Planning Resource Auction

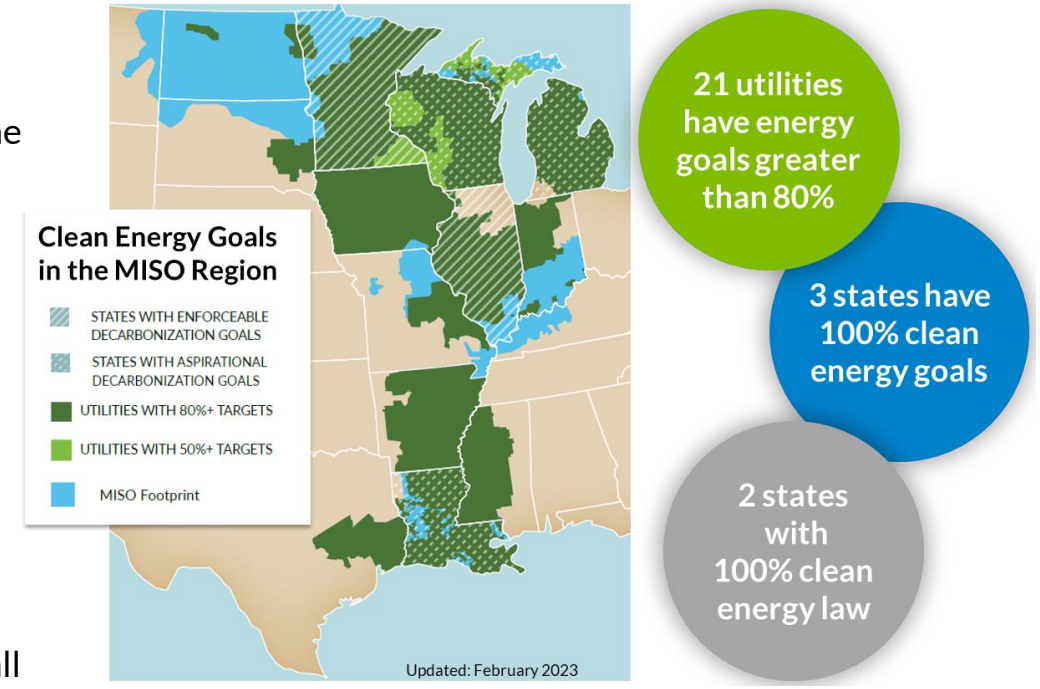
Results for Planning Year 2023-24

May 19, 2023

Schedule MM-D7

Seasonal resource adequacy construct sets the stage for several other key initiatives necessary to ensure a sustainable response to the Reliability Imperative

- The changing resource fleet driven by aggressive member decarbonization strategies continues to dramatically shift the reliability risk profile in our region.
- Coordinated reform of Resource Adequacy, Market Design and Transmission evolution is necessary to ensure continued reliability.
- Implementation of the seasonal construct is one step in the overall work needed to meet the Reliability Imperative.



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Market response to high prices from the 2022 auction help mitigate Resource Adequacy risk for Planning Year 2023-24

