Document Accession #: 20250516-5206 Filed Date: 05/16/2025

May 16, 2025

The Honorable Debbie-Anne A. Reese
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426-0001

Re: *Meeting the Challenge of Resource Adequacy in Regional Transmission Organization and Independent System Operator Regions*, Docket No. AD25-7-000, Pre-Technical Conference Statement of Steven Lieberman on Behalf of American Municipal Power, Inc.

Dear Secretary Reese:

Pursuant to the Federal Energy Regulatory Commission's Supplemental Notice of Commission-Led Technical Conference issued April 3, 2025 in the captioned proceeding, American Municipal Power, Inc. ("AMP") submits its pre-technical conference statement. Steven Lieberman will participate in Panel 5 and AMP therefore also includes for filing a summary of his statement, along with his biography.

AMP appreciates your attention to this matter. Should you have any questions regarding this submittal, please contact me at ghull@amppartners.org or (614) 540-0852.

Respectfully submitted,

Gerit F. Hull
Deputy General Counsel for Regulatory Affairs

Enclosures (3)

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Meeting the Challenge of Resource Adequacy in Regional Transmission Organization and Independent System Operator Regions	))))	Docket No. AD25-7-000

PRE-TECHNICAL CONFERENCE STATEMENT OF STEVEN LIEBERMAN ON BEHALF OF AMERICAN MUNICIPAL POWER, INC.

I appreciate the opportunity to participate in the upcoming Federal Energy Regulatory Commission ("Commission" or "FERC") technical conference scheduled for June 4 and 5, 2025, as a panelist on Panel 5, titled "MISO's Resource Adequacy Challenge." This pre-technical conference statement, presented on behalf of American Municipal Power, Inc. ("AMP"), focuses on the subject matter of that panel discussion, as described in the Commission's notice.[1] These comments also address the special role of public power in ensuring resource adequacy.

As Vice President of Transmission & Regulatory Affairs, I provide oversight and take responsibility for AMP's advocacy in the Midcontinent Independent System Operator, Inc. ("MISO") and PJM Interconnection, L.L.C. ("PJM") RTO stakeholder processes, along with AMP's participation in the North American Electric Reliability Corporation ("NERC") standards development process. I hold a Bachelor of Arts degree in Environmental Science from Boston University.

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[1] *See* Supplemental Notice of Commission-Led Technical Conference, Docket No. AD25-7-000, at 10-12 (April 3, 2025) ("Supplemental Notice").

I. INTRODUCTION

These comments share the perspective of AMP as a non-profit public power wholesale supplier of electricity. AMP's advocacy is not biased towards pricing outcomes. Said differently, AMP does not advocate for rules that are motivated to intentionally raise prices or lower prices. Instead, AMP advocates for sustainable, commonsense rules that will protect end-use customers from degraded reliability, while ensuring affordability.

For purposes of these comments, resource adequacy means the ability of the electric grid to meet end-users' power demand at any time. Resource adequacy is a component of grid reliability. Historically, grid reliability has been measured based on planning metrics, typically a loss of load expectation ("LOLE") equal to or less than one day in ten years ("1-in-10 LOLE"). The RTOs and ISOs within FERC's jurisdiction may utilize different resource adequacy designs to achieve expected grid reliability.

While RTOs and ISOs have made and continue to make progress, a wholly well-functioning resource adequacy design does not appear to exist currently within any RTO or ISO. Experience suggests that the following five characteristics are necessary (in no particular order) for a resource adequacy design to work without the need for constant revisions that create regulatory uncertainty and hinder long-term investment in essential resources:

1. *Flexibility*: a resource adequacy construct must be flexible enough to deal with exogenous situations without compromising the goal of procuring sufficient resources to meet the 1-in-10 LOLE grid reliability requirement, or other applicable metric.

