



Missouri Public Service Commission Update

February 19, 2026

Agenda Topics

- Winter Storm Fern 2026
- Energy Emergency Procedures & Communications
- Weather Outlook Spring / Summer 2026
- NERC LTRA 2025
- Questions

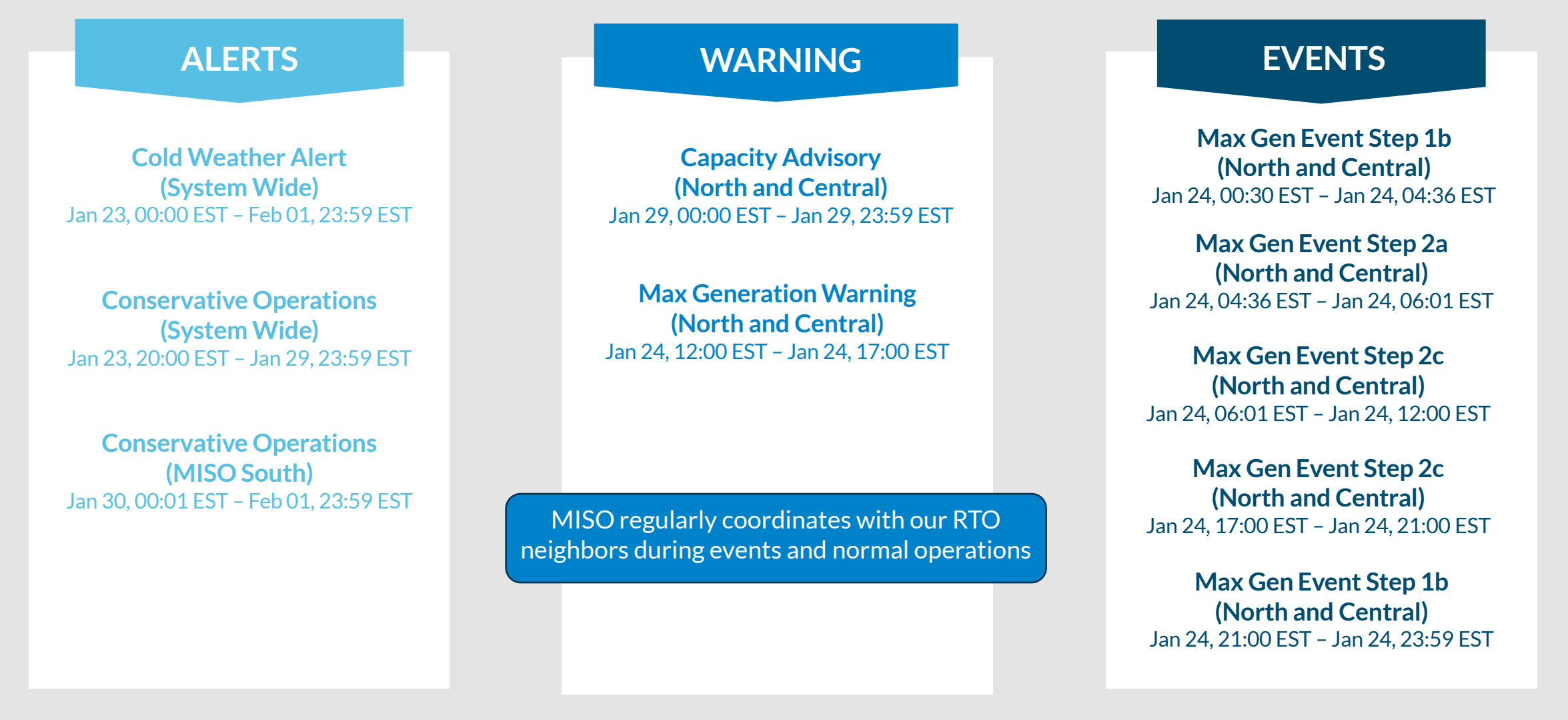
Winter Storm Fern 2026

Bob Kuzman, Executive Director, External Affairs – Central Region

Executive Summary

- Winter Storm Fern brought extreme cold, snow and ice across the MISO footprint, which created operational challenges including forecasting errors, unit availability, and low wind production
- To maintain reliability, two Maximum Generation Events - Step 2c were declared on January 24, allowing MISO access to generation unit emergency ranges, load modifying resource curtailments and emergency power purchases
- MISO is actively engaging in solutions to address the challenges that arose during the event

Sequencing of alert, warning and events during winter storm Fern



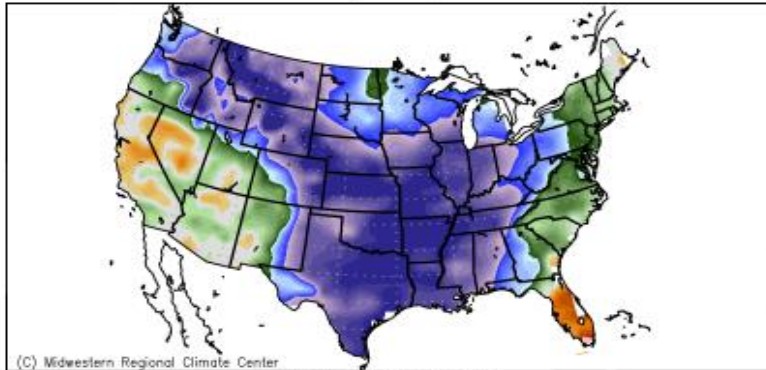
Note: All times indicate the effective time of each declaration
Public

While all occurring in January over the last three years, each winter event has unique characteristics that require different actions

WINTER STORM HEATHER

January 13-17, 2024

Average Temperature (°F): Departure from Mean
January 16, 2024

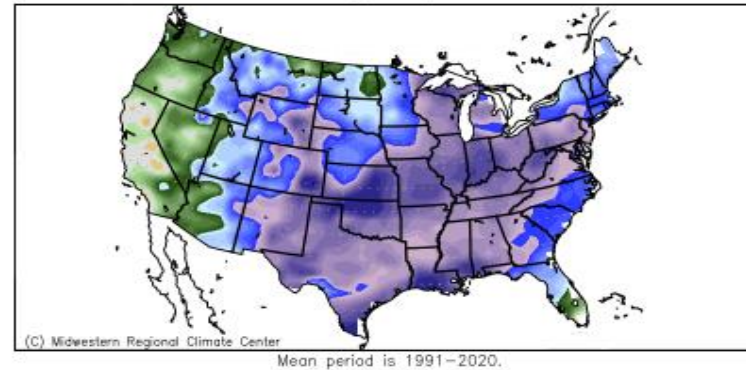


System Peak Load (January 16, 2024)	105 GW
Incremental Unplanned Outages	4 GW
Scheduled Load Modifying Resources*	0 MW
RDT Max Flow & Direction	2.6 GW N-S
Average Daily Wind Generation	20.0 GW
Precipitation: Moderate snowfall across MISO's South and Central regions	

WINTER STORM ENZO

January 18-22, 2025

Average Temperature (°F): Departure from Mean
January 21, 2025

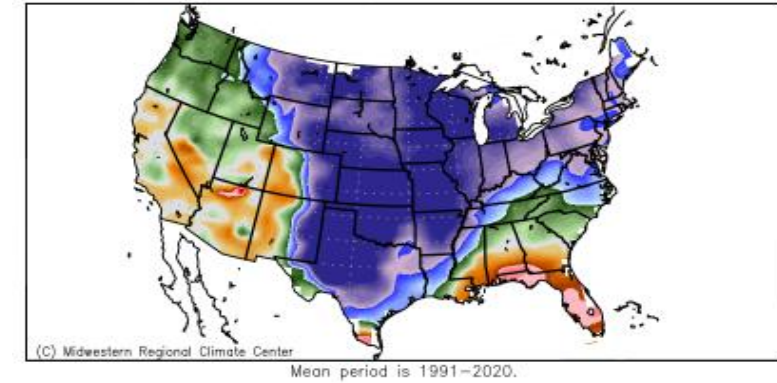


System Peak Load (January 21, 2025)	107 GW
Incremental Unplanned Outages	10 GW
Scheduled Load Modifying Resources*	1.2 GW
RDT Max Flow & Direction	2.7 GW N-S
Average Daily Wind Generation	15.4 GW
Precipitation: Modest snowfall across MISO's North and Central regions	