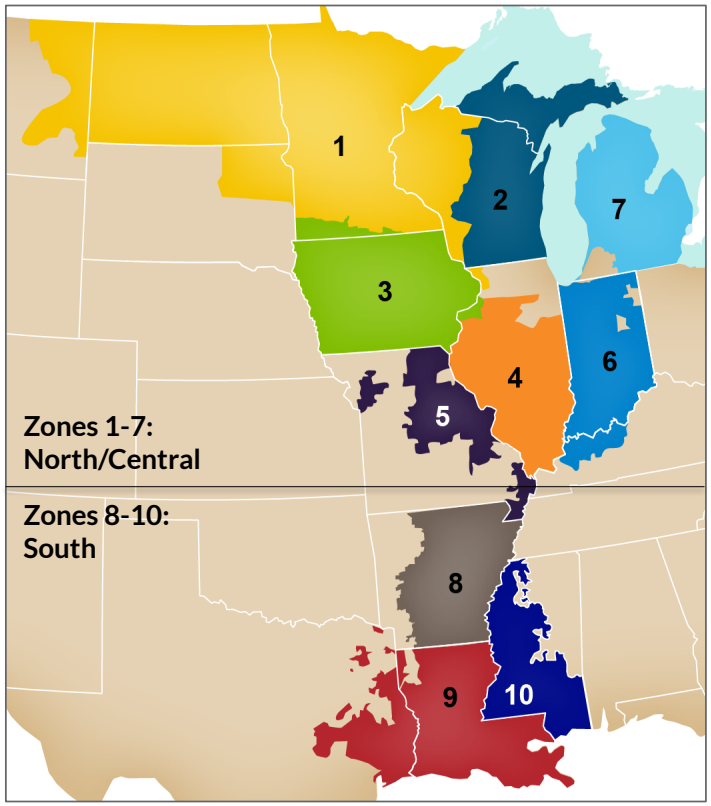
- MISO's seasonal PRA improves reliability planning by identifying requirements, resource accreditation and risks for individual seasons.
- MISO is projected to have adequate capacity to meet resource adequacy requirements for PY 2023-24 at the regional, sub-regional & zonal levels
  - Auction Clearing Prices are-flat across the region:
    Summer: $10, Fall: $15, Winter: $2, Spring: $10/MW-day
  - Exception: Zone 9 (LA/TX) with $59 in Fall and $19 in Winter (required higher priced supply within the zone to meet it's Local Clearing Requirement).
- Actions taken by Market Participants such as delaying retirements and making additional existing capacity available to the region, resulted in adequate capacity.
- Many of these actions may not be repeatable and the residual capacity and resulting prices do not reflect the risks posed by the portfolio transition.
- MISO's response to the Reliability Imperative reinforces need for urgent reforms to MISO's resource adequacy construct and market design.

2023 PRA demonstrated sufficient capacity at regional, sub-regional and zonal level to meet PRMRs and LCRs

2023 PRA Results

Zone	Local Balancing Authorities	Price $/MW-Day Summer	Fall	Winter	Spring
1	DPC, GRE, MDU, MP, NSP, OTP, SMP	$10.00	$15.00	$2.00	$10.00
2	ALTE, MGE, UPPC, WEC, WPS, MIUP	$10.00	$15.00	$2.00	$10.00
3	ALTW, MEC, MPW	$10.00	$15.00	$2.00	$10.00
4	AMIL, CWLP, SIPC, GLH	$10.00	$15.00	$2.00	$10.00
5	AMMO, CWLD	$10.00	$15.00	$2.00	$10.00
6	BREC, CIN, HE, IPL, NIPS, SIGE	$10.00	$15.00	$2.00	$10.00
7	CONS, DECO	$10.00	$15.00	$2.00	$10.00
8	EAI	$10.00	$15.00	$2.00	$10.00
9	CLEC, EES, LAFA, LAGN, LEPA	$10.00	$59.21	$18.88	$10.00
10	EMBA, SME	$10.00	$15.00	$2.00	$10.00
ERZ	KCPL, OPPD, WAUE (SPP), PJM, OVEC, LGEE, AECI, SPA, TVA	$10.00	$15.00	$2.00	$10.00