2. *Optionality*: a resource adequacy construct must include viable options for load-serving entities and electric distribution companies to self-supply capacity resources.
3. *Actionable*: the prices that flow from a resource adequacy construct's output (*i.e.*, capacity auction clearing prices) must allow existing and planned generation and load to react in advance of the relevant delivery year.
4. *Granularity*: a resource adequacy construct that arbitrarily values capacity by seasons or grossly on an annual basis will necessarily over-procure capacity the majority of the time. A properly designed resource adequacy construct will instead value capacity based on when it is available and needed to meet demand.
5. *Attributive*: resource adequacy constructs in place today are focused on the fallacy that all capacity is fungible and thus all product procured is "capacity" without consideration of specific resource attributes. A properly designed resource adequacy construct will procure capacity based on resource attributes such as ramping capability, fuel security, storage capability, and quick-start capability.

Public power can utilize tax-exempt bonds to help fund the development of generating resources needed to meet resource adequacy requirements. However, there are strict prohibitions that apply to the use of these bonds, one of which prohibits speculation. Therefore, when a public power organization issues tax-exempt bonds, it must ensure that the output of the financed generator serves its customers' electric demand. For this reason, public power is generally in a "net-short" position, requiring

reliance on the market through spot purchases and power purchase agreements with independent power producers, among other arrangements, for some portion of its power needs. A well-functioning resource adequacy construct is therefore crucial to public power. AMP is pro-competition because competitive forces, along with appropriate market power mitigation rules, optimize the ability to serve the citizens of public power communities reliably at least-cost. AMP's advocacy in the RTO stakeholder processes is driven by these principles and reflects the unique position of public power.

II. COMMENTS

A. The state of resource adequacy in MISO.

1. Short-term resource adequacy.[2]

MISO is in a precarious short-term resource adequacy position. This situation will not be resolved quickly, despite MISO's efforts to institute resource adequacy reforms, speed generator interconnections, expedite transmission projects, plan for major transmission upgrades, and improve coordination and interconnections at the MISO-Southwest Power Pool ("SPP") seam. MISO has been clear about the challenges it faces and the results speak for themselves:

- MISO's 2024 Reliability Imperative report notes that "there are immediate and serious challenges to the reliability of our region's electric grid . . . ."[3]
- MISO's LOLE study for Planning Year 2025-2026 projected a summer system-wide peak demand of 123,576 MW against an installed capacity of 141,908 MW and an unforced capacity of 132,389 MW.[4] Capacity installations and

[2] *See* Supplemental Notice at 11 (Question 1).

[3] *MISO's Response to the Reliability Imperative*, at 1 (February 2024)

[4] MISO, *Planning Year 2025-2026 Loss of Load Expectation Study Report*, at 9 (March 13, 2025).

increases in accreditation did not keep pace with capacity retirements and decreases in accreditation.[5]

- Summer capacity offerings were down year-over-year in MISO by 2.9 GW.[6]
- MISO's Planning Resource Auction ("PRA") results for Planning Year 2025-26 yielded a summer capacity clearing price of $666.50/MW-day across both the North and South regions.[7] Capacity prices were up in all seasons. Barring an unforeseen drop in demand or addition of resources, this situation will persist and may worsen in the foreseeable future.

While MISO continues to implement reforms designed to enhance resource adequacy in the short-term, it must take care to bring all resources to bear that can help manage an already challenging situation and not use blunt instruments where a more refined approach will yield better outcomes. For instance, some of MISO's approaches create challenges for the public power community that depends on smaller behind-the-meter generation and load-modifying resources, in favor of broad solutions directed at larger generation resources or market manipulation concerns. MISO must take care not to leave smaller communities behind as it implements reforms and must avoid detrimental broad-brush changes. In a world where every megawatt matters across every hour, public power stands ready to help but must not be precluded from doing so by unnecessarily restrictive market rules or constructs.

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[5] MISO, *Planning Resource Auction Results for Planning Year 2025-26*, at 6 (April 2025) ("2025-2026 PRA Results").