WINTER STORM FERN

January 22-27, 2026

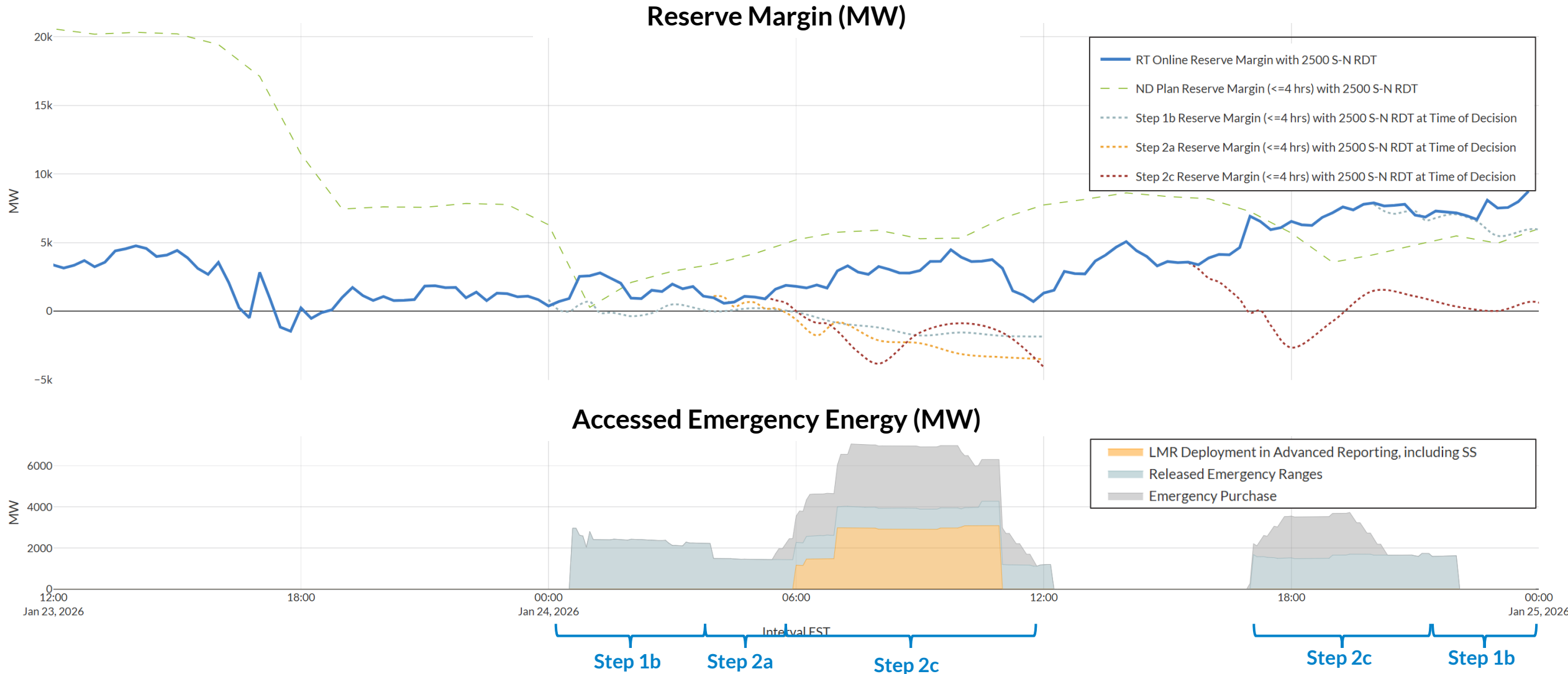
Average Temperature (°F): Departure from Mean
January 24, 2026



System Peak Load (January 27, 2026)	105 GW
Incremental Unplanned Outages	6 GW
Scheduled Load Modifying Resources	2.0 GW
RDT Max Flow & Direction	4.0 GW S-N
Average Daily Wind Generation	3.1 GW
Precipitation: Significant snowfall across MISO's South and Central regions, significant icing in the South region	

*Load Modifying Resources requested for the peak load hour for the noted storm time period

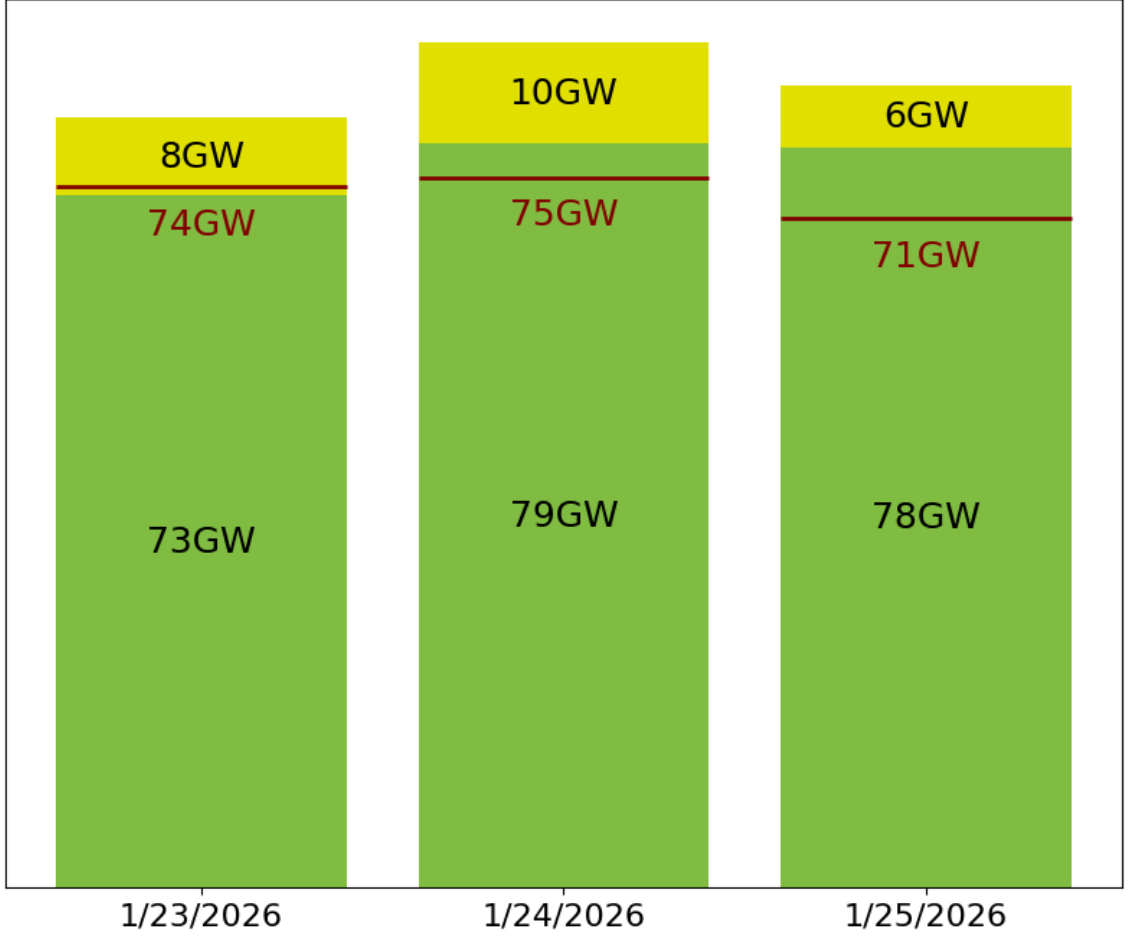
Persistent negative capacity margins in the North and Central regions on January 24 prompted MISO to take emergency actions to maintain system reliability



Event step times are approximate, for exact times see slide 11 in the appendix

Significant unplanned outages caused by the extreme cold contributed to the need for MISO to commit all available resources in real time