MISO Resource Adequacy Zones



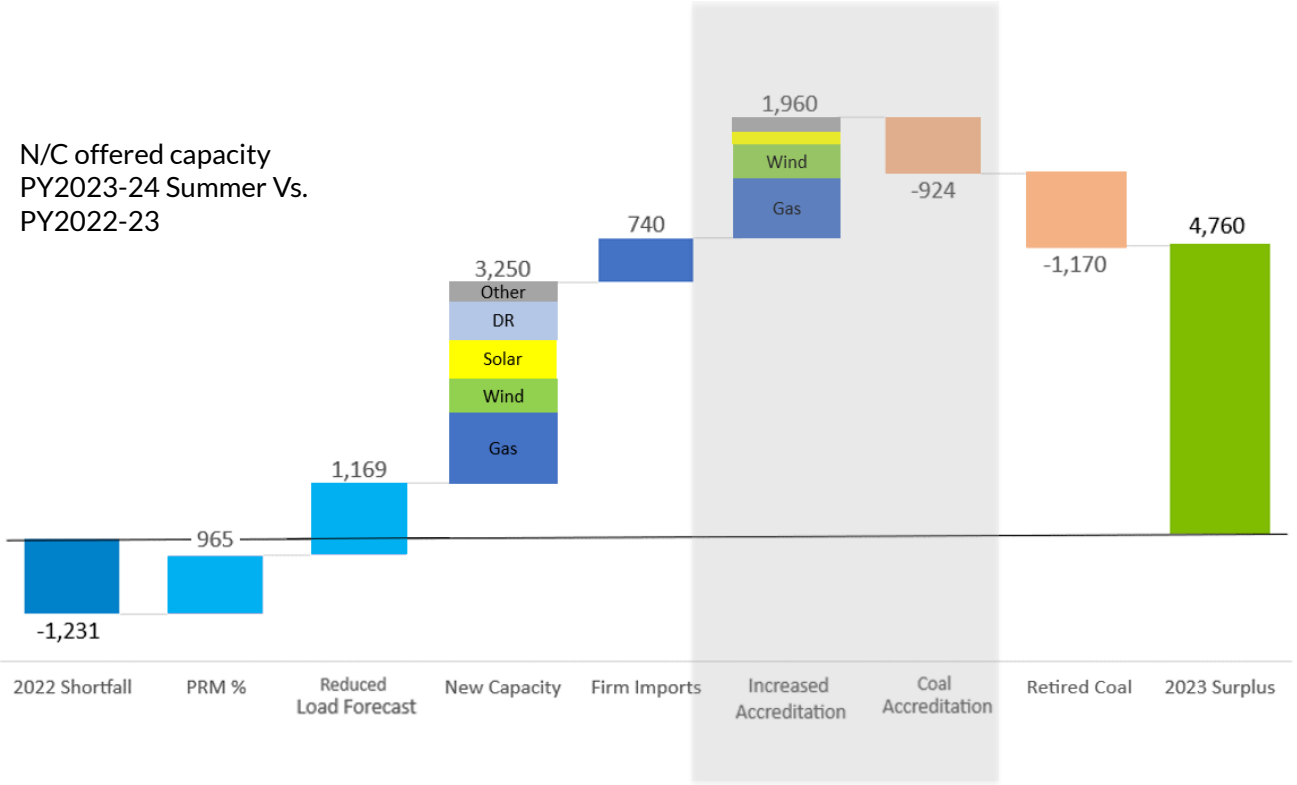
PRA: Planning Resource Auction

PRMR: Planning Reserve Margin Requirement

LCR: Local Clearing Requirements

North/Central region demonstrated adequate supply driven by a combination of lower demand, new generation, delayed retirements, additional imports and higher accreditation

Capacity offered in N/C exceeds requirements by 4,760 MW (4.7%)