[6] *Id.* at 6.

[7] *Id.* at 4.

2. Long-term resource adequacy.[8]

Looking toward one possible future scenario suggested by the MISO's regional resource assessment,[9] the ability to add 17 GW of new capacity per year is a considerable challenge. NERC has flagged MISO as the only region at "high risk" of a reserve margin shortfall in its 2024 NERC Long-Term Resource Assessment.[10] That report was prescient as to recent PRA results, where surplus summer capacity was 2.6 GW.[11] A resource adequacy survey undertaken in 2024 jointly by the Organization of MISO States ("OMS") and MISO also pointed to heavy reliance on new resources to maintain resource adequacy into the future and highlighted scenarios where shortfalls may occur as large load additions proliferate.[12]

Continued challenges face both MISO and industry. Over time, we are confident that ingenuity, collaboration, and hard work will help turn the corner. There are no easy answers. MISO has identified some of the challenges it faces as system adequacy, flexibility, and stability.[13] Those themes suggest compelling questions that FERC can help the industry address:

- *How do we manage the potential for large load additions while keeping the lights on at affordable rates for the people and businesses the grid was built to serve?* While MISO has included large load additions in its studies and provided some dialogue, the OMS-MISO Survey raised this issue, and the issue has

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8 *See* Supplemental Notice at 11 (Question 1).

9 MISO, *2024 Regional Resource Assessment*, at 2 (January 2025) ("2024 Resource Assessment").

10 NERC, *2024 Long-Term Reliability Assessment*, at 6, 13 (December 2024).

11 2025-2026 PRA Results at 4

12 *2024 OMS-MISO Survey Results*, at 11 (June 20, 2024).

13 MISO, *Attributes Roadmap*, at 3-4 (December 2023).

played out extensively elsewhere, but it has not yet taken center stage in MISO. FERC guidance now to help set policy direction in MISO would be helpful in marshalling the resources of industry around productive, solution-based approaches.

- *How do we reliably integrate growing numbers of new inverter-based resources in the face of retiring thermal units?* MISO is anticipating some such integration with its efforts at enhanced regulation requirements and the move toward adopting the IEEE 2800 standard, among other efforts.
- *How do we accomplish smart new transmission build?* Transmission will help reinforce the grid, enabling us to move power more effectively over long distances to manage differences in demand. MISO's LRTP Tranche 2.1 is an example of thoughtful transmission planning. At the same time, we must take care not to overbuild the transmission grid or create an environment where opportunists seize on reliability concerns to build more transmission than is optimal to ensure reliable and affordable service.
- *As we implement capacity accreditation reforms, how do we ensure that public power and other users of the grid who are capable of contributing not only time and expertise, but also generation resources, are presented opportunities to leverage their unique position to keep the lights on?* Stakeholder processes are helpful, but care must be taken to be precise in tariff changes to avoid undermining carefully-struck long-established practices that contribute significantly to resource adequacy.

- *As new pricing solutions are implemented and we experience supply chain constraints, how do we prevent rate-shock?* Capacity charges can make up as much as 20% or more of the all-in price of electricity.[14] When there is a dramatic increase in capacity charges as we saw in the 2025-2026 MISO PRA, it is ultimately end-use customers that pay. Experimenting with market mechanisms that theoretically incent capacity must be balanced with reasonable caps on the upward prices that can result.

B. Delivery of resource adequacy under MISO's existing construct.[15]

At this time, resource adequacy is being delivered via MISO's PRAs, as the recently conducted auction for Planning Year 2025/2026 cleared (1.9%) above the planning reserve margin target (of 7.9%).[16] However, looking further out beyond the immediate delivery year, MISO reported that the surplus dropped 43% compared to the prior year, even when coupled with a lower overall reserve margin target. As MISO concluded, "New Capacity additions did not keep pace with reduced accreditation, suspensions/retirements and slightly reduced imports."[17] Further, MISO has stated that these "results reinforce the need to increase capacity, as demand is expected to grow with new large load additions."[18]

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[14] *See, e.g.,* Potomac Economics, *2023 State of the Market Report for the MISO Electricity Markets*, at ii (June 2024); Potomac Economics, *IMM Quarterly Report: Winter 2025*, at 11 (April 10, 2025). The all-in price varies over time and is dependent on energy market prices, as well as capacity prices.