Daily Committed Thermal Unit Capacity in DART & Actual Generation at Peak Hour



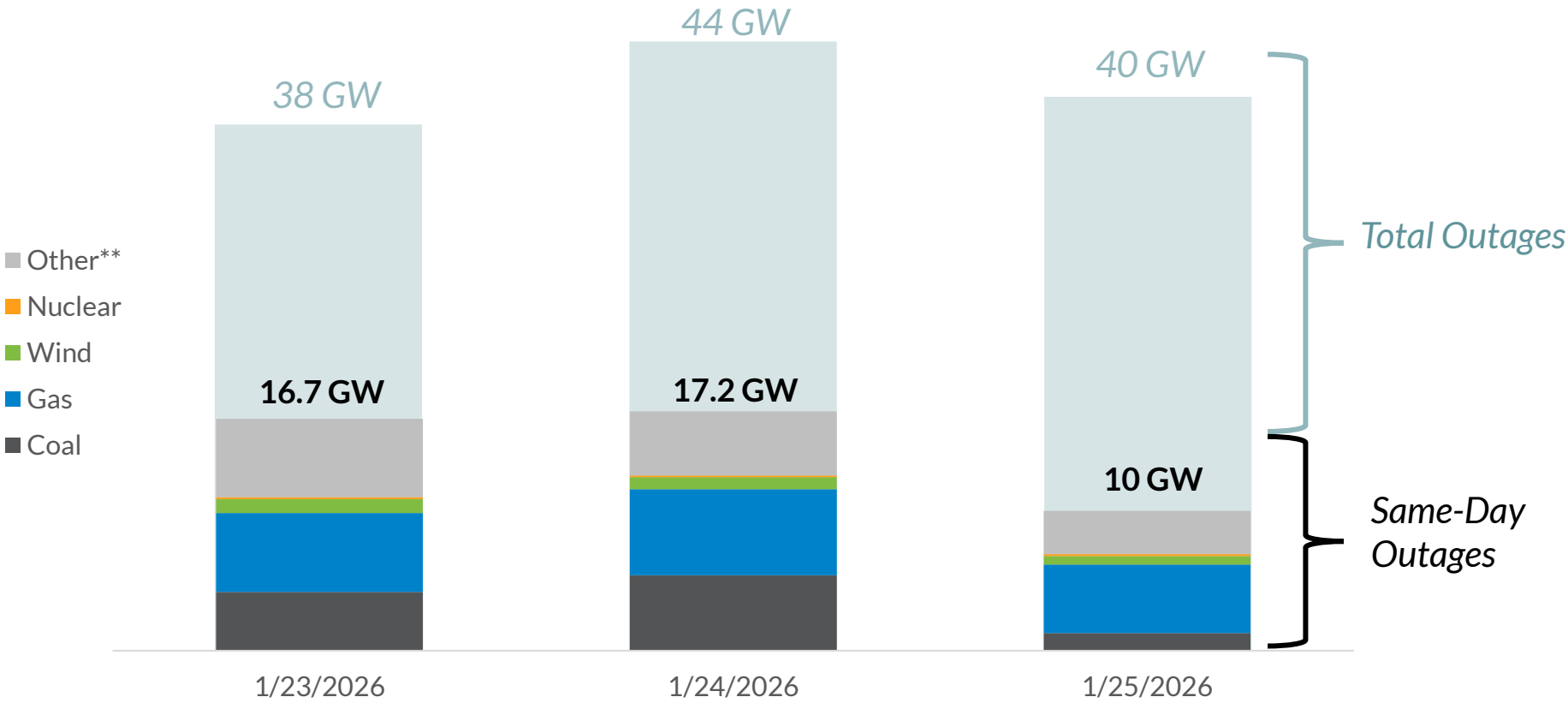
Committed RT Committed DA Actual Generation

Extended Combustion Turbine (CTs) lead times hindered real-time commitments

- In the North and Central regions 29 CTs increased their start times significantly on January 23
- 13 of those remained under the 24-hour notification threshold to maintain maximum accreditation value

MISO experienced significant unplanned outages due to the extreme cold mostly in the North and Central Region

Unplanned* Outages and Derates



Percentage of total unplanned* outages that occurred in the North/Central regions	82%	80%	77%
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*Unplanned includes emergency, urgent and forced outages and derates. Charts reflect data in the CROW outage system on January 26, 2026. Wind often reported as derated over the time period.

** Other includes Oil, Hydro, Petroleum Coke, Waste, Behind the Meter Generation, and units not in the market footprint Public

Challenges that impacted operations during Winter Storm Fern are already being addressed with solutions



Proactive Communication

MISO coordinated with members to maximize transmission and generation availability



Staffing Support

Extra operators, including dual-qualified operators, ensured MISO had the experienced personnel needed



Coordination with Neighbors

PJM provided emergency energy that was key to addressing capacity concerns

LESSONS LEARNED

- **Tailored Operating Instruction:** There was a lack of clarity in operating instruction regarding public appeals; enhanced functionality in Operator Interface will be implemented by this summer
- **Pricing Fix** - Ex-Post LMPs were not calculated or published for ~11 hours due to a software issue; a fix was implemented on February 5, 2026
- **Reserve Procurement and Deliverability** - Reserves offered into the market were stranded in the south but Look Ahead Commit (LAC) could not differentiate; enhancement will be delivered this year
- **Uncertainty Forecasting and Peak Hour Planning** - Enhancements needed to improve uncertainty forecasting model, and we need to move away from peak hour planning and assess the operating plan across all hours of the operating day
- **Emergency Pricing** – Emergency prices were observed in the non-emergency South region

Energy Emergency Procedures & Communications

Maison Blead, Regional Director, State Regulatory Affairs – Central Region

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

	STATUS	COMMUNICATION TO MEMBERS	ACTION	PRICING
MAXIMUM GENERATION	▶ Normal Operations			Normal
	▶ Hot, Cold, or Severe Weather Alert	Alert for situational awareness: Could be approaching tight supply due to weather-related circumstances	Review outage plans for deferral, cancellation	
	▶ Conservative Operations	Alert for situational awareness: Reliability issue possible for defined area (may be capacity-driven or caused by other abnormal circumstances)	Potentially suspend transmission maintenance; review outage plans for deferral, cancellation	
	▶ Capacity Advisory*	Advisory for situational awareness: Capacity is tight, or shortage is forecast	Request stakeholders update offer data	Emergency Tier 0 Offer Floor
	▶ Alert*	Alert for situational awareness: Capacity is tight and may require emergency procedures	Define boundaries; suspend maintenance; prepare for potential event	
	▶ Warning*	Warning to prepare for possible event: Reserve margin* shortage is forecast	Schedule all economic resources; limit exports; reconfiguration	Emergency Tier 1 Offer Floor
	▶ Event* Step 1 (EEA1)	Take action: Reserve requirements cannot be met through normal economic resources	(1a) Commit emergency-only resources (1b) Activate emergency operating ranges	
	▶ Event Step 2 (EEA2)	Take action: Demand cannot be met through emergency resources	(2a) Implement LMRs* (2b) Commit EDR* resources (2c) Emergency energy purchases	Emergency Tier 2 Offer Floor
	▶ Event Step 3 (EEA2)	Take action: Operating reserves depleted, attempting to maintain minimum contingency reserves	(3a) Spinning and supplemental reserves request environmental waivers (3b) Emergency demand reductions	
	▶ Event Step 4 (EEA2)	Take action: All available MISO resources used	Initiate external emergency energy purchases	
	▶ Event Step 5 (EEA3)	Event occurring: Requirements cannot be met	Coordinated load shed	VOLL*
	▶ Termination	Max Gen and, possibly, Capacity Advisory termination	Update stakeholder market data	Normal

*See appendix for definitions

Notification for a capacity emergency (EEA) is different from a Transmission System 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 System Emergency