Capacity indicated is all accredited values

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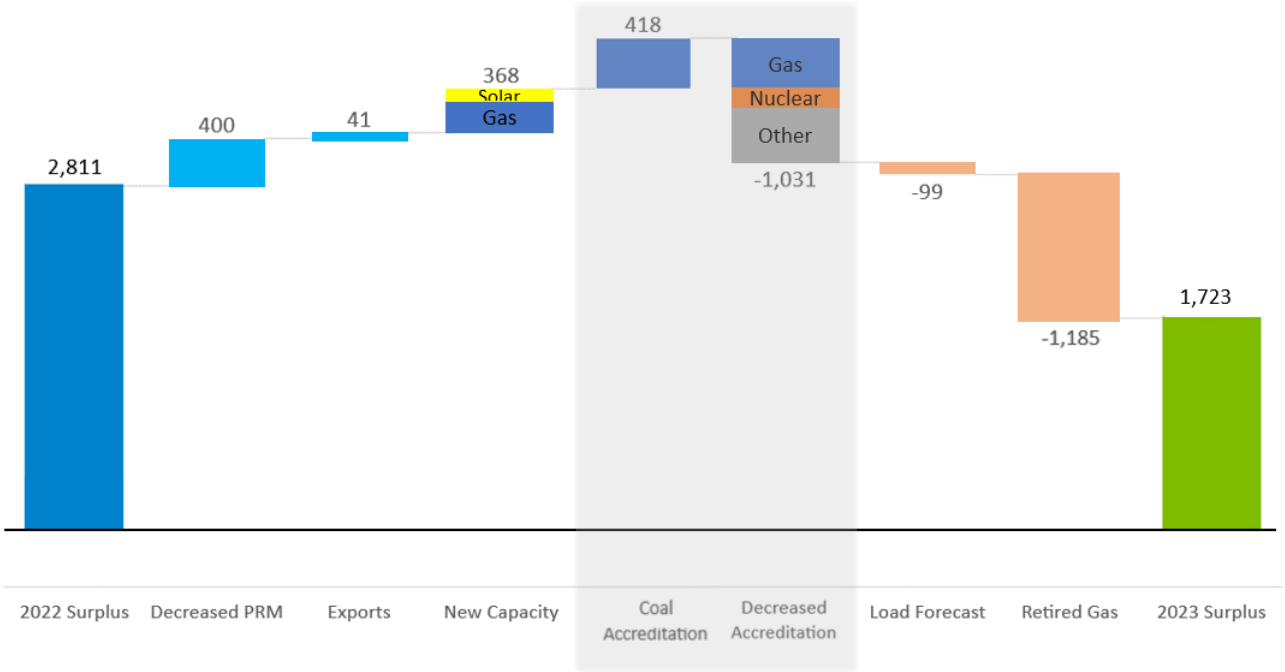
South region continues to remain adequate in PY 2023-24 however offered capacity shows decline driven largely by retirements.

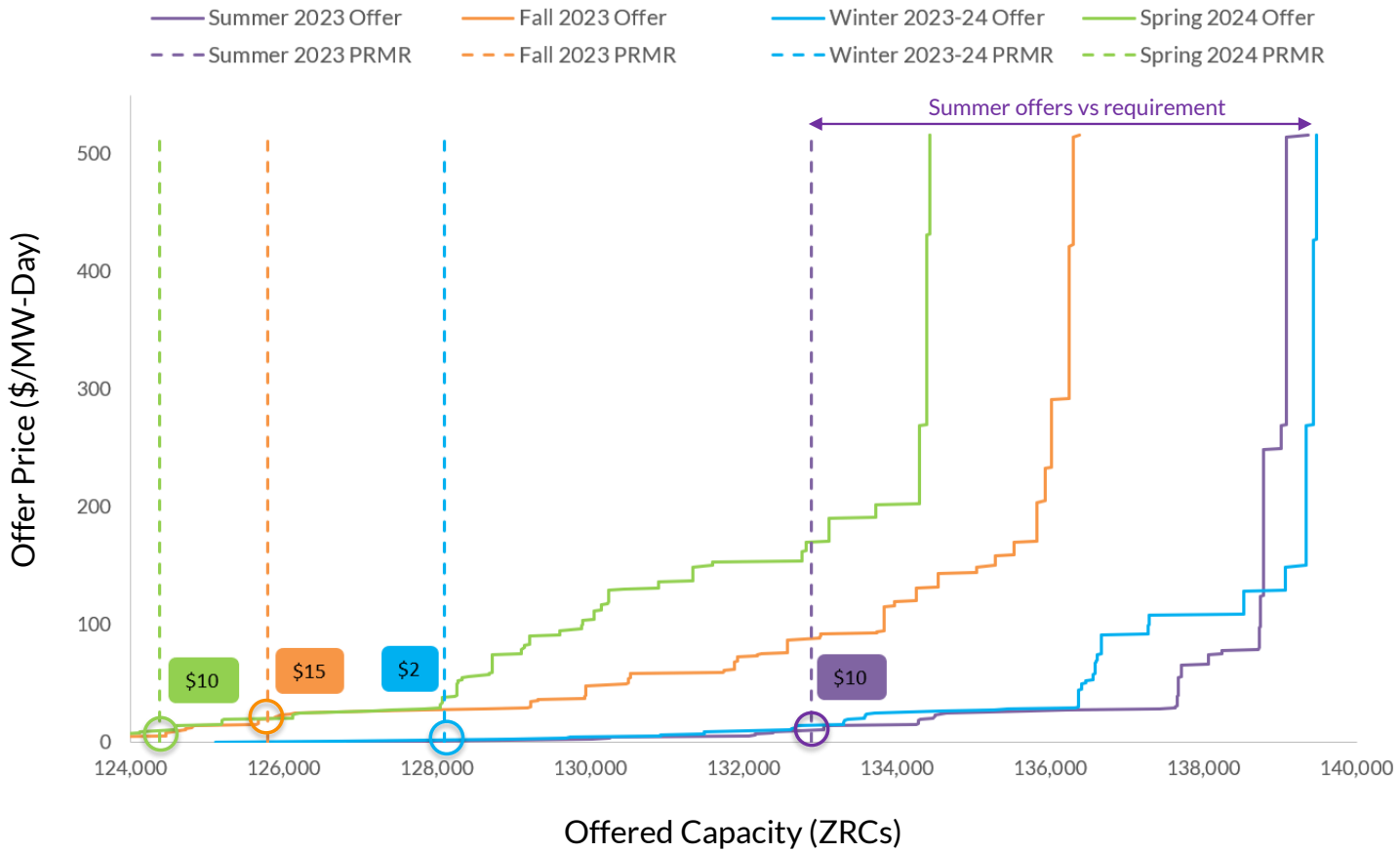
Capacity offered in South exceeds requirements by 1,723 MW (5.1%)