[15] *See* Supplemental Notice at 11 (Question 1(a)).

[16] 2025-2026 PRA Results at 2.

[17] *Id.*

[18] *Id.*

C. Benefits and drawbacks of MISO's resource adequacy construct and residual capacity auction.[19]

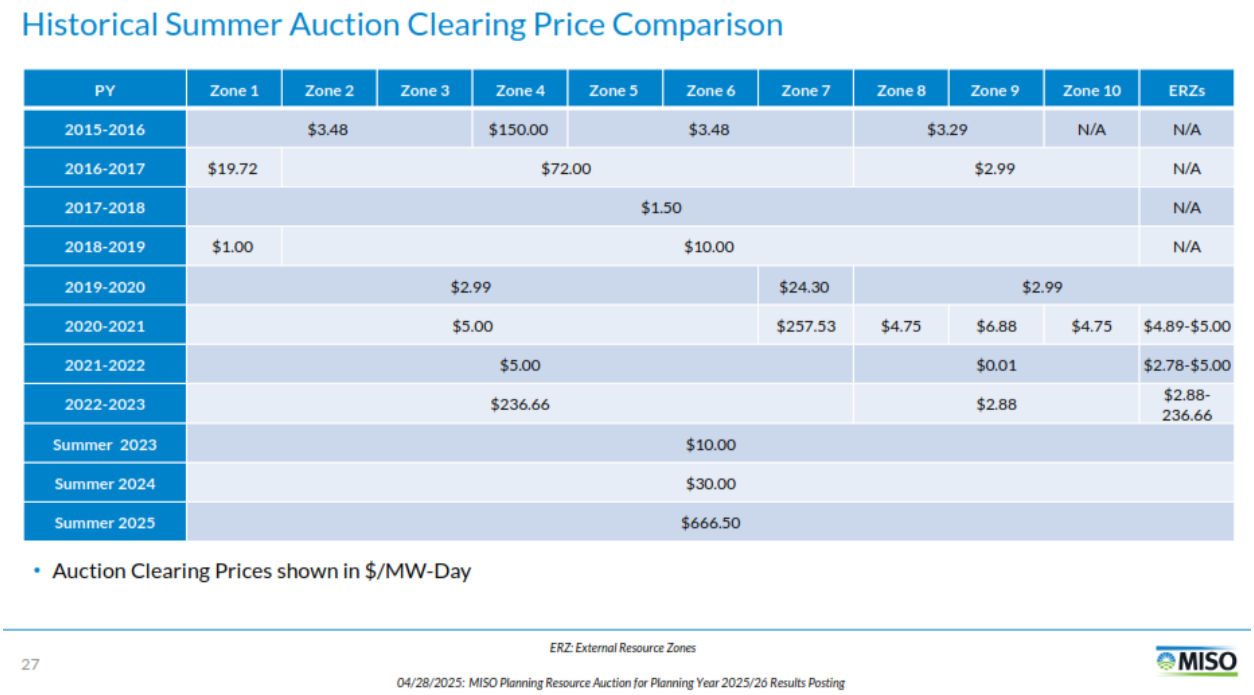
It is critical to underscore that MISO's resource adequacy construct is not the sole opportunity for LSEs and EDCs to procure capacity. This design is vastly superior to the mandatory participation models used elsewhere, such as in PJM. Said differently, the PRA is not the primary source of capacity procured on behalf of load. In the 2025/2026 PRA, only about 14% of the summer and winter resource adequacy requirements were met with cleared, non-self-scheduled capacity resources (the balance being from a combination of primarily self-scheduled (~70%) and Fixed Resource Adequacy Plan resources (~14%).[20] Unlike PJM's flawed design, MISO's resource adequacy construct is residual. PJM's construct was designed to be residual, hence it is founded on the Base Residual Auction, but in practice, PJM's construct has been the principal source of capacity procured on behalf of captive load since inception.

