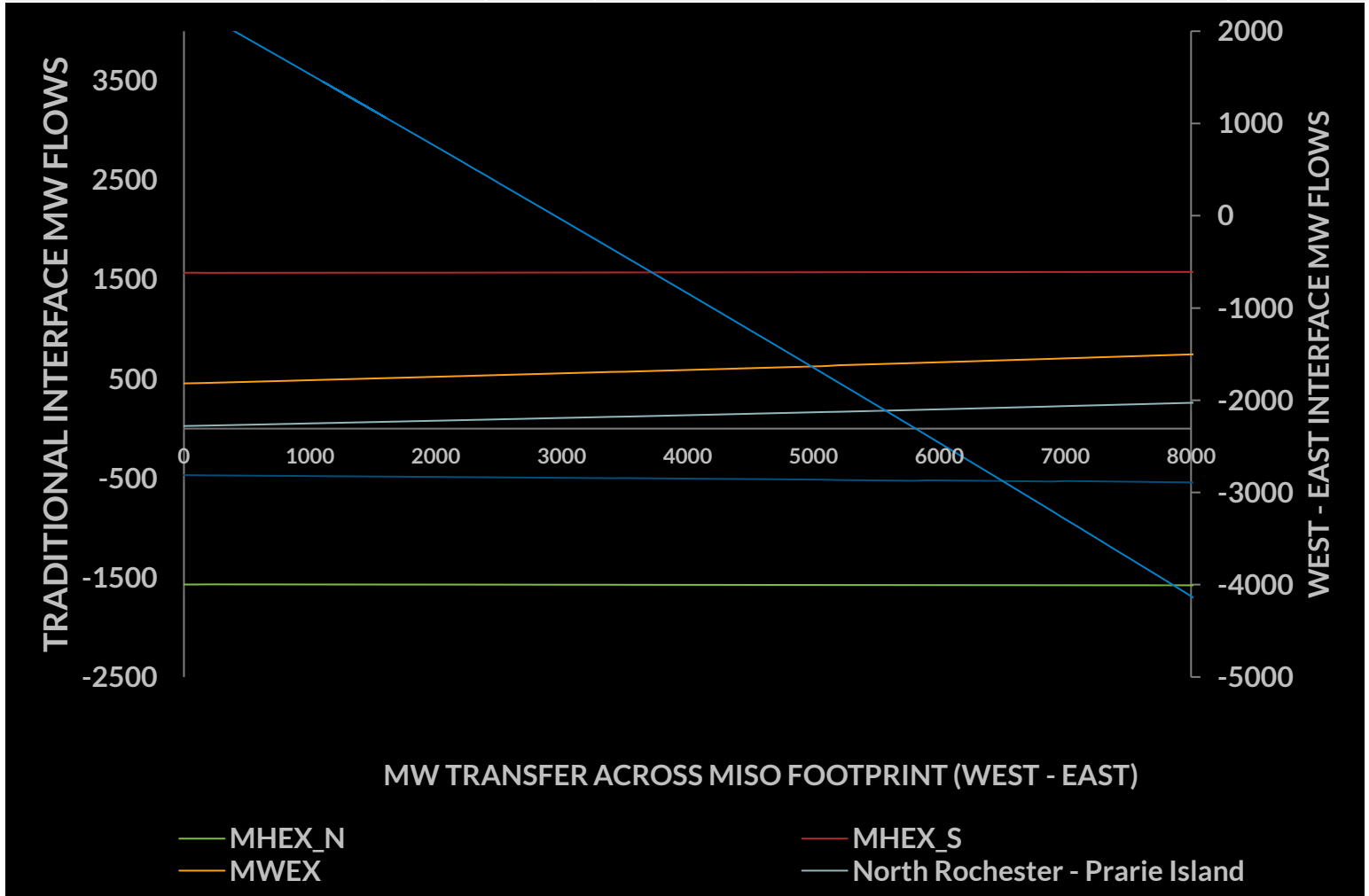
# East to West transfer leading constraints and interface flows identified during study

Monitored Facility	Rating	Area	Contingency Name	DC TrLim	AC TrLim
SOUTHLAND - MT HOME 161kV	162	EES_EAI	EA16039: HARRISON EAST-HILLTOP 161	1441.6	1441.6
LAKEOVER 500/230 AT2	615	EES_EMI	EE50X47: LAKEOVER 500/115 AT1	2010.9	2010.9
INDEPENDENCE SES - MOOREFIELD 161	310	EES_EAI	EA16098: QUITMAN - CLINTON WEST 161	3172.9	3172.9



# West to East transfer leading constraints and interface flows identified during study

Monitored Facility	Rating	Area	Contingency Name	DC TrLim	AC TrLim
GIBSON - PETERSBURG 345kV	1279	DEI/IPL	CIN34027: BEDFORD-GIBSON 345kV	3710.8	5533.3
PATMOS WEST - LEWISVILLE 115kV	159	EES-EAI	CSW34X40: CROCKETT 345/138 TA TB	5152.2	5347.5
OVERTON 345/161 kV Xfmr	560	AMMO	AEC34014: KINGDOM - MCCREDIE 345kV	6249.5	6249.5



Contact: Fisseha Zewdu, [fzewdu@misoenergy.org](mailto:fzewdu@misoenergy.org)



# Seasonal Risk / Uncertainty Management

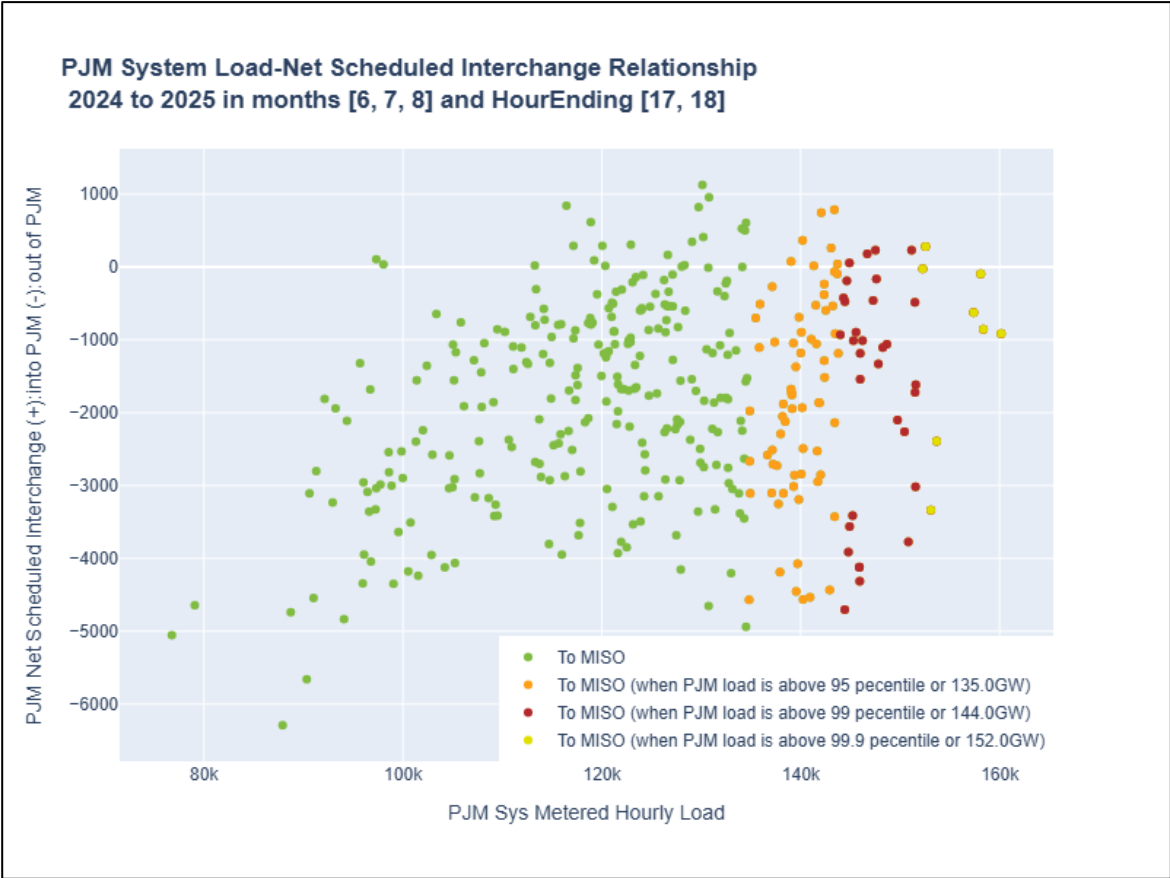
Matt Campbell, Manager, Operations Risk Assessment

