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August 27, 2025

**VIA ELECTRONIC FILING**

The Honorable Debbie-Anne Reese  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re: Midcontinent Independent System Operator, Inc.  
Loss of Load Expectation Definition Change Filing  
Docket No. ER25-\_\_\_\_-000**

Dear Secretary Reese:

The Midcontinent Independent System Operator, Inc. ("MISO"), through this filing, submits proposed revisions to its Open Access Transmission, Energy, and Operating Reserve Markets Tariff ("Tariff")<sup>1</sup> to revise the definition of the term "Loss of Load Expectation ("LOLE")" as set forth in Module A of MISO's Tariff. MISO requests an effective date of October 27, 2025, to ensure implementation in advance of preparations for the 2026 Planning Resource Auction ("PRA") to clear resources participating in the 2026 / 2027 Planning Year. MISO urges the Commission to accept the proposed Tariff revisions because they are just and reasonable and consistent with the Commission's mission to ensure reliability and consumer efficiency.

**I. OVERVIEW**

Module A of MISO's Tariff currently defines LOLE as, "the sum of the loss of Load probability for the integrated daily peak Hour for each Day of the year." As currently defined, a day with an event is only counted in LOLE calculations if the loss of load happens during the hour of daily peak load. LOLE is an important reliability metric which estimates the expected number of days per year that electricity supply is insufficient to meet demand. MISO targets the one day in ten years (0.1 days per year) LOLE metric and such calculation is used by MISO to establish the Planning Reserve Margin ("PRM") for each Planning Year. Instead of focusing only on the daily peak hour with loss of load events, the proposed Tariff revisions will count a day with an

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<sup>1</sup> MISO submits these amendments pursuant to section 205 of the Federal Power Act ("FPA"), 16 U.S.C. § 824d, and section 35.12 of the Federal Energy Commission's ("FERC" or "Commission") regulations, 18 C.F.R. § 35.12 (2025). All capitalized terms in this filing not otherwise defined have the same meaning as set forth in Module A of the MISO Tariff.

event in any hour of the day towards LOLE calculations. This revision will allow MISO to better capture and measure the likelihood that generation capacity will be insufficient at a given hour.

MISO describes the shared responsibility of MISO, its members, and states to address the urgent and complex challenges to electric system reliability in the MISO Region as the “Reliability Imperative.” MISO’s updated response to the Reliability Imperative highlights the fact that generation fleet change is creating a gap between the region’s levels of installed and accredited generation capacity. MISO’s Attributes Roadmap also presents insights and solutions following an in-depth look at the challenges of operating a reliable bulk electric system in a rapidly transforming energy landscape. The Attributes Roadmap recognizes that no single resource provides every system attribute needed; rather, the needs of the system have always been met by a fleet of diverse resources operated in a manner that most efficiently meet system needs.<sup>2</sup>

MISO is at an inflection point in its portfolio evolution. Sizable segments of dispatchable thermal generation are aging into retirement and being replaced with increasing amounts of highly weather dependent, intermittent wind and solar resources, and energy storage devices, such as batteries. This evolution in generation mix, combined with an increased frequency of extreme weather events, is shifting the nature of system risk and creating challenges to maintaining reliable system operations. The changing resource mix combined with extreme weather and shifting load profiles have created what the North American Electric Reliability Corporation (“NERC”) has characterized as a “hyper-complex risk environment.”<sup>3</sup>

As a result of the changes to the resource mix and increase in extreme weather events, load is no longer the only, or necessarily the main, driver of risk in the MISO system. In fact, MISO is already starting to experience the impacts of these shifting risk factors. For instance, an analysis of Resource Adequacy (“RA”) hours (which represent the most challenging operational hours in a season) shows that, between 2020 and 2024, risk in the summer has noticeably shifted to hours later in the day, as shown in Figure 1.

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<sup>2</sup> [Attributes Roadmap: A Reliability Imperative Report](#) (December 2023).

<sup>3</sup> See NERC, 2023 Long-Term Reliability Assessment (December 2023) (“2023 LTRA”), available at: [https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_LTRA\\_2023.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2023.pdf).