The key benefit of MISO's design in this regard is reduced exposure by load to PRA clearing price volatility, as demonstrated by the following chart. While historically there has been some volatility in certain zones in some years, prices were relatively stable overall. Note, however, that the more recent volatility is due to tightening capacity margins and, in part, the rule-churn discussed in the next section.

[19] *See* Supplemental Notice at 11 (Question 1(b)).

[20] 2025-2026 PRA Results at 2.

Figure 1.[21]



Historical Summer Auction Clearing Price Comparison

PY	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	ERZs
2015-2016		$3.48		$150.00		$3.48		$3.29		N/A	N/A
2016-2017	$19.72			$72.00				$2.99			N/A
2017-2018					$1.50						N/A
2018-2019	$1.00					$10.00					N/A
2019-2020				$2.99			$24.30		$2.99		
2020-2021				$5.00			$257.53	$4.75	$6.88	$4.75	$4.89-$5.00
2021-2022				$5.00					$0.01		$2.78-$5.00
2022-2023				$236.66					$2.88		$2.88-236.66
Summer 2023						$10.00					
Summer 2024						$30.00					
Summer 2025						$666.50					

- Auction Clearing Prices shown in $/MW-Day

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ERZ: External Resource Zones

04/28/2025: MISO Planning Resource Auction for Planning Year 2025/26 Results Posting

MISO

As far as drawbacks are concerned, MISO's resource adequacy construct fails in its promptness. The PRA is held in March and prices are presented in late April for a delivery year that commences approximately one-month later on June 1. No new resources are able to respond to the price signal for the delivery year. Any load exposed to the prompt PRA is left with very little time to react. Further, the one-year pricing signal in MISO's (and any RTO's) capacity construct is disconnected from the reality of an investment with a lifespan that may be twenty to thirty years. This indicates the need for a resource adequacy construct that provides a multi-year price signal.

[21] *Id.* at 27.

D. The effect of recent MISO capacity auction results on market participants and confidence that the MISO capacity market will be effective in achieving resource adequacy at just and reasonable rates.[22]

Rule churn and the resulting price volatility is seen as a failure by market participants, including suppliers and load. The summer auction clearing price comparison (see chart above) demonstrates how recent rule churn is undercutting the ability of market participants to make appropriate investment decisions in the MISO footprint. The following chart highlights changes to MISO's construct over time.

Figure 2.[23]

Besides the implementation of the Reliability-Based Demand Curve for the 2025/2026 Planning Year, the next approved major rule change to be implemented will be use of the Direct Loss of Load ("DLOL") accreditation methodology. In MISO's April 2025 summary of the 2025/2026 PRA results, MISO concluded that:

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[22] See Supplemental Notice at 11 (Question 2).

[23] Information compiled by AMP from multiple sources (April 2025).

- "New capacity additions did not keep pace with reduced accreditation, suspensions/retirements and slightly reduced imports."[24]
- "The results reinforce the need to increase capacity, as demand is expected to grow with new large load additions."[25]