## Net Scheduled Interchange (NSI)

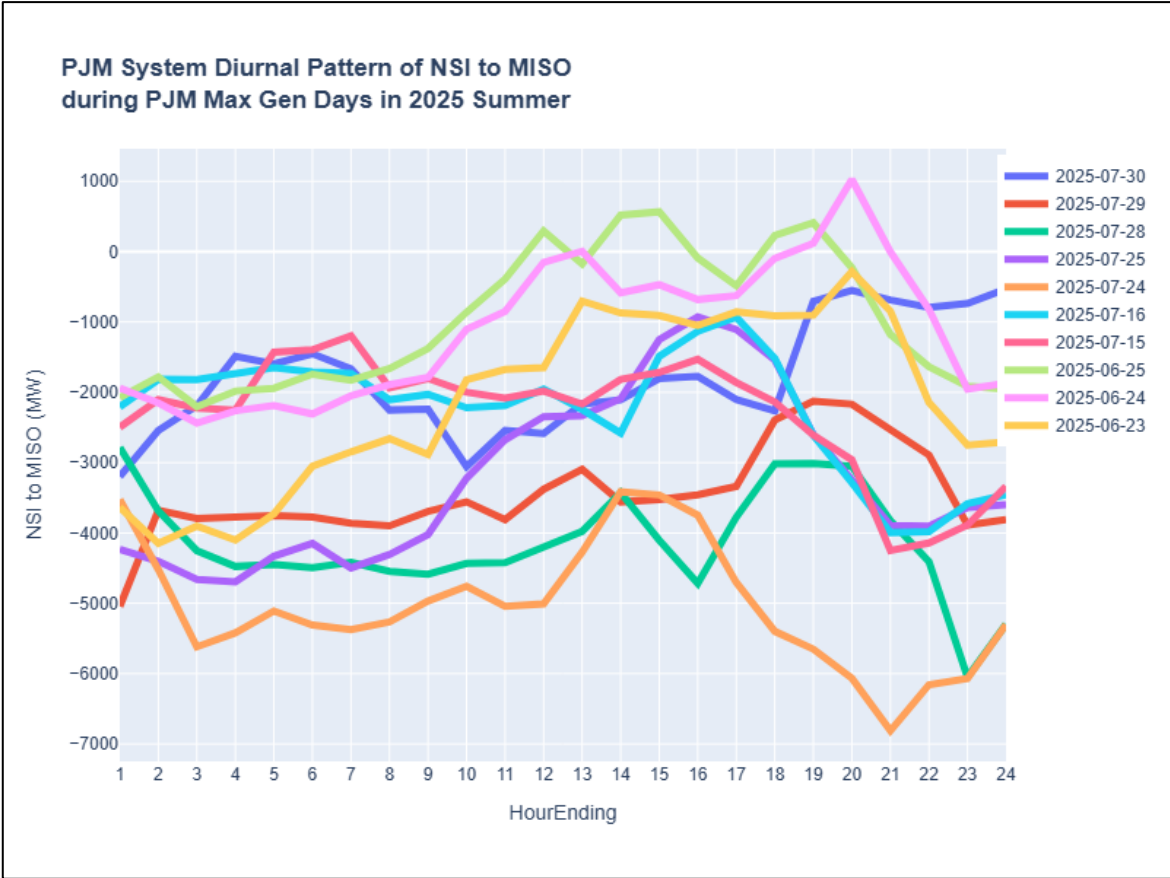
- Using historical NSI-load relationship for NSI risk assessment.
- Actively tracking neighbors' system forecasts, particularly during extreme conditions.

# Net Scheduled Interchange Risk

Using historical NSI-load relationship for NSI risk assessment

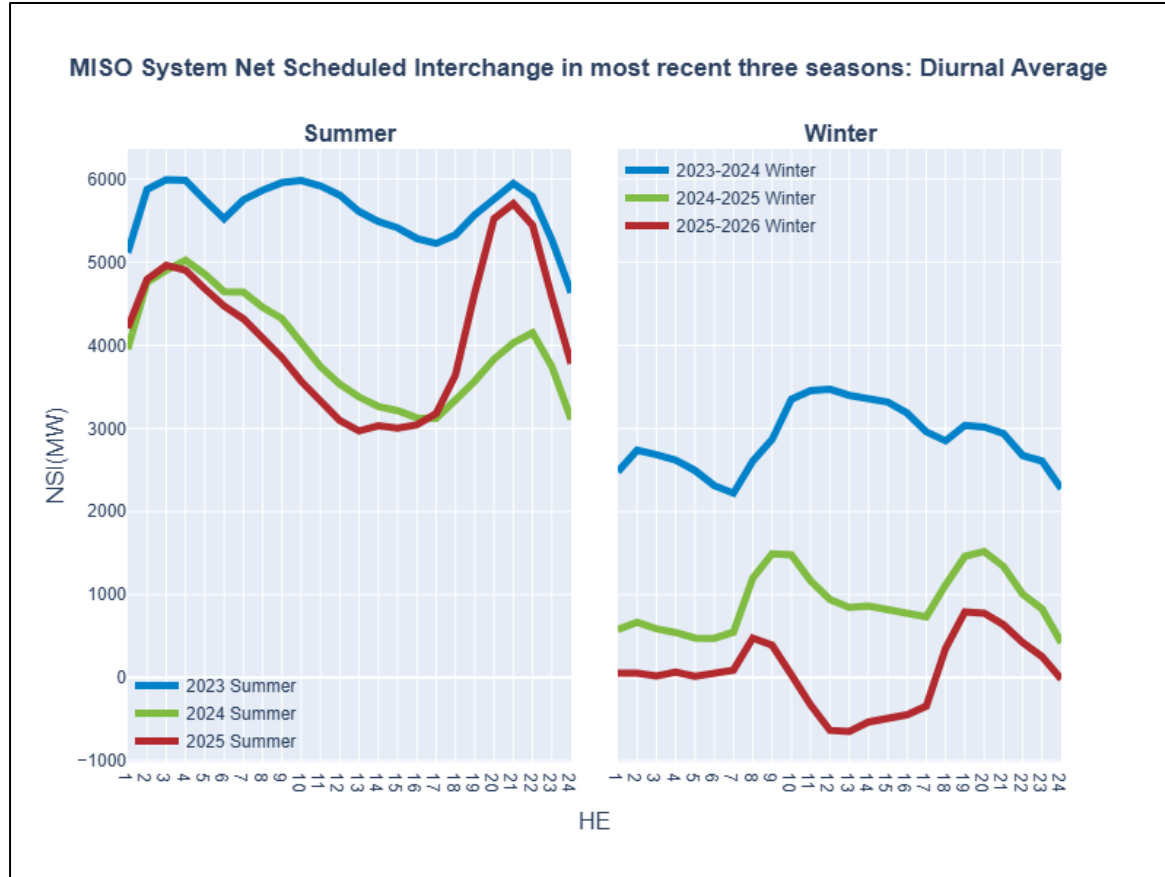


PJM’s capability of import energy into MISO has great variation across its Max Gen days