Occurs when there is an identified violation on the transmission system

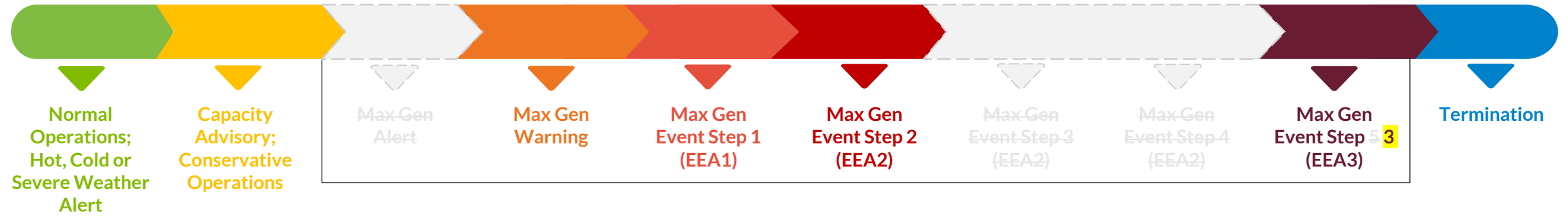
Happens very quickly with no public declarations

Requires corrective action within 30 minutes to maintain grid stability

Follows MISO's Transmission System Emergency process

Proposed changes for spring 2026: Maximum Generation procedures simplify to align with NERC EEA steps

PROPOSED MARKET CAPACITY EMERGENCY PROCEDURE STEPS



PROPOSED CHANGES Currently in the MISO stakeholder process

- Eliminates Maximum Generation Alert
- Moves procedure Step 1a (commitment of emergency-only resources) from Step 1 to Maximum Generation Warning
- Maximum Generation Steps 3 and 4 merge with Step 2
- Maximum Generation Event Step 5 renamed to Event Step 3

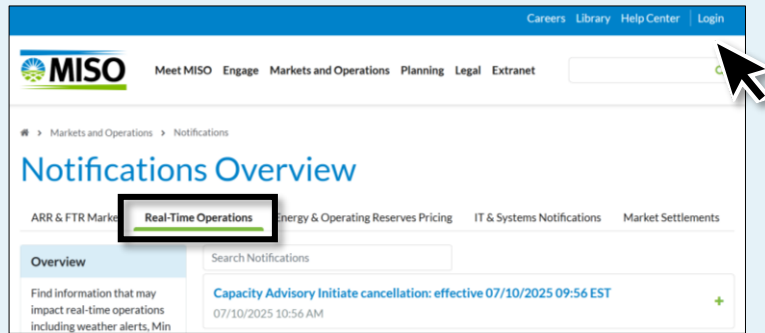
*See appendix for definitions

Several ways to view MISO's real-time grid status and subscribe to notifications

Website



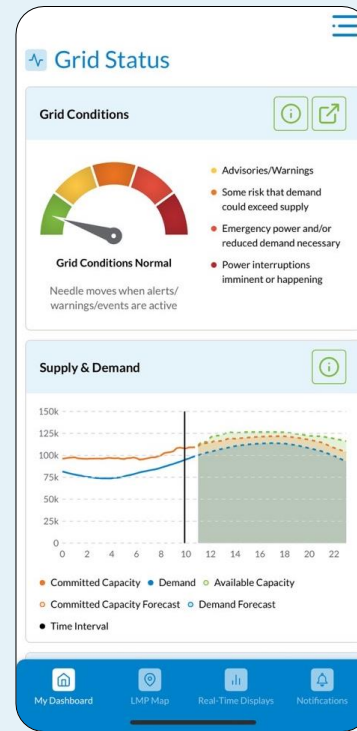
Grid Conditions Gauge (Homepage)



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

Login to subscribe to email notifications

MISO App



Enable notifications

Grid Conditions Gauge (My Dashboard)

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

Social Media

Follow us:

[@MISO-energy](#) on X

[Midcontinent Independent System Operator \(MISO\)](#) on LinkedIn



Weather Outlook Spring & Summer 2026

Maison Blead, Regional Director, State Regulatory Affairs – Central Region

Spring Outlook

- Near Normal temperatures are expected in MISO Central during the Spring months
- While above normal precipitation is expected from NOAA
- Severe weather looks to be elevated in the southern Midwest and northern South this Spring

Summer Outlook

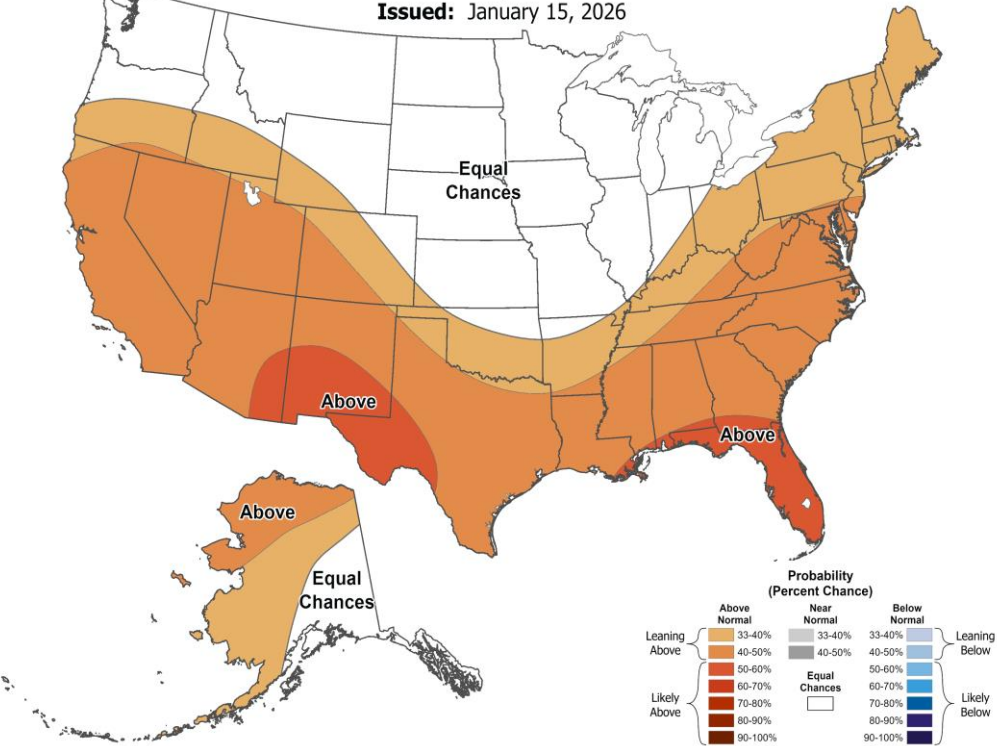
- Could see above normal temperatures in MISO Central region this summer
- Precipitation is expected to trend near-normal. Could see a hot and dry summer.