South offered capacity PY2023-24 Summer Vs. PY2022-23

Capacity indicated is all accredited values

Adequate supply resulted in flat auction clearing prices across the footprint for all seasons, with the exception of Zone 9



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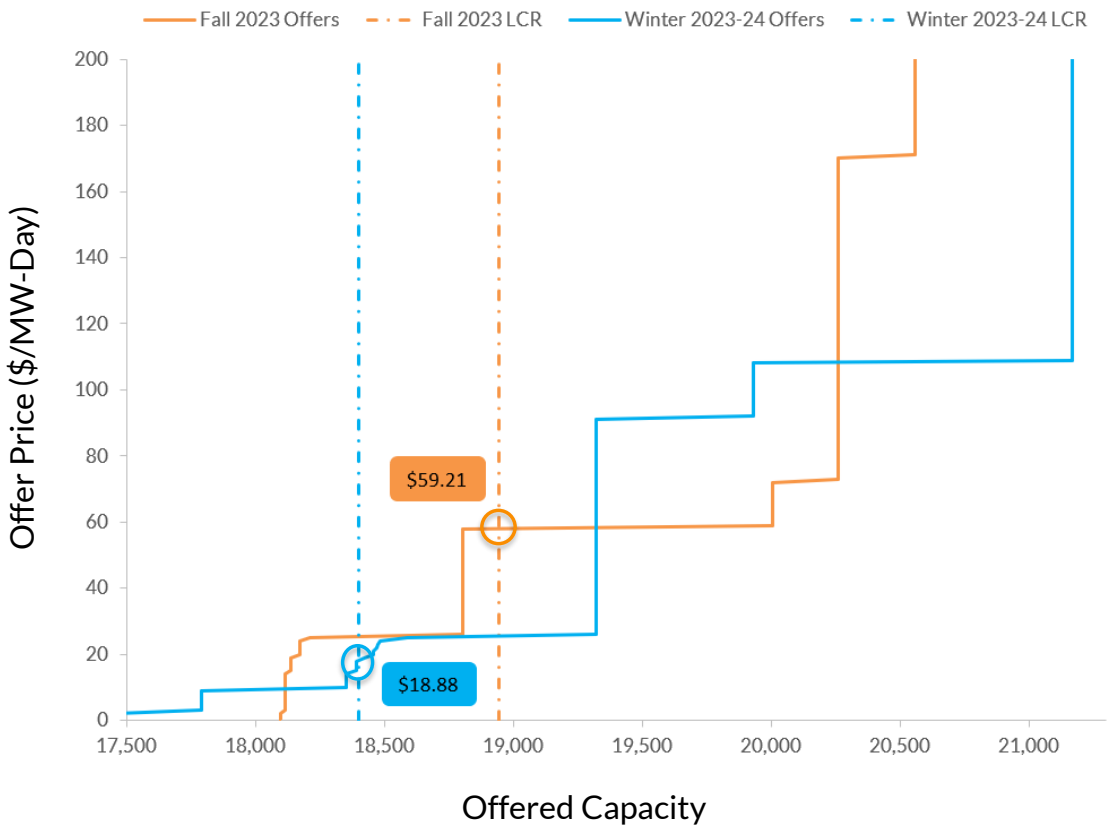
In Fall and Winter, LRZ9 required higher priced supply within the zone to meet its local clearing requirement