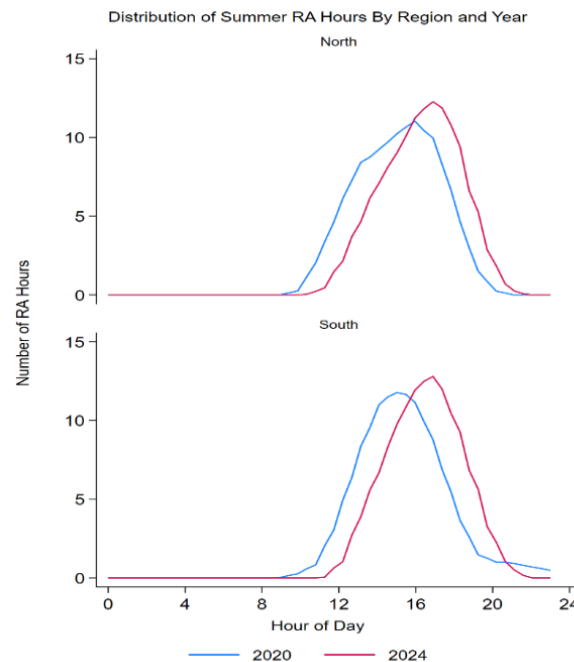


Figure 1. Distribution of Resource Adequacy (“RA”) hours by hour of day for the 2020 and 2024 Summer seasons

This transition is not unique to MISO and has been recognized by the industry.<sup>4</sup> The increasing decoupling happening between the times of risk and the times of daily peak load hours is also being experienced in the MISO models used for LOLE studies, which are the bases for establishing the PRM and other capacity requirements. Maintaining the current definition of LOLE moving forward would underrepresent the resource adequacy risk, leading to capacity requirements that are lower than needed to address the aforementioned shifts in risks, which are observed in operations. Therefore, MISO is proposing the revisions set forth in the instant filing to address this risk.

Furthermore, this revision aligns the LOLE analysis with the Direct Loss of Load (“DLOL”) based methodology that will be used to accredit Schedule 53A<sup>5</sup> and, if accepted, Schedule 53B<sup>6</sup> Resources and establish the PRM beginning in Planning Year 2028 / 2029. In

<sup>4</sup> See Energy Systems Integration Group, Report: New Resource Adequacy Criteria For The Energy Transition Modernizing Reliability Requirements, *available at*, <https://www.esig.energy/wp-content/uploads/2024/03/ESIG-New-Criteria-Resource-Adequacy-report-2024a.pdf>; and North American Electric Reliability Corporation, *Evolving Planning Criteria for a Sustainable Power Grid: A Workshop Report, June 2024*.

<sup>5</sup> *Midcontinent Independent System Operator, Inc.*, 189 FERC ¶ 61,065 (October 25, 2024).

<sup>6</sup> Letter from Michelle Quinn, Managing Senior Corporate Counsel, MISO to Hon. Debbie-Anne Reese, FERC Secretary (April 4, 2025), eLibrary No. 202550404-5209 (“Demand Response and Emergency Resources ‘DR/ER’ Reform Filing Transmittal Letter”).

response to the same challenges identified above and in recognition of the continued need for diversity in the resource mix, MISO proposed revisions to its Tariff to implement the DLOL- based accreditation methodology, which the Commission accepted on October 25, 2024.<sup>7</sup> The DLOL- based methodology balances a range of reliability risks in the planning and operations horizons by incorporating forward-looking probabilistic analysis and measuring a resource's performance during recent periods of high system risk. Under the DLOL-based methodology, MISO defines the periods of highest system risk identified in the probabilistic analysis as "Critical Hours." Critical Hours include all loss of load hours and may also include low margin hours comprised of those hours where available supply in excess of demand is less than or equal to 3% of load in that hour (*i.e.*, low margin). The instant filing is MISO's most recent acknowledgement that all hours matter, not just the daily peak hours, and confirms the need to account for all expected risk hours in the LOLE calculations starting with the upcoming Planning Year.

The software MISO uses to perform the LOLE study currently calculates LOLE based upon all days with loss of load events and not just the days with loss of load risk during the peak hour, which is consistent with the requested definition revisions and industry best practice. Furthermore, according to the vendor, the software MISO uses to perform the LOLE study has been calculating LOLE based upon all risk hours since MISO first began utilizing it in 2017 for the 2018 / 2019 Planning Year. Given the fact that MISO has been calculating LOLE based upon all risk hours for approximately eight years, such calculations can be assumed to be a baseline for both MISO and its stakeholders with respect to Resource Adequacy Requirements. Therefore, timely acceptance of the proposed revisions will align MISO's Tariff with the way the software currently functions and allow MISO to: (i) publish the PRM for the 2026 / 2027 Planning Year by November 1, 2025, and (ii) develop and publish the Reliability Based Demand Curves ("RBDCs") for the 2026 / 2027 PRA in a timely manner. Maintaining the PRA schedule and the timely publishing of critical parameters like the PRM and RBDCs are necessary for successful execution of the 2026 / 2027 PRA.