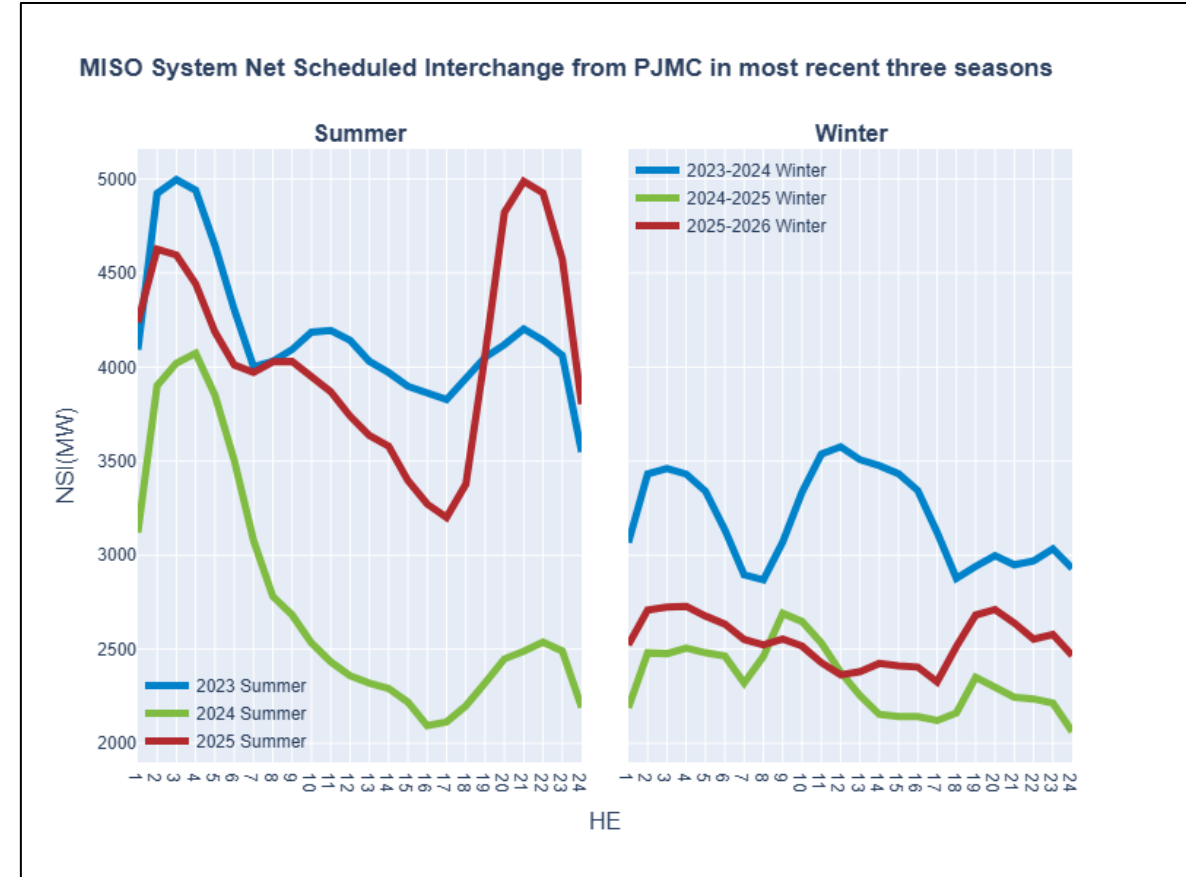


# Net Scheduled Interchange Risk

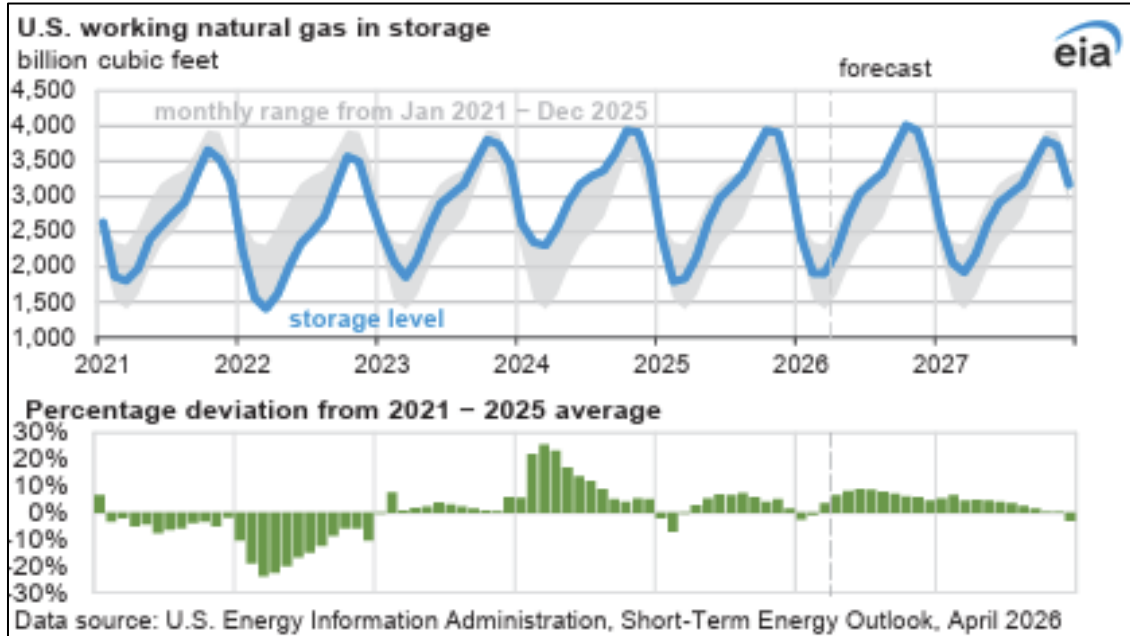
On average, MISO relies more on NSI import during summer months than in winter season



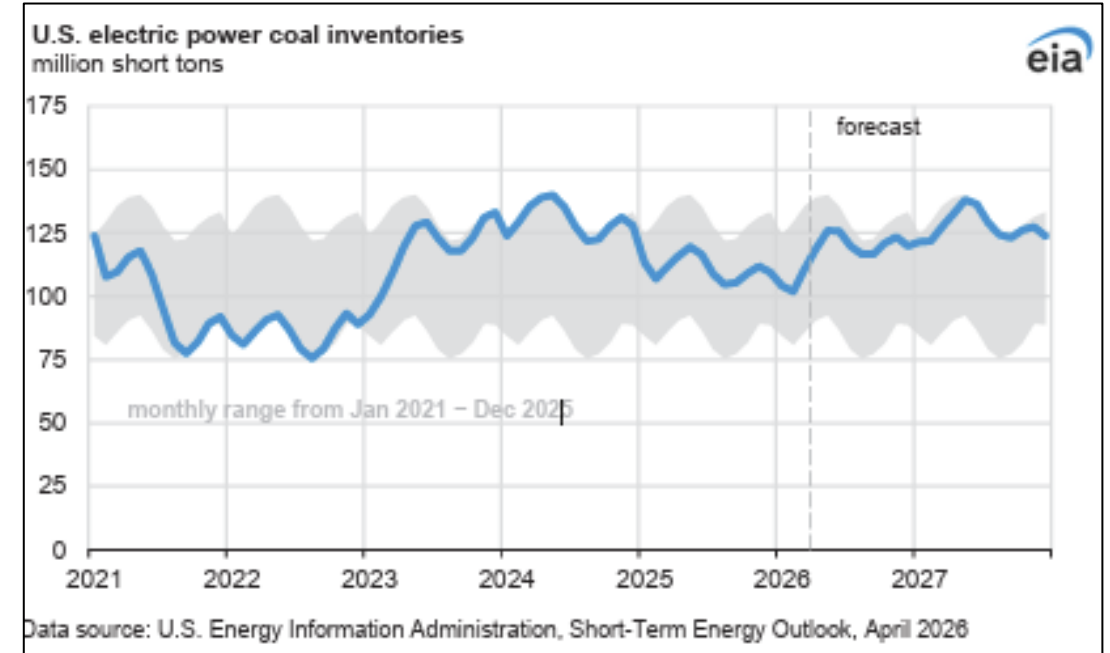
PJM accounts for the bulk of NSI import in summer months, with great variation in past three seasons



# Dispatchable Thermal Generation Risk



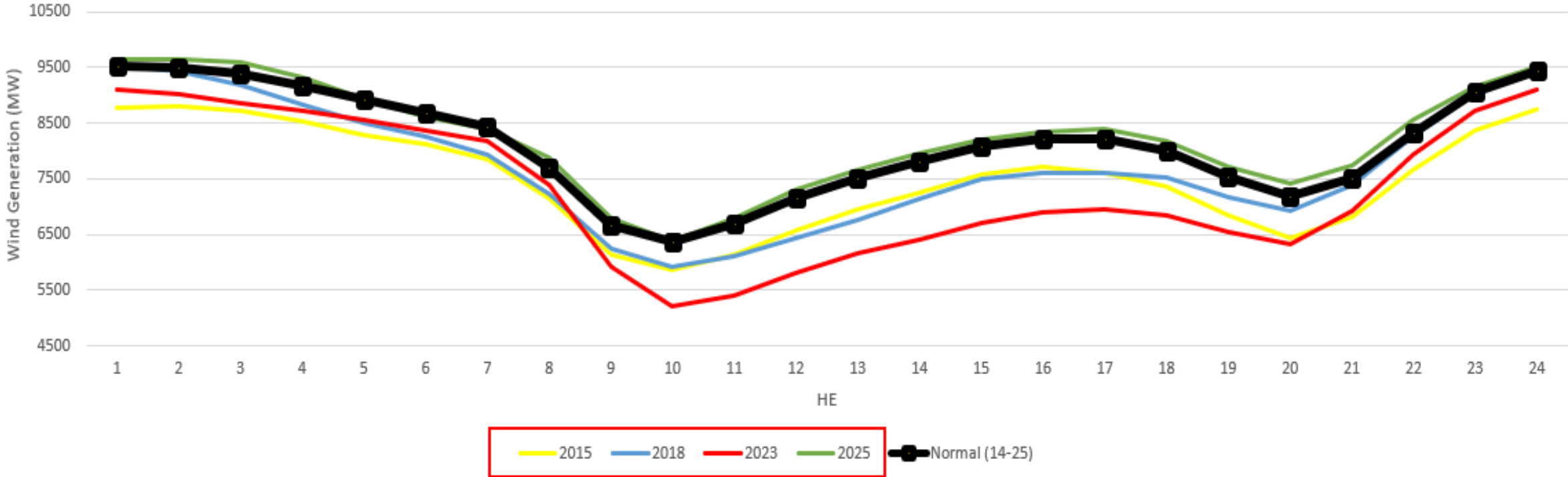
- The balance between natural gas and coal generation will depend on fuel availability and delivery. Natural gas storage is projected to be higher than the 5-year average each month.



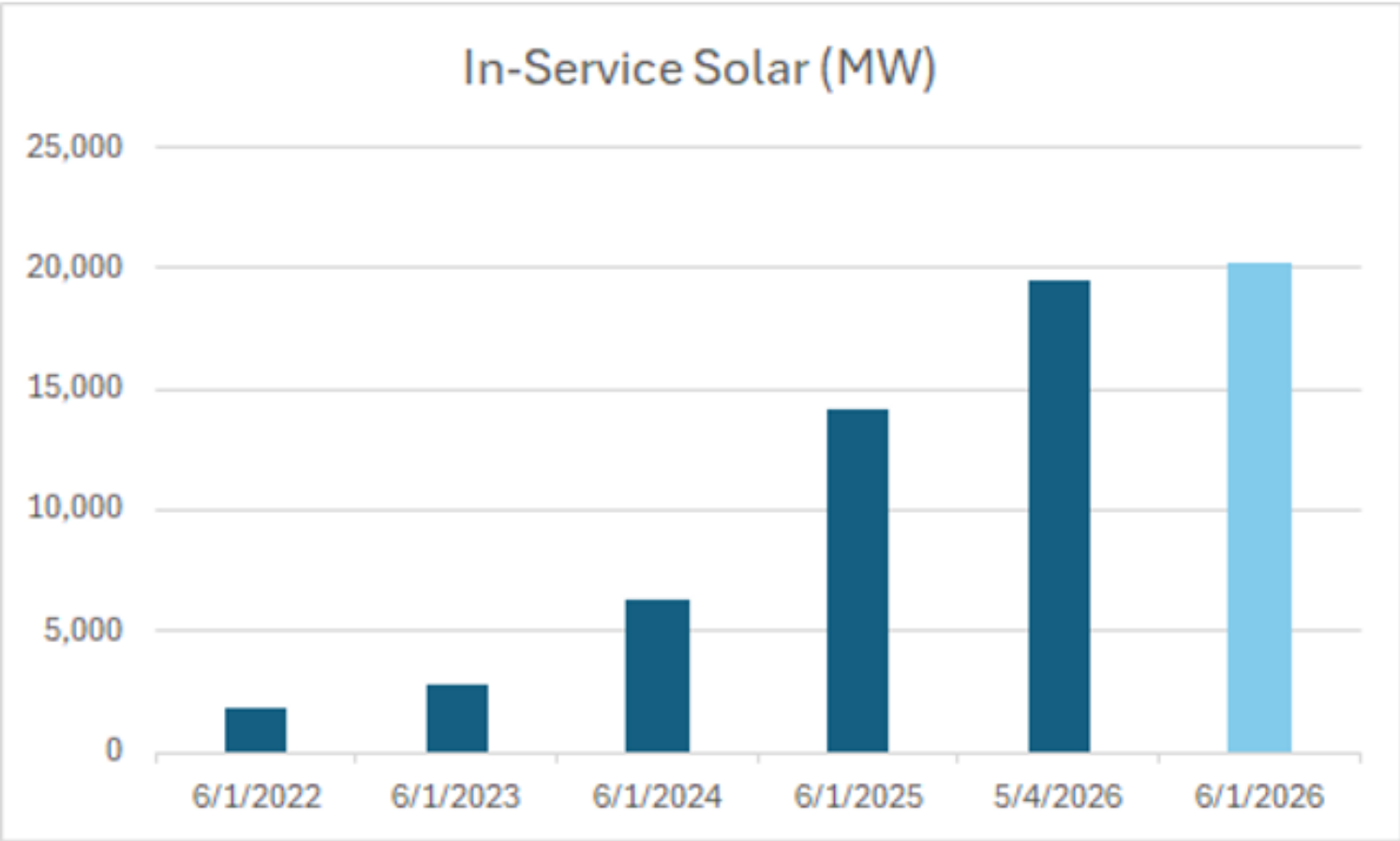
- Coal inventories at power plants are expected to be higher than last summer and on the high end of the 5-year average.