Spring Weather Outlook



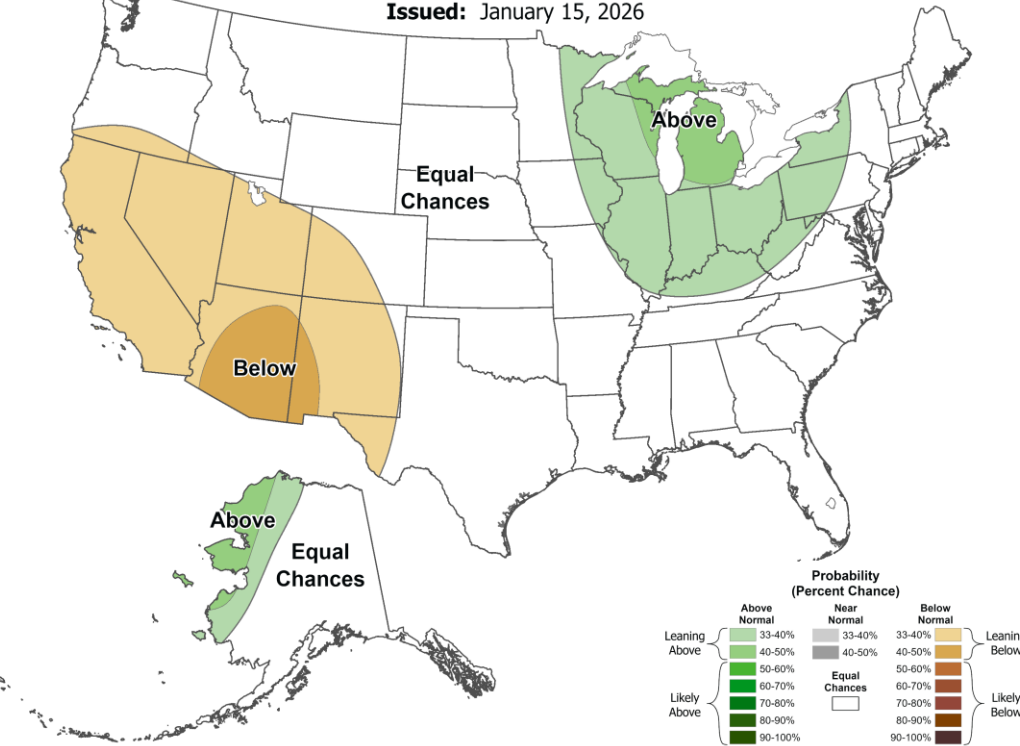
Seasonal Temperature Outlook

Valid: Mar-Apr-May 2026
 Issued: January 15, 2026

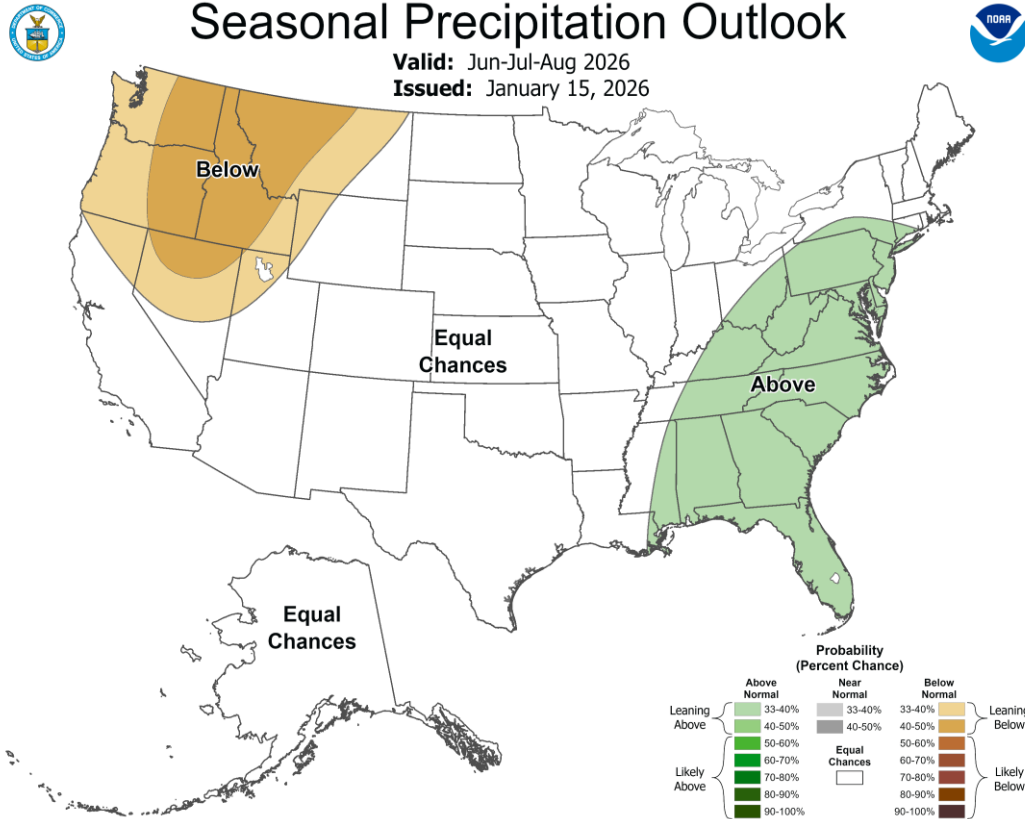
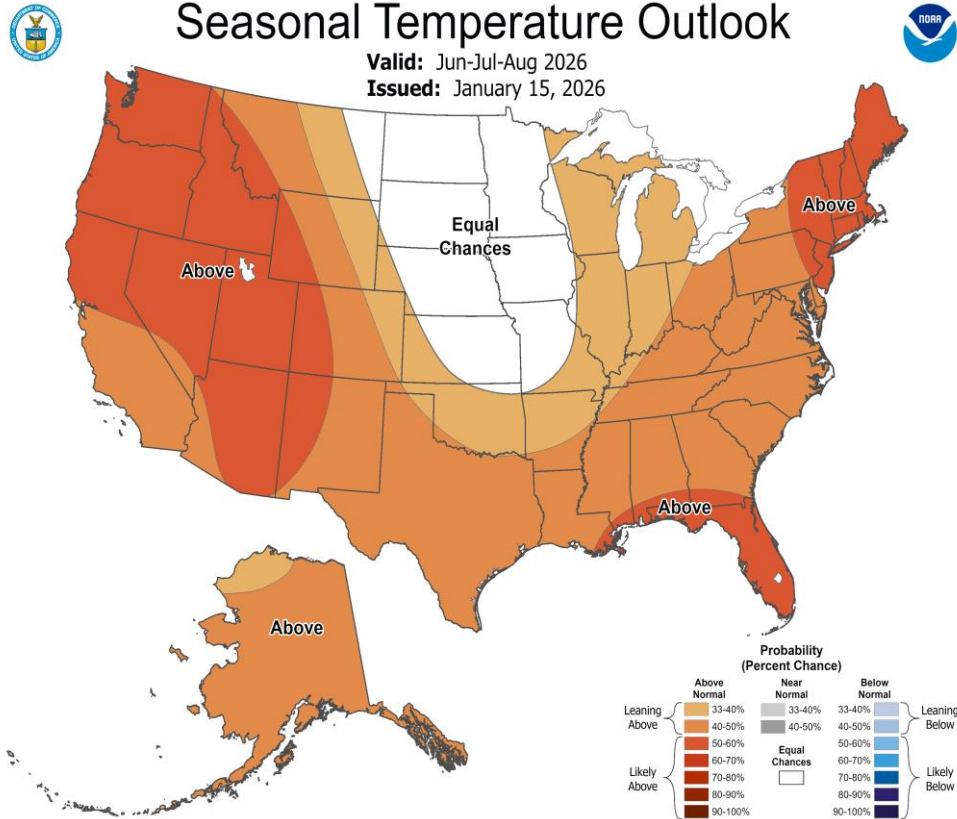