Once DLOL is implemented starting in Planning Year 2028/2029, it is expected that the accreditation of capacity resources, especially the growing levels of invertor-based resources (e.g., solar, wind) will be reduced.[26] Concurrently, MISO expects its load to grow by approximately 1% to 2% per year[27] (with a peak of 122 GW,[28] this is a range of 1.23 GW to 2.46 GW per year). Decreasing the accreditation of capacity at the time of projected load growth and dwindling reserves raises the very real question of how the MISO capacity construct will effectively achieve resource adequacy at just and reasonable rates. The 2025/2026 PRA summer auction cleared at $666.50/MW-day (compared to an annual rate of $212/MW-day to $217/MW-day), yet in the "North/Central, new capacity additions were insufficient to offset the negative impacts of decreased accreditation, suspensions, retirements and external resources,"[29] and in "the South, new capacity additions nearly offset the negative impacts of decreased accreditation, suspensions/retirements."[30] This does not project confidence for resource adequacy in the future.

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[24] 2025-2026 PRA Results at 2.

[25] *Id.*

[26] *See* 2024 Resource Assessment at 5.

[27] *Id.* at 24.

[28] MISO, *Long-Term Load Forecast*, at 3 (December 2024).

[29] 2025-2026 PRA Results at 13.

[30] *Id.* at 14.

E. Barriers to entry affecting resource adequacy in the MISO footprint.[31]

MISO has taken several steps to address what has been a historical barrier to entry for new generation. Below are some examples of the reforms MISO has initiated:

- The capacity queue cap, which is intended to shrink the size of the queue and allow projects to move more quickly through the queue.
- Increased milestone payments and site control requirements, and stricter withdrawal penalties with the intention of reducing speculative projects.
- Skipping the 2024 queue cycle to focus on the 2022 and 2023 backlog using improved software and automation tools.
- Implementing the Expedited Resource Addition Study, which is designed to accelerate the study of generation projects that can address urgent resource adequacy and reliability needs, provided they have the state regulator's endorsement.
- Establishing the Joint Targeted Interconnection Queue with SPP to expedite interconnection of new generation along the seam.

Still, MISO's significant interconnection queue backlog is a formidable barrier to entry. MISO is projecting that it will begin the study process for projects that entered the queue in 2023 starting in July 2025. MISO is projecting it will take thirteen months to complete the 2023 queue, suggesting it will not finish until August 2026.[32] MISO must proceed with urgency to implement its queue reforms to address the clear need for additional capacity. However, these reforms must also take into account affordability. The

[31] *See* Supplemental Notice at 12 (Question 5).

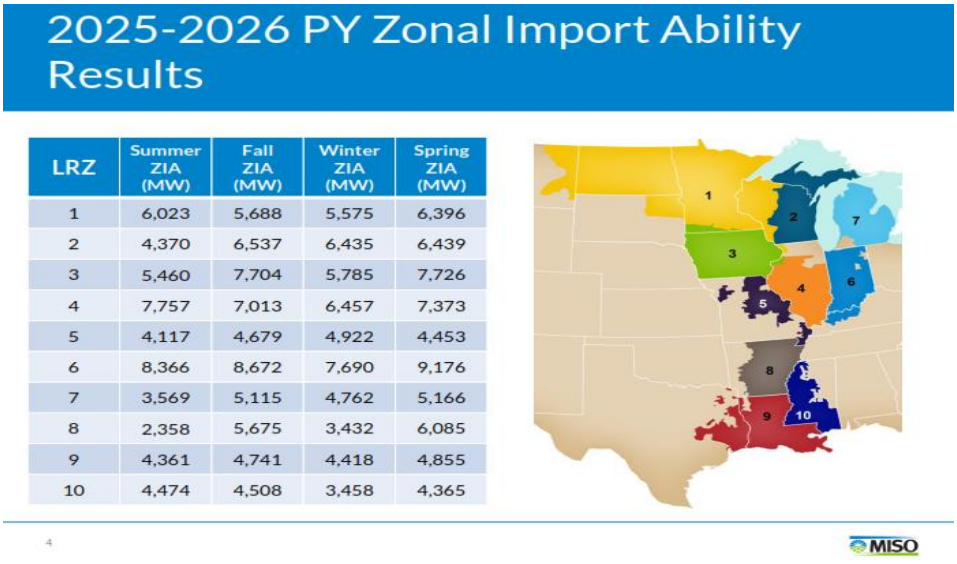
[32] *See* MISO, *DPP Study Schedule Updates*, at 2 (April 22, 2025).

combination of speed and attention to projects that will produce the greatest benefit for customer dollars spent will be an important balance to strike. The effectiveness of MISO's recent reforms will ultimately be judged by their results.