# Analog years for summer 2026 indicate below normal wind output

MISO Summer (May 15 - Sep 15) Standardized Hourly Wind Generation (2026 Pmax Base)



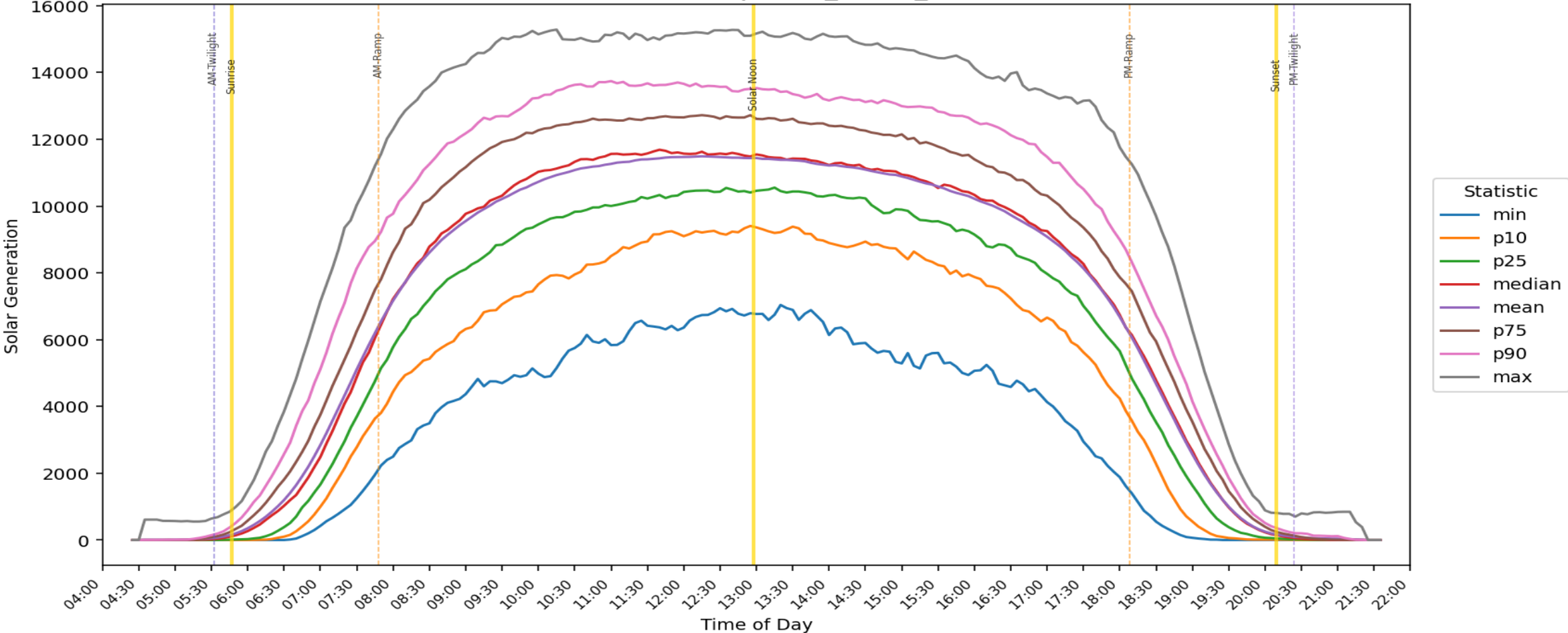
# MISO is projected to have 20 GW of solar in our market in June 2026



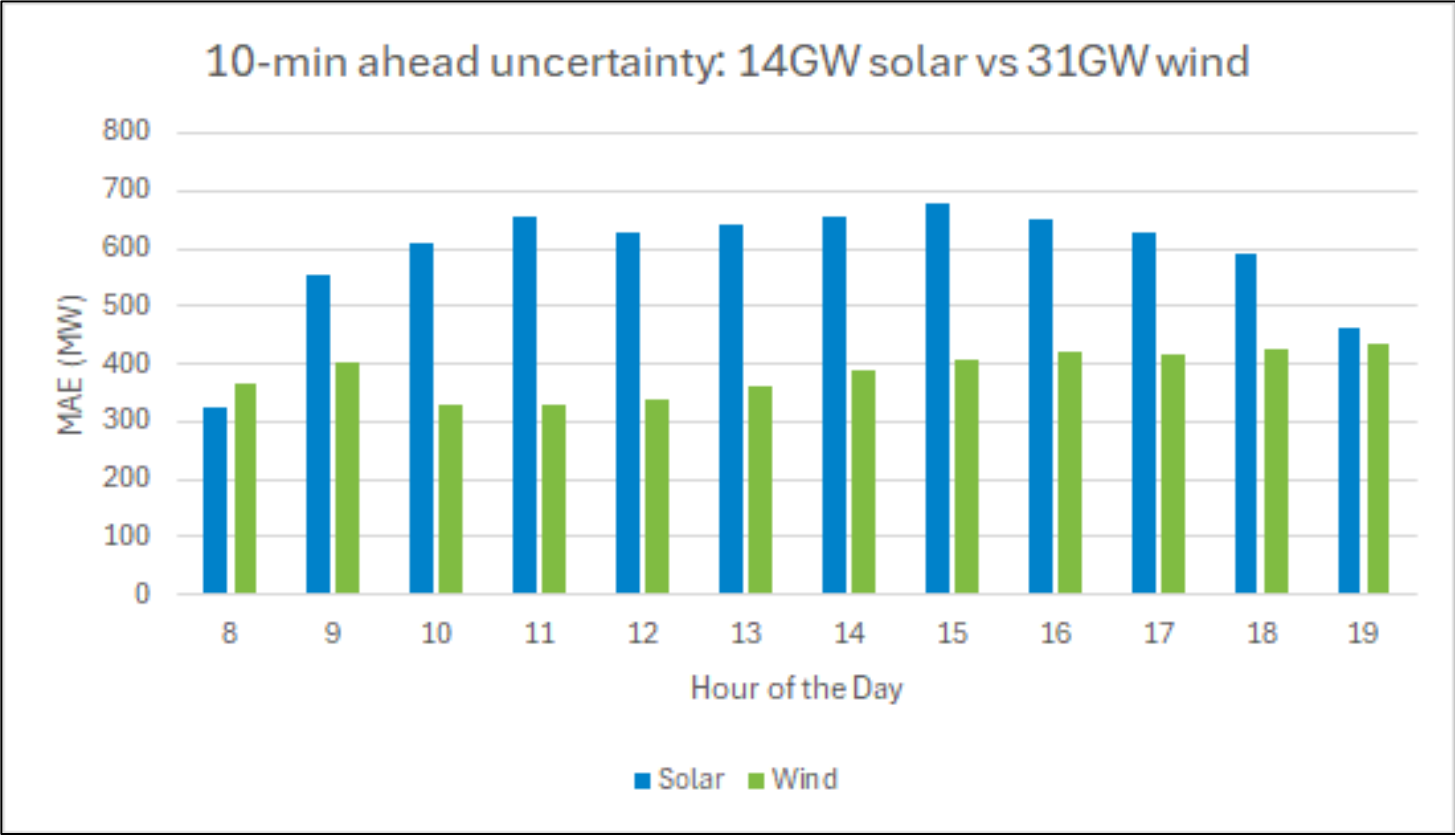
# Solar expectations based for summer

Data standardized to latest MISO Pmax: Average daytime solar expected to be ~11 GW