Seasonal Precipitation Outlook

Valid: Mar-Apr-May 2026
 Issued: January 15, 2026



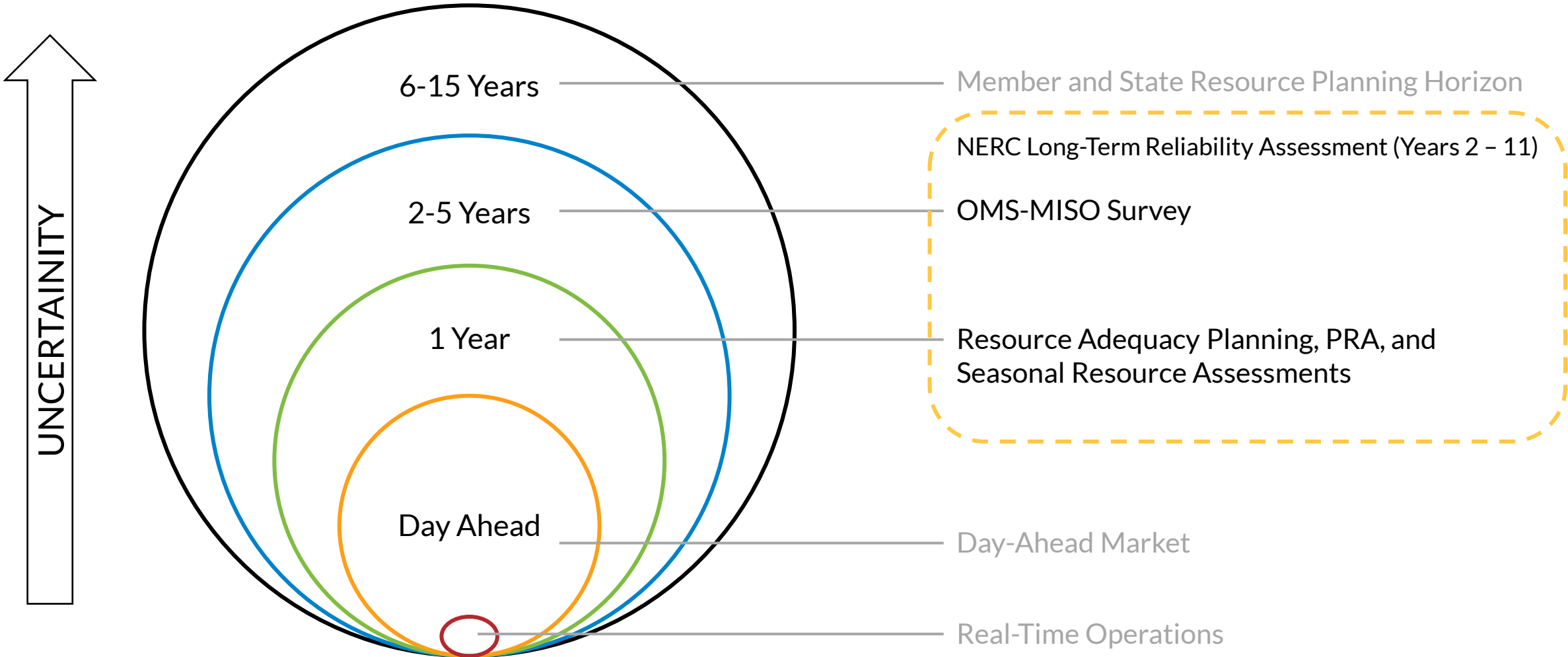
Summer Weather Outlook



NERC LTRA 2025

Maison Blead, Regional Director, State Regulatory Affairs – Central Region

Resource Adequacy planning occurs over multiple time horizons to ultimately ensure sufficient resource availability during operations



Primary objective for the resource adequacy construct is to ensure that we have sufficient resources to provide customers with a continuous supply of electricity

MISO Planning Resource Auction

PRA is a mechanism to facilitate procurement of capacity to meet reliability requirements at an economically efficient price

- MISO conducts auction once every year in April
- Accounts for reliability needs unique to each of the four distinct seasons
- Load Serving Entities have multiple ways to demonstrate resource adequacy

Next PRA: April 2026

OMS-MISO Survey

Survey of all market participants to establish resource adequacy projections

- OMS and MISO conduct the survey once per year, report focuses on outlook for next five years
- Indicate the degree to which expected capacity resources will satisfy reliability requirements with either a surplus or a deficit

Next Report: Summer 2026

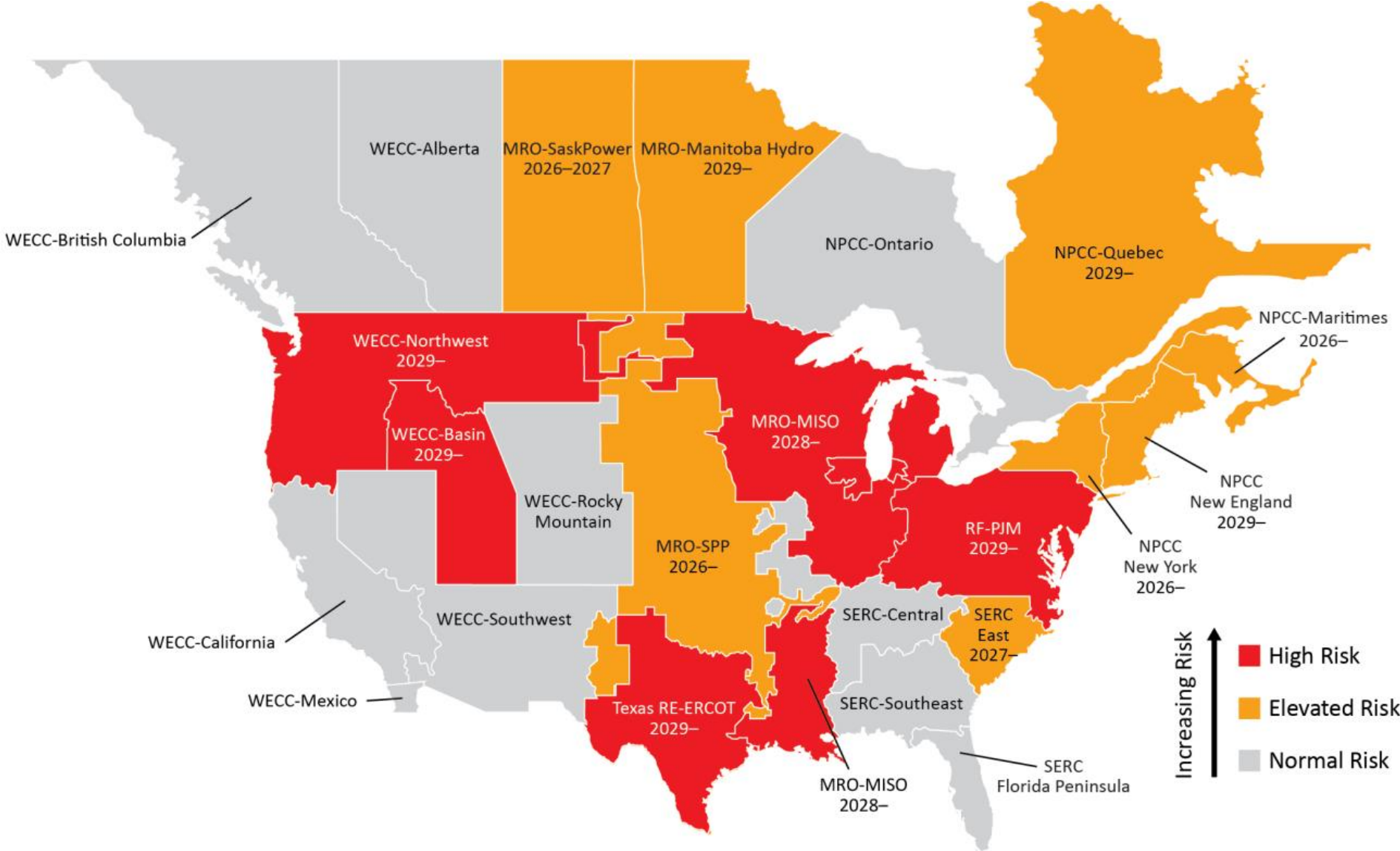
NERC LTRA

Assessment for projecting future resource adequacy and reliability risks

- NERC in coordination with Regional Entities perform this independent assessment once per year for Bulk Power System in North America
- Indicate industry preparations to meet projections and maintain reliability, with a focus on adequacy in first five years

Next Report: Winter 2026/27

NERC Long Term Reliability Assessment (LTRA) 2026



Source: https://www.nerc.com/globalassets/our-work/assessments/nerc_ltra_2025.pdf

The 2025 PRA results and surveys emphasize the need for ongoing collaboration between utilities, regulators, MISO and its members to ensure resource adequacy in future

- The 2025 OMS-MISO Survey and the 2025 NERC LTRA* highlighted uncertainty in projected resource adequacy with potential shortfall in 2027/2028 timeframe
 - MISO's Expedited Resource Addition Study (ERAS) projects were not included in the last OMS-MISO survey and NERC LTRA because of the timing of FERC approval
- MISO is projecting higher rate of new resource additions in 2026 than historical trend from 2022-2025
- MISO's ERAS projects are expected to come online starting in 2028