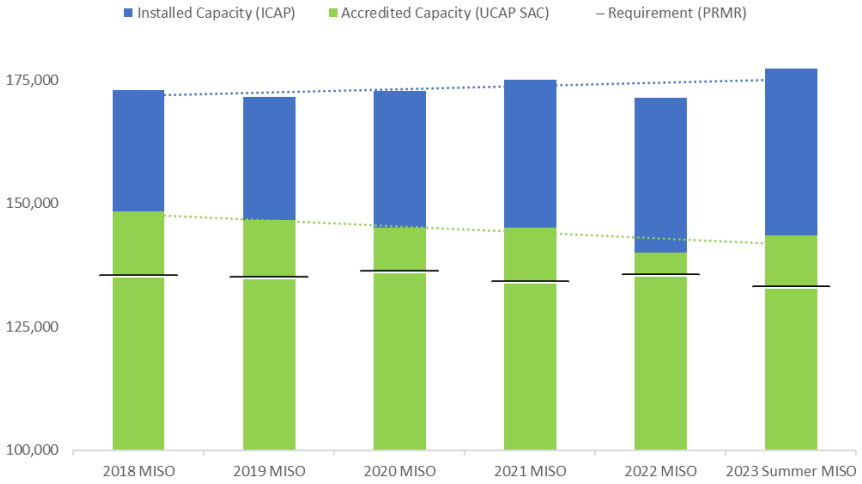


Note: Generation used to meet the Summer and Spring LCR was priced at or lower than MISO South region Auction Clearing Price.

Chart with all seasons included in appendix on slide 34

Adequate supply this summer and the resulting prices do not reflect the continued risks posed by the portfolio transition

- Impacts of the seasonal construct such as reduced summer PRM and seasonal accounting of retirements contributed to the surplus capacity.
- Reduced load forecasts and actions taken by members such as delayed retirements and increased imports may not be repeatable.
- Historic trends and projections based on member-announced plans* show a continued decline in accredited capacity even as installed capacity increases.



Urgent reforms to MISO's resource adequacy and market design are necessary to ensure continued reliability.

* From 2022 Regional Resource Assessment Survey Results

MISO's workplan includes the work needed to evolve our plans and processes to meet the Reliability Imperative

Issue	Challenges	Mitigation
Fleet Change	Declining accredited capacity, declining reserve margins, and changing risk profile	• Continue developing attributes criteria and improved accreditation for resources
Reliability Planning	Reliability is not a yes/no criteria, it's a continuum that considers numerous factors and range or risk tolerance	• Update loss-of-load assessments • Develop Reliability Based Demand Curve • Ensure alignment of market and reliability procedures during extreme events
Forecasting	Load and intermittent generation forecasting needs to be more accurate	• Improve forecasting data and methods, including uncertainty forecasting. • Enhance control room automation
Intraregional and Interregional Support	Increased reliance on geographic scope Increased reliance on gas industry performance during critical events	• Continue developing transmission (JTIQ and LRTP Tranche 2) • Improved agreements with neighbors for emergency scenarios • Improve gas/electric coordination

Next Steps

- **May 19** – Conference call presentation of PRA results
- **May 23**
  - Zonal Deliverability Benefits presented at the May RASC
  - MISO publishes cleared LMRs to Operations tools
- **June 1** – New Planning Year starts
- **June 19** – Posting of PRA masked offer data per Module E 69.A.7.4

https://help.misoenergy.org/support/