System - Summer | Stan\_TRUE\_ACTUAL

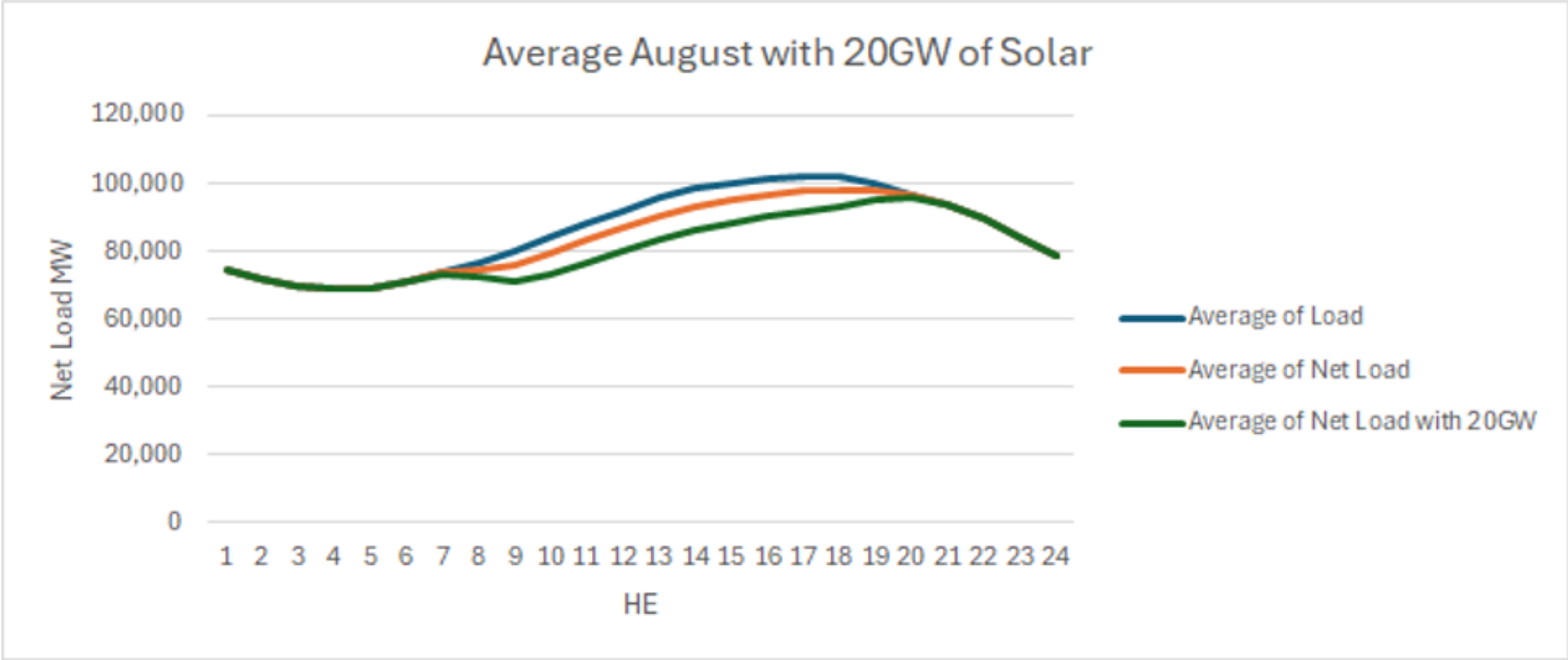


# Solar uncertainty more challenging in real time than wind



Performance over last summer

# Expected in service solar shifts peak hour from HE17 to HE20



# Enhanced uncertainty management based on learned opportunities

- Enhanced quantification models to derive seasonal reserve requirements
- Shift from Peak Hour to ALL HOUR process
- Assess all 24-hour ND-FRAC Net Uncertainty forecast to determine Low/Medium/High prediction for setting Commitment Threshold
- Assess Commitment Threshold across all 24-hour conditional on load and renewable level
- Prepare implementation of Dynamic Regulation Requirement expected June 2026

# Assess all 24-hour ND-FRAC Net Uncertainty forecast to determine low/medium/high prediction for setting Commitment Threshold

- A market day will be labeled as low/medium/high based on:

- L/M/H at peak hour; or
- Count of M/H hours in a day

## Using 3/16/2026 as example:

- Medium at Peak Hour HE 20
- High when counting M/H hrs
- Final determination: HIGH

MKTDAY	HE	Uncertainty
3/16/2026	1	1-Low (Green)
3/16/2026	2	1-Low (Green)
3/16/2026	3	2-Medium (Yellow)
3/16/2026	4	2-Medium (Yellow)
3/16/2026	5	2-Medium (Yellow)
3/16/2026	6	2-Medium (Yellow)
3/16/2026	7	2-Medium (Yellow)
3/16/2026	8	2-Medium (Yellow)
3/16/2026	9	2-Medium (Yellow)
3/16/2026	10	2-Medium (Yellow)
3/16/2026	11	3-High (Orange/Red)
3/16/2026	12	3-High (Orange/Red)
3/16/2026	13	3-High (Orange/Red)
3/16/2026	14	3-High (Orange/Red)
3/16/2026	15	3-High (Orange/Red)
3/16/2026	16	3-High (Orange/Red)
3/16/2026	17	3-High (Orange/Red)
3/16/2026	18	3-High (Orange/Red)
3/16/2026	19	3-High (Orange/Red)
3/16/2026	20	2-Medium (Yellow)
3/16/2026	21	1-Low (Green)
3/16/2026	22	1-Low (Green)
3/16/2026	23	1-Low (Green)
3/16/2026	24	1-Low (Green)

# Assess commitment threshold across all 24-hour conditional on load and renewable level

April 13, 2026

Next-Day FRAC Commitment Thresholds Details (ALL HOUR PROCESS)

Select Forecast Market Day:

Region	PEAKHOUR	ALLHOUR	FINAL	Primary Commitment Threshold	Supplement Commitment Threshold	Commitment Threshold (MW)
Systemwide	Low	Low	Low	5,000	6,600	6,600

Systemwide				
HE	FORECAST MTLF Input	FORECAST WIND Input	Supplement Commitment Th..	
1	63,924	20,093	6,300	
2	62,525	19,066	4,800	
3	61,826	17,677	4,800	
4	61,937	16,219	4,800	
5	63,573	15,314	4,800	
6	65,462	15,070	5,400	
7	69,705	14,943	5,400	
8	72,904	14,934	5,000	
9	74,352	15,010	5,000	
10	75,681	15,449	5,000	
11	76,982	16,339	5,000	
12	78,219	17,366	6,000	
13	79,439	18,670	6,600	
14	80,021	19,763	6,600	
15	80,958	20,249	6,600	
16	82,023	20,187	6,600	
17	83,027	19,834	6,600	
18	83,339	19,167	6,600	
19	82,810	18,311	6,000	
20	81,993	17,740	6,000	
21	80,978	17,392	6,000	
22	77,599	17,050	5,000	
23	73,018	16,633	5,000	
24	68,865	15,965	5,400	



Contact: Matt Campbell, [mcampbell@misoenergy.org](mailto:mcampbell@misoenergy.org)

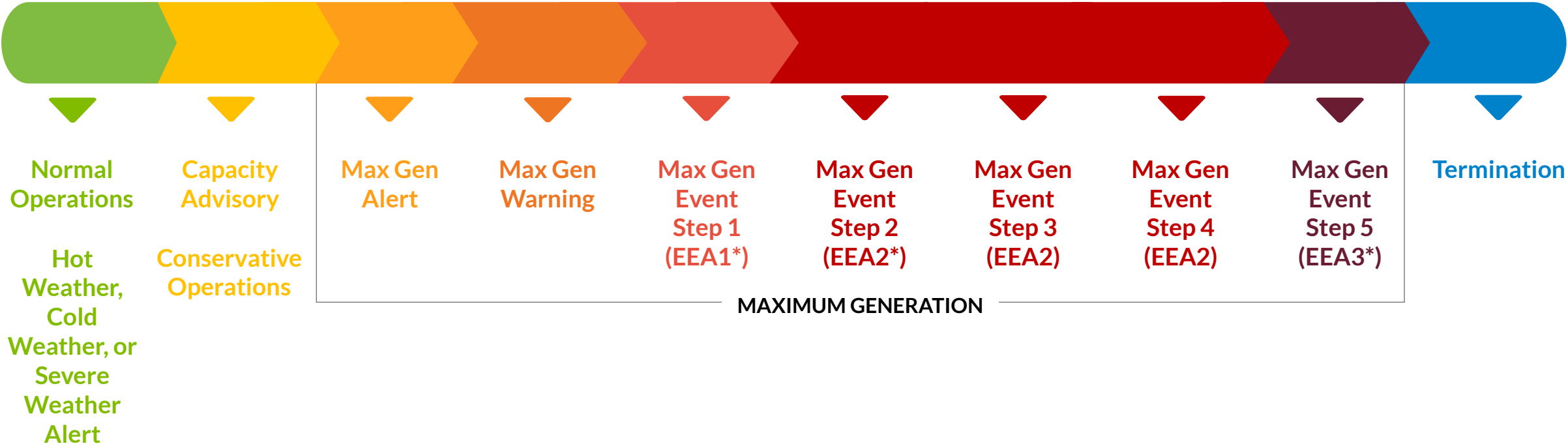


# Emergency Procedure & Capacity Emergency Changes

Don Hunter, Manager, MISO Control Room Operations

# Current Procedures through May 30, 2026

## MARKET CAPACITY EMERGENCY PROCEDURE STEPS

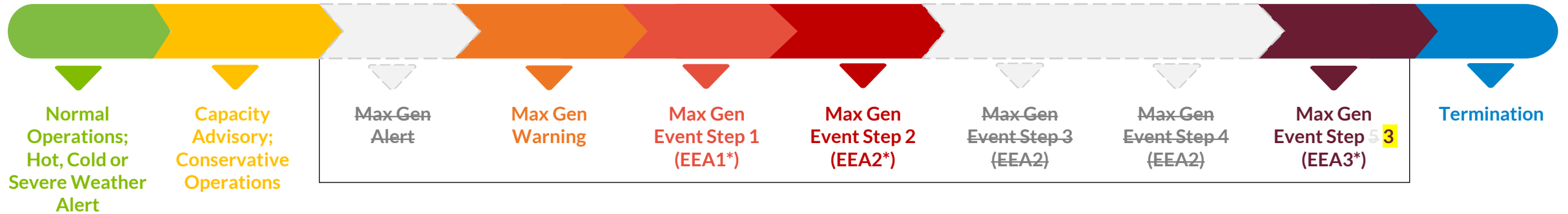


Emergency procedures escalate as capacity conditions tighten; associated actions are designed to balance the real-time supply of energy with demand on the system