*NERC released the 2025 LTRA report on January 28, 2026



Bob Kuzman


Executive Director, External Affairs – Central Region

bkuzman@misoenergy.org


Maison Bleam

Regional Director, State Regulatory Affairs – Central Region

mbleam@misoenergy.org

 misoenergy.org

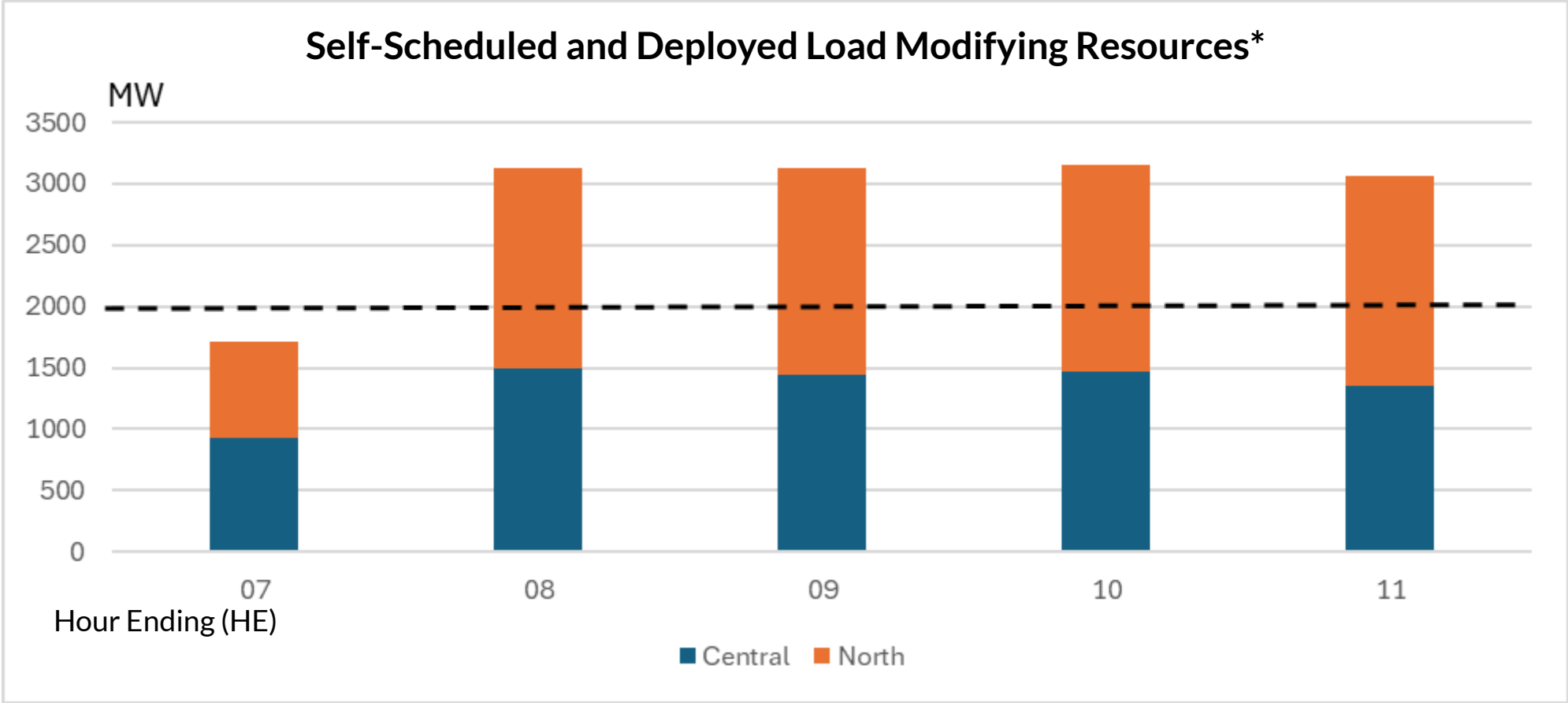
 [Midcontinent-iso](https://www.linkedin.com/company/midcontinent-iso)

 [MISO_energy](https://twitter.com/MISO_energy)



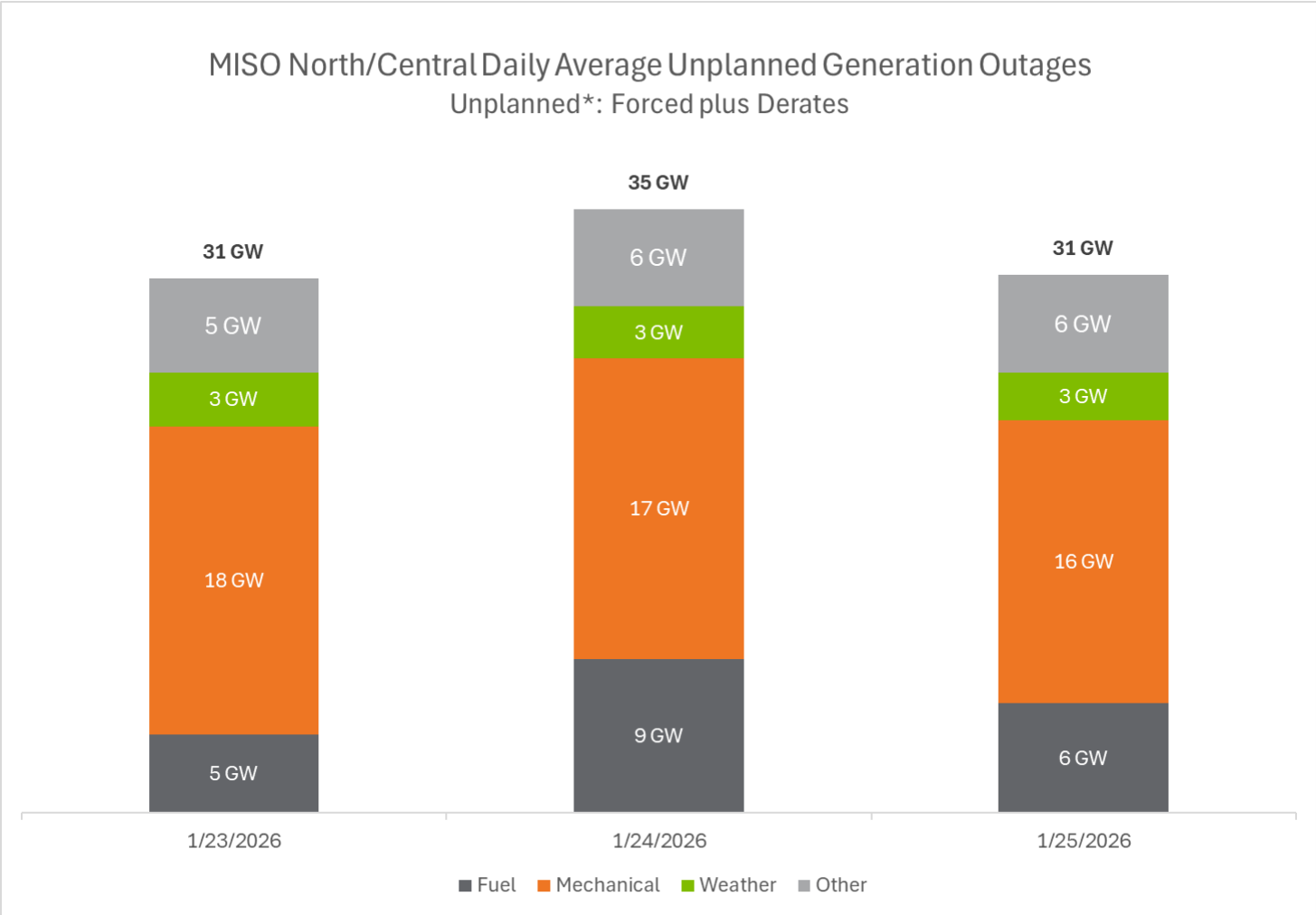
Appendix

As part of the EEA2 declaration, MISO deployed ~2 GW of Load Modifying Resources in addition to the self-scheduled amount in the North and Central regions