F. How the availability of regional and interregional transmission capability affects resource adequacy planning in MISO.[33]

As the charts below demonstrate for Planning Year 2025/2026, congestion caused by transmission constraints that resulted in price separation within MISO occurred in only three zones (MISO South, Zones 8-10) in only one season (fall). In the fall season for MISO South, the clearing price difference as compared to North/Central was about $16/MW-day, which resulted in an annual price difference between the North/Central and South of approximately $5/MW-day. Based on this recent data, as represented in the following charts, transmission capability does not appear to be a significant issue for MISO at this time.

Figure 3.[34]

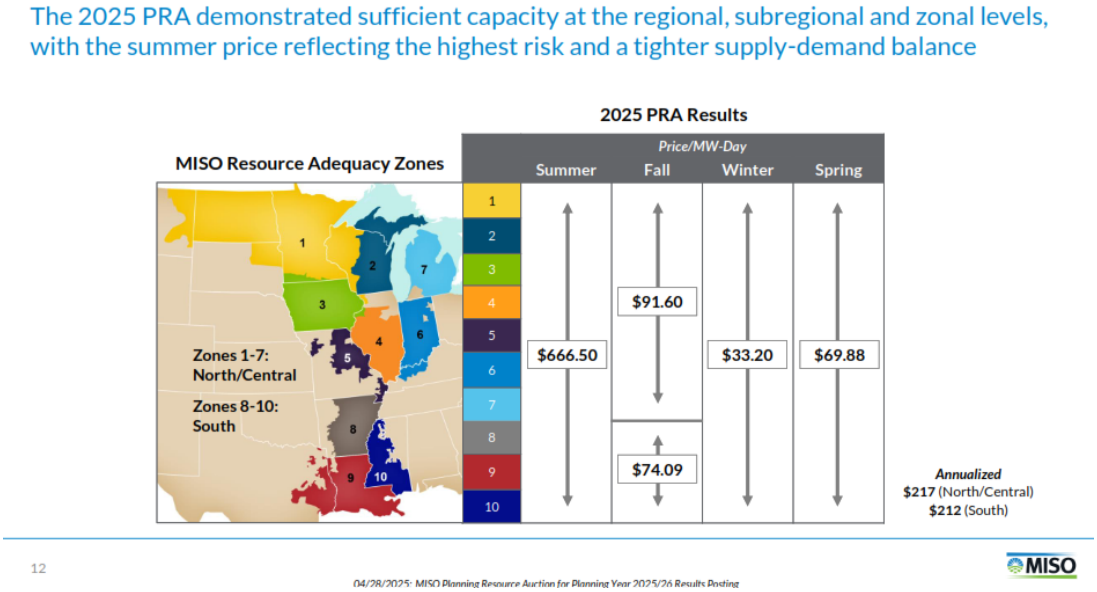


LRZ	Summer ZIA (MW)	Fall ZIA (MW)	Winter ZIA (MW)	Spring ZIA (MW)
1	6,023	5,688	5,575	6,396
2	4,370	6,537	6,435	6,439
3	5,460	7,704	5,785	7,726
4	7,757	7,013	6,457	7,373
5	4,117	4,679	4,922	4,453
6	8,366	8,672	7,690	9,176
7	3,569	5,115	4,762	5,166
8	2,358	5,675	3,432	6,085
9	4,361	4,741	4,418	4,855
10	4,474	4,508	3,458	4,365

[33] *See* Supplemental Notice at 12 (Question 6).