\*See appendix for definitions

# What's Changing

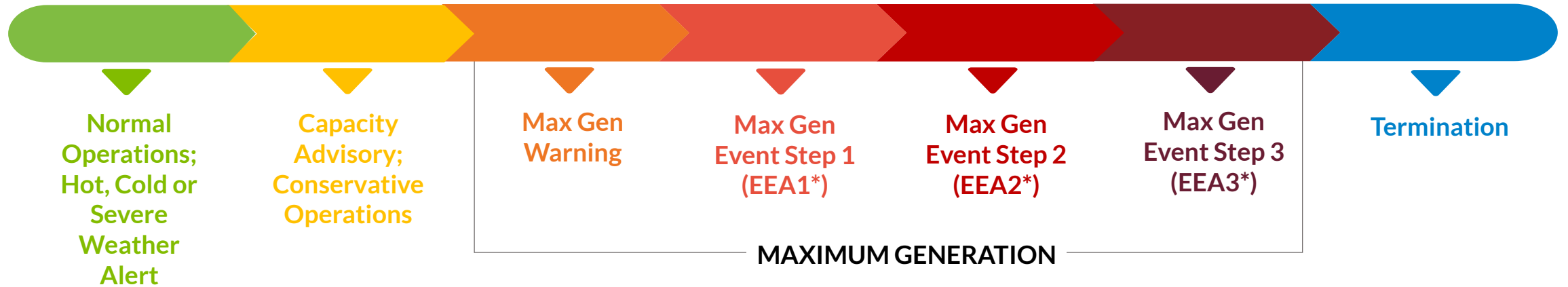
## PROPOSED MARKET CAPACITY EMERGENCY PROCEDURE STEPS



### CHANGES INCLUDE

- Eliminate Maximum Generation Alert
- Move procedure Step 1a (commitment of emergency-only resources) from Step 1 to Maximum Generation Warning
- Merge Maximum Generation Steps 3 and 4 with Step 2
- Rename Maximum Generation Event Step 5 to Event Step 3

## MARKET CAPACITY EMERGENCY PROCEDURE STEPS



Emergency procedures escalate as capacity conditions tighten; associated actions are designed to balance the real-time supply of energy with demand on the system

# The grid conditions gauge on MISO's website reflects active market capacity conditions for members and the public

Green	Yellow	Orange	Dark Orange	Red
<p><i>Grid is stable and conditions are normal</i></p>	<p><i>Grid is stable and advisories or warnings are issued</i></p>	<p><i>Grid is stable and power demand could exceed supply available</i></p>	<p><i>Grid is stable and emergency power and/or reduced demand is needed</i></p>	<p><i>Power interruptions imminent or happening</i></p>
<p><b>Hot Weather Alert</b></p>				
<p><b>Cold Weather Alert</b></p>	<p><b>Capacity Advisory</b></p>	<p><b>NERC Energy Emergency Alert 1 (EEA1)</b></p>	<p><b>NERC Energy Emergency Alert 2 (EEA2)</b></p>	<p><b>NERC Energy Emergency Alert 3 (EEA3)</b></p>
<p><b>Severe Weather Alert</b></p>	<p><b>Conservative Operations</b></p>			
	<p><b>Maximum Generation Warning</b></p>			

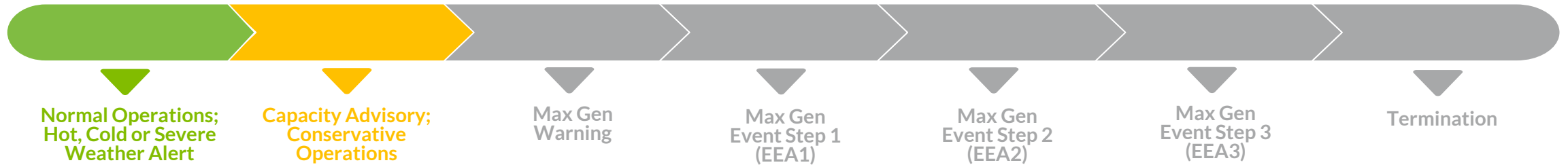
### Grid Conditions Gauge vs. Capacity Emergency Notifications

The gauge needle moves when an alert, advisory, warning, event or termination *takes effect*, not when a notification is sent. Notifications take precedence over what is seen on the gauge.



# MARKET CAPACITY EMERGENCY PROCEDURE STEPS

(1 of 3)



STATUS	TRIGGER	COMMUNICATION	AVAILABLE MISO ACTIONS*	REGULATORY	STAKEHOLDER/MEDIA
Normal Operations	None	None	Normal operating procedures	None	None
Hot, Cold, or Severe Weather Alert	Could be approaching tight supply due to weather-related circumstances, like extreme heat or cold, or severe wind, storms, and tornados	<b>Alert for situational awareness</b>	<ul style="list-style-type: none"> <li>Review outage plans for deferral or cancellation</li> <li>Normal pricing</li> </ul>	MISO alerts FERC, NERC, DOE, State Commissions, and Regional Entities	<ul style="list-style-type: none"> <li>Message to members and neighboring RCs through Operator Interface and RCIS</li> <li>Notification posted to MISO website</li> <li>Email sent to Real-Time Market Mailing List</li> </ul>
Capacity Advisory	Capacity shortage is forecast within the next few days	<b>Advisory for situational awareness</b>	<ul style="list-style-type: none"> <li>Request market participants update offer data</li> <li>Allows MISO to line up LMRs that are unavailable under normal operating conditions</li> <li>Increase STR requirements</li> <li>Normal pricing</li> </ul>	Same as above	Same as above
Conservative Operations	Reliability issue possible for defined area (may be capacity-driven or caused by other abnormal circumstances)	<b>Alert for situational awareness</b>	<ul style="list-style-type: none"> <li>Potentially suspend transmission maintenance</li> <li>Review outage plans for deferral or cancellation</li> <li>Define boundaries</li> <li>Suspend maintenance</li> <li>Normal pricing</li> </ul>	Same as above	Same as above

\*MISO's Shift Manager determines which actions are needed and that is shared through Operator Interface. See appendix for definitions

# MARKET CAPACITY EMERGENCY PROCEDURE STEPS

(2 of 3)



STATUS	TRIGGER	COMMUNICATION	AVAILABLE MISO ACTIONS*	REGULATORY	STAKEHOLDER/MEDIA
Maximum Generation Warning	Reserve margin shortage is forecast	Warning to prepare for possible event	<ul style="list-style-type: none"> <li>• Declare <i>Conservative System Operations</i></li> <li>• Prepare for potential Maximum Generation event</li> <li>• Schedule all available economic resources</li> <li>• Curtail non-firm exports</li> <li>• Reconfiguration</li> <li>• Commit emergency-only resources**</li> <li>• Request environmental waivers as appropriate</li> <li>• <i>Emergency Tier 1 Offer Floor</i></li> </ul>	Same as above	Same as above
Maximum Generation Event Step 1 (EEA1)	Reserve margin requirements cannot be met through normal economic resources; all available resources in use	Declare EEA1	<ul style="list-style-type: none"> <li>• Activate emergency operating ranges</li> <li>• <i>Emergency Tier 1 Offer Floor</i></li> </ul>	<ul style="list-style-type: none"> <li>• EEA Notification</li> <li>• MISO NERC Alert</li> <li>• MISO contacts state/local leaders</li> </ul>	MISO corporate communications initiates contact with impacted member communicators

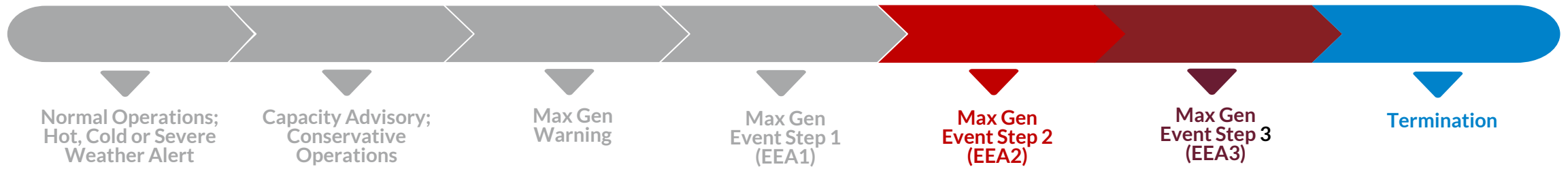
\*MISO's Shift Manager determines which actions are needed and that is shared through Operator Interface.