*MP Acknowledgement of MISO scheduling instructions

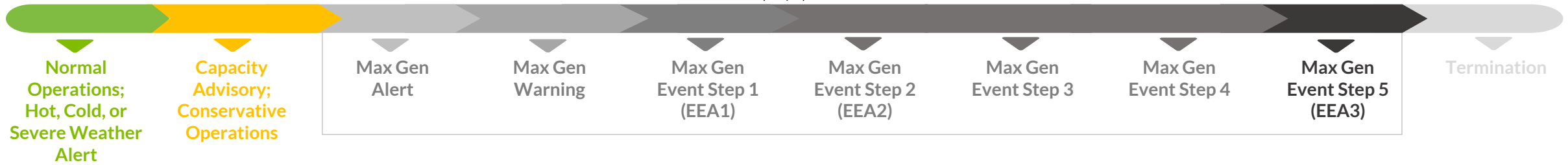
MISO experienced an increase of unplanned outages and derates due to fuel-related issues in the North and Central regions



*Unplanned = forced outages and derates, Charts reflect data in the CROW outage system on January 26, 2026, Wind often reported as derated over the time period

MARKET CAPACITY EMERGENCY PROCEDURE STEPS

(1 of 3)

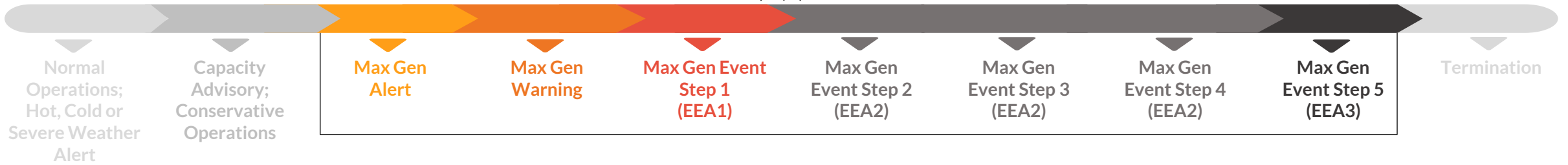


STATUS	TRIGGER	COMMUNICATION	ACTIONS	REGULATORY	STAKEHOLDER/MEDIA
Normal Operations	None	None	Normal operating procedures	None	None
Hot, Cold, or Severe Weather Alert	Could be approaching tight supply due to weather-related circumstances, like extreme heat or cold, or severe wind, storms, and tornados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

*See appendix for definitions

MARKET CAPACITY EMERGENCY PROCEDURE STEPS

(2 of 3)

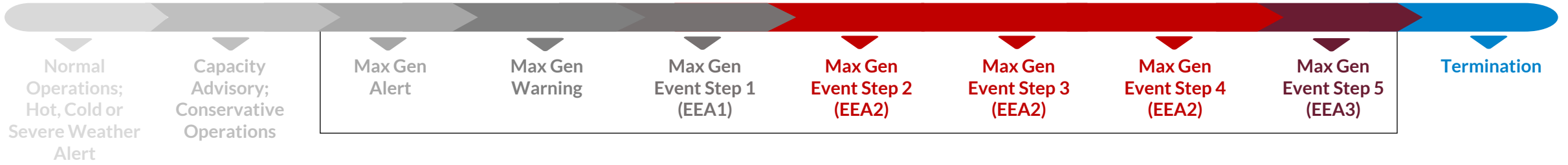


STATUS	TRIGGER	COMMUNICATION	ACTIONS	REGULATORY	STAKEHOLDER/MEDIA
Maximum Generation Alert	Capacity is tight and may require emergency procedures	Alert for situational awareness	<ul style="list-style-type: none"> • Declare <i>Conservative System Operations</i> • Define boundaries • Suspend maintenance • Prepare for potential Maximum Generation event • <i>Emergency Tier 0 Offer Floor</i> 	Same as above	Same as above
Maximum Generation Warning	Reserve margin* shortage is forecast	Warning to prepare for possible event	<ul style="list-style-type: none"> • Schedule all available economic resources • Curtail non-firm exports • Reconfiguration • <i>Emergency Tier 1 Offer Floor</i> 	Same as above	Same as above
Maximum Generation Event Step 1 (EEA1)	Reserve requirements cannot be met through normal economic resources; all available resources in use	Take action	<ul style="list-style-type: none"> • (1a) Commit emergency-only resources • (1b) Activate emergency operating ranges • <i>Emergency Tier 1 Offer Floor</i> 	<ul style="list-style-type: none"> • EEA Notification • MISO NERC Alert • MISO contacts state/local leaders 	MISO corporate communications initiates contact with impacted member communicators

*See appendix for definitions

MARKET CAPACITY EMERGENCY PROCEDURE STEPS

(3 of 3)



STATUS	TRIGGER	COMMUNICATION	ACTIONS	REGULATORY	STAKEHOLDER/MEDIA
Maximum Generation Event Step 2 (EEA2)	Demand cannot be met; actions needed to reduce demand and/or acquire additional supply	Take action	<ul style="list-style-type: none"> (2a) Implement LMRs (2b) Commit EDR* resources (2c) Emergency energy purchases <i>Emergency Tier 2 Offer Floor</i> May include public appeals, as needed 	Same as above	Same as above
Maximum Generation Event Step 3	Operating reserves depleted; attempting to maintain minimum contingency reserves*	Take action	<ul style="list-style-type: none"> (3a) Implement spinning* and supplemental reserves*; request environmental waivers (3b) Emergency demand reductions <i>Emergency Tier 2 Offer Floor</i> 	Same as above	Same as above
Maximum Generation Event Step 4	All available MISO resources used	Take action	<ul style="list-style-type: none"> Initiate external emergency energy purchases <i>Emergency Tier 2 Offer Floor</i> 	Same as above	Same as above
Maximum Generation Event Step 5 (EEA3)	Requirements cannot be met	Event occurring	<ul style="list-style-type: none"> Coordinated load shed <i>VOLL pricing*</i> 	Same as above	Same as above
Termination	Max Gen and, possibly, Capacity Advisory termination	Event terminated	<ul style="list-style-type: none"> Update stakeholder market data <i>Normal pricing</i> 	Same as above	Same as above

*See appendix for definitions

Definitions

Contingency Reserves	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.	Load Management Measures (LMM) Stage 1	Load management actions that can be taken to reduce demand to preserve or maintain operating reserves that are NOT included in EDRs or LMRs.
Emergency Demand Response (EDR)	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.	Load Management Measures (LMM) Stage 2	Load management actions that can be taken to reduce demand including voltage reductions and reducing loads that, by contract, can NOT 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.
Energy Emergency Alert Level 1 (EEA1)	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.	Load Modifying Resource (LMR)	These are either demand resources or behind-the-meter generation that have an obligation to reduce demand or increase generation during declared system emergencies
Energy Emergency Alert Level 2 (EEA2)	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.	Reserve Margin	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.
Energy Emergency Alert Level 3 (EEA3)	A NERC-mandated alert when firm load interruption is imminent or in progress. It means MISO is unable to meet minimum contingency reserve requirements.	Short-Term Reserve (STR)	A 30-minute rampable generation capacity product. It's designed to address short-term needs for managing system reliability.
Interconnection Reliability Operation Limit (IROL)	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.	Spinning Reserves	Reserves held that are synchronized to the system and available immediately.
		Supplemental Reserves	Reserves for abnormal supply deficiencies that must be ready within 10 minutes.
		System Operating Limit (SOL)	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.
		Value of Lost Load (VOLL) Pricing	The price at which MISO values the cost of unserved energy; essentially, what customers would be willing to pay to avoid an outage.



MISO is the electric grid operator for the central United States. We ensure power flows reliably and affordably across 15 states and the Canadian province of Manitoba. Additionally, MISO facilitates the buying and selling of electricity in its region and partners with its stakeholders to plan the grid of the future.

45 million people depend upon the work we do and the service we provide 24/7/365.

Learn more and follow MISO at:

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