[34] MISO, *2025-2026 PY Seasonal CIL/CEL Final Results*, at 4 (October 24, 2024).

Figure 4.[35]



Looking forward, and even if there is additional transfer capability available, MISO must consider whether there will be sufficient capacity available to meet demand, whether that capacity will be cost-effective, and how DLOL accreditation will affect the accredited value of that capacity. Another consideration is the artificial contract limitations governing transfers between MISO North and MISO South. The transmission grid should be used to the maximum extent of its capabilities, within the bounds of reliable operations. For instance, the capacity sharing arrangement in place between PJM and MISO is a more effective solution to optimizing grid operations than the artificial contract path limitations that exist between MISO South and MISO North. To the extent reliable operations can occur without imposing artificial limitations or additional costs, MISO should continue to explore ways to reduce and ultimately eliminate these North-South contract path limitations.

[35] MISO, *Planning Resource Auction Results for Planning Year 2025-26*, at 12 (April 2025).

G. Alternative resource adequacy constructs.[36]

Each RTO has components of its resource adequacy construct that, standing alone, may be superior to those of the other RTOs. Similarly, each construct has components that may be inferior to other approaches. One major aspect of MISO's construct that could be improved would be moving to a more forward design, such as the three-year forward construct PJM nominally uses. However, given that queue processing spans multiple years and the time between breaking ground on a generation project to commercial service is typically longer, a capacity construct that provides pricing signals that are actionable, meaningful, and affordable is critical to ensuring reliability. A robust residual market construct is superior to a mandatory, centrally-administered auction design, as it allows states, EDCs, LSEs, and the consumers they serve to economically develop hedges and resource portfolios of their choosing.

[36] *See* Supplemental Notice at 12 (Question 7).

Document Accession #: 20250516-5206 Filed Date: 05/16/2025

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SUMMARY OF PRE-TECHNICAL CONFERENCE STATEMENT OF STEVEN LIEBERMAN ON BEHALF OF AMERICAN MUNICIPAL POWER, INC.

- AMP is a non-profit public power wholesale electric supplier with the primary goal of ensuring reliable and affordable power, and is not motivated by pricing results from RTO-administered markets, including resource adequacy constructs.
- A well-functioning resource adequacy construct requires five design characteristics: (1) flexibility to address exogenous situations; (2) viable options for self-supply; (3) actionable price signals; (4) granular capacity valuation; and (5) attribute-based capacity procurement.
- MISO's Planning Resource Auctions are currently procuring capacity at or above planning reserve margin targets, but serious concerns about the ability to sustain this trend demand immediate attention.
- Reactionary rule churn to produce desired pricing outcomes threatens long-term investment in capacity resources.
- AMP's public power perspective brings an essential pro-competition voice to discussions of RTO resource adequacy constructs.

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BIOGRAPHY OF STEVEN LIEBERMAN OF AMERICAN MUNICIPAL POWER, INC.

Steven Lieberman has more than twenty-five years of experience in the electric industry, specializing in wholesale power market design with expertise in rules for energy markets and resource adequacy constructs. Mr. Lieberman has worked for both for-profit and non-profit organizations, including advocacy on behalf of AMP involving the PJM and MISO stakeholder processes, NERC standards development, and FERC regulatory matters for the past eight years. Prior engagements include regulatory work for an electric cooperative, and modeling and other analysis for a consultancy on behalf of power generation developers.

Mr. Lieberman currently co-represents the wholesale electric quadrant and the Transmission Access Policy Study (TAPS) group on the board of directors of the North American Energy Standards Board (NAESB), and is Vice Chair of the Markets Committee at the National Hydropower Association (NHA). Mr. Lieberman holds a Bachelor of Arts degree from Boston University, with a major in environmental science and a concentration in geographic analysis, including a dual-specialization in geographic information systems and remote sensing.

May 16, 2025

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