\*\*Moved from previous Step 1a

See appendix for definitions

# MARKET CAPACITY EMERGENCY PROCEDURE STEPS

(3 of 3)



STATUS	TRIGGER	COMMUNICATION	AVAILABLE MISO ACTIONS*	REGULATORY	STAKEHOLDER/MEDIA
Maximum Generation Event Step 2 (EEA2)	Demand cannot be met; actions needed to reduce demand and/or acquire additional supply	Declare EEA2	<ul style="list-style-type: none"> <li>Instruct load to be reduced via LMMs-Stage 1 or Stage 2 and LMRs or EDRs</li> <li>Implement emergency energy purchases</li> <li>Instruct LBAs if public appeals needed**</li> <li>Implement spinning and supplemental reserves</li> <li>Request and implement environmental waivers</li> <li>Initiate external emergency energy purchases</li> <li><i>Emergency Tier 2 Offer Floor</i></li> </ul>	Same as above	Same as above
	Attempting to maintain minimum Contingency Reserves				
	All available MISO resources used				
Maximum Generation Event Step 3 (EEA3)	Unable to maintain minimum Contingency Reserves	Declare EEA3	<ul style="list-style-type: none"> <li>Coordinated load shed</li> <li><i>VOLL pricing</i></li> </ul>	Same as above	Same as above
Termination	Max Gen and, possibly, Capacity Advisory termination	Event terminated	<ul style="list-style-type: none"> <li>Update stakeholder market data</li> <li><i>Normal pricing</i></li> </ul>	Same as above	Same as above

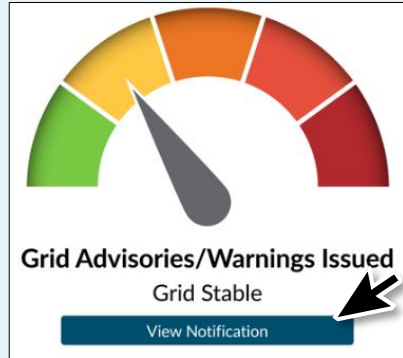
\*MISO's Shift Manager determines which actions are needed and that is shared through Operator Interface.

\*\*Public appeals to reduce demand is based on internal LBA procedures, system conditions and Event projections provided by MISO

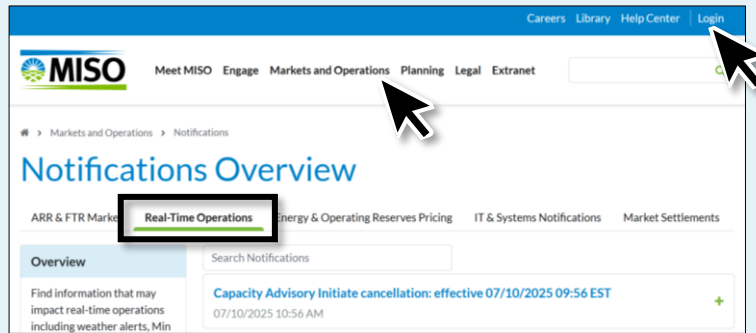
See appendix for definitions

# View MISO's real-time grid status and subscribe to notifications

## Website

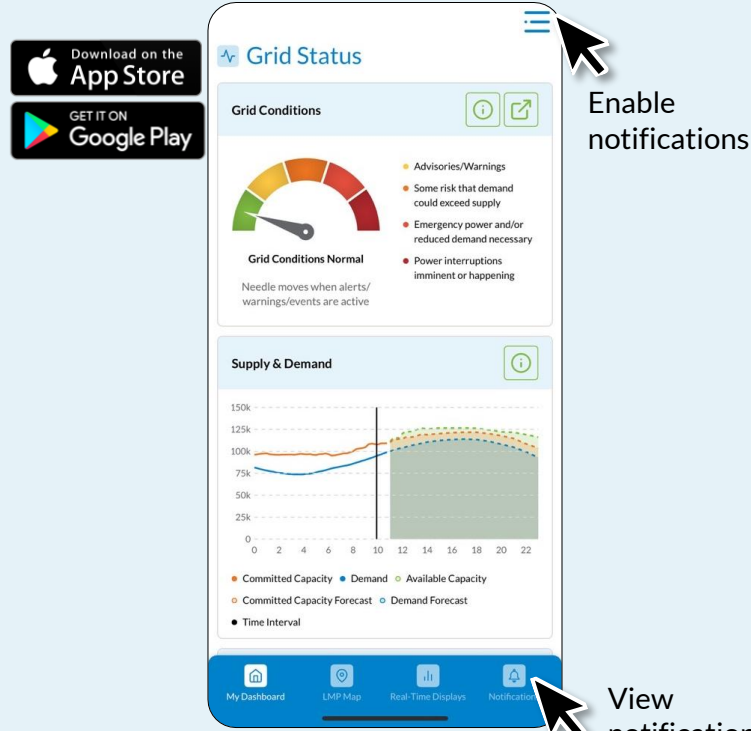


Grid Conditions Gauge (Homepage)



Real-Time Operations Notifications (Markets and Operations > Notifications > Real-Time Operations)  
Login to subscribe to email notifications

## MISO App



Grid Conditions Gauge (My Dashboard)

Real-Time Operations Notifications (Notifications > Real-Time Operations)

## Social Media



[@MISO\\_energy](https://twitter.com/MISO_energy)



[Midcontinent Independent System Operator \(MISO\)](https://www.linkedin.com/company/miso)



# Public Notifications on Website & Email

- Public declarations will include time and impacted region(s) and entity(ies)
- Notifications will be posted to the website and sent via the Real-Time Notification email list
- Operating instructions will be shared via Operator Interface only
  - Full and view-only access is managed by each LBA, TO or MP

## Notification

### Severe Weather Alert

04/04/2026 9:21 AM EST

MISO has issued a Severe Weather Alert due to High Winds and Heavy Rainfall.

Start Time: 04/04/2026 09:15 EST

End Time: 04/04/2026 20:00 EST

Affected Region(s):

- South Region - EES, CLEC, LAFA, SME, EAI, EMBA

*This public notification is for awareness only. Impacted entities receive detailed instructions and information via the Operator Interface.*

MISO will issue separate notifications for Public Appeals. This action is at the discretion of the shift manager when in EEA2.

- Notifications will be posted to the website and sent via the Real-Time Notification email list

## Notification

### Public Appeal Notification

06/01/2026 7:17 AM EST

MISO has instructed the utilities listed below to issue a public appeal for electricity conservation due to reduced power supply and high demand.

Start Time: 06/01/2026 09:15 EST

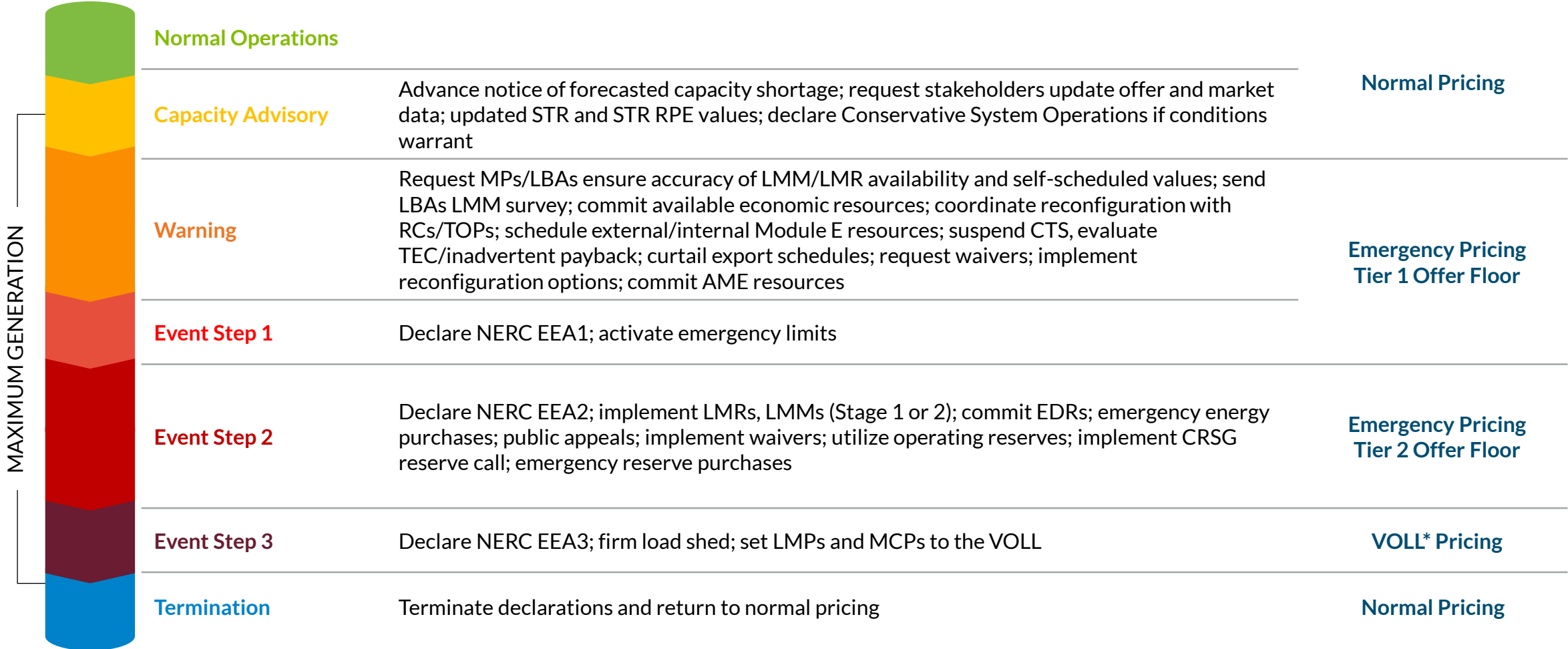
Affected Region(s):

- North Region – DPC, GRE, MDU, MP, NSP, OTP, SMP

*This public notification is for awareness only. Impacted entities receive detailed instructions and information via the Operator Interface.*

# The emergency operating procedures address adverse conditions by signaling conditions to MISO’s members and allowing or requiring certain actions

## MARKET CAPACITY EMERGENCY PROCEDURE STEPS



See appendix for definitions

# Capacity Emergency Communications Appendix

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# Some declarations are *not* driven by capacity challenges

## Transmission

### Transmission Advisory

Notification of forecasted transmission system conditions that may adversely impact the BES but do not yet warrant a Conservative Operations declaration.

### Load Pocket Advisory

Notification of potential capacity concerns within a load pocket where the loss of transmission into the area or generation in the load pocket could lead to additional reliability actions.

**JUNE 1**

### Transmission Warning

Notification that system conditions present a credible risk to the BES, where mitigation actions are expected to be insufficient and more than 100 MW of load may be lost.

### Transmission Emergency

Notification of actual or imminent IROL exceedance requiring immediate emergency actions to maintain BES reliability and prevent widespread impacts.

## System Status Levels

Indicates infrastructure failures at MISO or MISO Member facilities

### SSL 0 Low – Green

System status is normal.  
No adverse impacts

### SSL 1 Elevated – Yellow

Short, minor impact to system, can be quickly remedied

**Examples:** Temporary infrastructure issue

### SSL 2 High – Orange

Longer term, major impact to system, cause unknown

**Examples:** Loss of monitoring data or member infrastructure

### SSL 3 Severe – Red

Major impact on MISO's ability to reliably operate system or market

**Examples:** Hardware failure, bomb threat, sabotage, control center evacuation

**NEW**  
↓

# Notification for a capacity emergency (EEA) is different from a transmission emergency

## Capacity Emergency



Occurs when there is not enough generation to meet demand

Typically linked to extreme weather (summer or winter peak)

Follows MISO's Maximum Generation and NERC's Energy Emergency Alert (EEA) process

Supported with various communications including advisories, declarations, EEA Alerts and website updates

## Transmission Emergency



Occurs when there is an actual or imminent IROL violation on the transmission system

Happens very quickly with no public declarations

Requires corrective action within 30 minutes to maintain grid stability

Follows MISO's Transmission System Emergency process

# Definitions

<b>Contingency Reserves</b>	A type of operating reserve that is held to address the loss of a significant generating unit or transmission line. At MISO, this is the sum of supplemental and spinning reserves.	<b>Load Management Measures (LMM) Stage 2</b>	Load management actions that can be taken to reduce demand including voltage reductions and reducing loads that, by contract, cannot be interrupted until reserves are being or are expected to be depleted and energy from emergency offers by market participants are being or are expected to be depleted. These do NOT include EDRs or LMRs.
<b>Emergency Demand Response (EDR)</b>	Load reductions, behind the meter generation, and other demand resources that are available to reduce demand or increase generation in exchange for guaranteed recovery of costs associated with the response in accordance with Schedule 30 (EDR Provisions) of the Tariff. EDRs are operated outside the Operator Interface (OI) by the shift manager by using the EDR Tool.	<b>Load Modifying Resource (LMR)</b>	These are either demand resources or behind-the-meter generation that have an obligation to reduce demand or increase generation during declared system emergencies
<b>Energy Emergency Alert Level 1 (EEA1)</b>	A NERC-mandated alert when all available generation resources are in use. It means MISO is experiencing conditions where all available generation resources are committed to meet firm load, firm transactions, and reserve commitments and is concerned about sustaining its required contingency reserves. Non-firm wholesale energy sales (other than those that are recallable to meet reserve requirements) have been curtailed.	<b>Maximum Generation Capacity Warning (Max Gen)</b>	MISO foresees or is experiencing conditions where all available economic Resources are committed to meeting Load, firm transactions, and reserve requirements, and is concerned about sustaining required Operating Reserves.
<b>Energy Emergency Alert Level 2 (EEA2)</b>	A NERC-mandated alert when load management procedures are in effect. It means MISO is no longer able to provide its expected energy requirements and is an energy deficient. MISO has implemented its operating plans to mitigate emergencies and is still able to maintain minimum contingency reserve requirements.	<b>Reserve Margin</b>	The difference between total operating reserves and the operating reserve requirement. MISO is required to keep a certain reserve margin to ensure there is enough capacity to meet peak demand, plus a buffer.
<b>Energy Emergency Alert Level 3 (EEA3)</b>	A NERC-mandated alert when firm load interruption is imminent or in progress. It means MISO is unable to meet minimum contingency reserve requirements.	<b>Short-Term Reserve (STR)</b>	A 30-minute rampable generation capacity product. It's designed to address short-term needs for managing system reliability.
<b>Interconnection Reliability Operation Limit (IROL)</b>	A NERC System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or cascading outages that adversely impact the reliability of the Bulk Electric System.	<b>Spinning Reserves</b>	Reserves held that are synchronized to the system and available immediately.
<b>Load Management Measures (LMM) Stage 1</b>	Load management actions that can be taken to reduce demand to preserve or maintain operating reserves that are NOT included in EDRs or LMRs.	<b>Supplemental Reserves</b>	Reserves for abnormal supply deficiencies that must be ready within 10 minutes.
		<b>System Operating Limit (SOL)</b>	The NERC value (such as MW, Mvar, amperes, frequency or volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. System Operating Limits are based upon certain operating criteria.
		<b>Value of Lost Load (VOLL) Pricing</b>	The price at which MISO values the cost of unserved energy; essentially, what customers would be willing to pay to avoid an outage.



## 202(c) Emergency Orders

Don Hunter, Manager, MISO Control Room Operations

# Department of Energy 202(c) Orders

- Section 202(c) of the Federal Power Act (FPA)
  - Authorizes the Department of Energy (DOE) to issue emergency orders
    - Require power plants to remain in operation in lieu of retirement
    - Permit generators to exceed environmental operating limits
    - Direct backup generation facilities to run when EEA3 is imminent
- MISO did not use 202(c) during Winter Storm Fern
  - Actions taken prior to use of the 202(c) sufficient to relieve capacity issues

Contact: Don Hunter, [dhunter@misoenergy.org](mailto:dhunter@misoenergy.org)



# Transmission System Emergency Procedure Updates

Clayton Umlor, Manager, MISO Reliability Coordination

## Purpose

Communicate improvements coming to the Transmission System Emergency (TSE) procedure to enhance operational readiness.

## Key Takeaways

- Transmission Warning declaration is a tool to communicate an increased level of transmission risk (internally & externally)
- Transmission System Emergency procedure updates are drafted and under review for inclusion of the Transmission Warning declaration to be effective June 1, 2026
- Future updates of the procedure will include clarifying criteria and responsibilities for identifying Transmission System Emergencies in both real-time and planning processes

# Transmission Warning Entrance Criteria

**Transmission Warning Declaration:** Notification that system conditions present a credible risk to the BES, where mitigation actions are expected to be insufficient and more than 100 MW of load may be lost.

## A transmission warning will be declared when...

### ALL of the following conditions are met:

- There is 100 MW or more of load at risk
- Normal congestion management tools have been exhausted and are not sufficient to mitigate risk
- Available emergency actions are not sufficient to mitigate risk (e.g., emergency ranges of units, emergency only units, EDRs, and LMRs, etc.)

**AND**

### AT LEAST ONE of the following applies:

- Facilities > 100kV have post-contingent flow greater than or equal to 115% of the highest emergency limit
- The RC determines that system conditions warrant heightened awareness of potential transmission risk

## A transmission warning should be terminated when...

### **EITHER of the following conditions apply:**

- The criteria for declaring the Transmission Warning are no longer satisfied
- RCs and TOPs agree that the risk no longer poses a significant threat to load shed or load loss

# Timeline & Upcoming Procedure Updates



Transmission Warning: June 1



Criteria and responsibilities for defining Transmission System Emergencies and IROLs are currently being evaluated in the MISO stakeholder processes.



TSE procedure redline document will be posted and available for review.



TSE/IROL criteria & responsibility changes expected Q4 2026



Contact: Clayton Umlor, [CUmlor@misoenergy.org](mailto:CUmlor@misoenergy.org)

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# Technical Development & Training Updates

Anita Hurst, Sr. Manager, MISO Technical Development

## Market Capacity Emergency Drill



- Review of recent procedural changes and escalation flow (rev 23 vs rev 24)
- Reinforces how procedure updates affect operational decisions and communications
- Practice applying revised steps of the updated MISO Market Capacity Emergency procedure (SO-P-EOP-11-002, rev 24)

## Hurricane Drill



- Overview of 2025 season and vendor forecasts for 2026
- MISO and Member roles before landfall, during, and following a hurricane
- Three separate, simulated scenarios spanning one storm from pre-to-post-landfall; scenarios covered:
  - Supply Surplus (Min Gen Event)
  - Tool Failure (Loss of State Estimator)
  - Restoration efforts (Including the islanding or generation facility, requiring use of blackstart resources)

## Drill Participation

- MISO operators participate in Hurricane Drill and Market Capacity Emergency Drill

## Interconnection Reliability Operating Limit (IROL) Simulation Training

- Define, identify, and mitigate System Operating Limits and IROLs
- Declare Transmission System Emergencies



Contact: Anita Hurst, [ahurst@misoenergy.org](mailto:ahurst@misoenergy.org)

Thank you for joining us today!