## II. DISCUSSION OF PROPOSED TARIFF CHANGES

MISO is requesting approval to revise the current definition in Module A of the Tariff, as shown below. The struck-through language will be deleted from the existing provision and the italicized language will be added. MISO's proposed revisions are as follows:

*Loss of Load Expectation (LOLE):* ~~The sum of the loss of Load probability for the integrated daily peak Hour for each Day of the year.~~ *An estimate of the average number of days with supply interruption to end use customers, whether for a single hour or multiple hours in a day.*

The revisions proposed herein are just and reasonable and necessary to accurately reflect the system risks that MISO has been experiencing and will continue to experience in the future. Furthermore, the revised definition aligns with the DLOL-based methodology previously

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<sup>7</sup> Midcontinent Independent System Operator, Inc., 189 FERC ¶ 61,065 (October 25, 2024).

approved by the Commission. In approving the DLOL-based methodology, the Commission found that "...MISO has sufficiently supported its proposal to examine the roughly 1,950 Critical Hours, which are meant to represent the expected hours of greatest risk..."<sup>8</sup> In calculating Resource Class Level Unforced Capacity, MISO will focus on the hours of greatest risk and not just the daily peak hours where events are predicted to occur. The revisions proposed in this filing are consistent with the Commission's focus on the fact that in this hyper-complex risk environment within which MISO operates, all hours matter, not just the daily peak hours.

### III. STAKEHOLDER ENGAGEMENT

MISO first introduced this proposal to stakeholders at the May 21, 2025 Resource Adequacy Subcommittee ("RASC")<sup>9</sup> meeting. At that time, MISO had planned to include these proposed revisions as part of what it commonly referred to as the "RA Clean-up Filing" pursuant to which MISO requested other minor Tariff revisions to address PRA related matters.<sup>10</sup> In addition, the scope of the proposed LOLE changes included a proposal to address how the system is brought to criteria when LOLE exceeds 0.1 days/year. MISO requested and received stakeholder feedback<sup>11</sup> on the proposed changes, including a request by stakeholders to understand how the revised definition would impact the outcome of the LOLE analysis. After analyzing the data, MISO discovered that there was almost no impact, and that the software has been conducting the LOLE analysis using all risk hours for many years. After discovering the misalignment between the existing LOLE Tariff definition and the way the software currently functions, MISO removed the proposed Tariff revisions related to LOLE from the RA Clean-Up Filing and is presenting them herein. However, MISO narrowed the scope of this filing to address only the revised LOLE definition. The matter was also discussed at the August 20, 2025 RASC meeting. While some stakeholders suggested alternate definitions for consideration, no stakeholders expressed opposition to changing the LOLE definition. MISO considered the stakeholder feedback and slightly altered the definition, as set forth herein. Furthermore, MISO is authorized to represent that the Independent Market Monitor supports the proposal.

### IV. DOCUMENTS SUBMITTED WITH THIS FILING

In addition to this Transmittal Letter, the documents being submitted in this filing are as follows:

Tab A – Redlined Tariff effective October 27, 2025<sup>12</sup>; and

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<sup>8</sup> *Id* at P. 55.

<sup>9</sup> See presentation to the RASC, May 21, 2025, *available at*, [20250521 RASC Item 04 Liaison Report.pdf](#).

<sup>10</sup> Letter from Michelle Quinn, Managing Senior Corporate Counsel, MISO to Hon. Debbie-Anne Reese, FERC Secretary (July 30, 2025), eLibrary No. 20250730-5104.

<sup>11</sup> See Stakeholder feedback on RA Clean-up Filing, *available at*, [RASC: Resource Adequacy Clean Up Filing \(20250521\)](#).

<sup>12</sup> MISO has not included pending language that has a future effective date of 9/1/2027 under Docket No. ER25-1886-000. MISO commits to make a subsequent filing with the Commission to reflect the most up-to-date version of the then-current Tariff provisions prior to the effective date of the language in Docket No. ER25-1886-000.

Tab B – Clean Tariff effective October 27, 2025.

**V. EFFECTIVE DATE**

MISO requests that the proposed Tariff revisions be made effective on October 27, 2025, which is not less than sixty (60) days nor more than one hundred and twenty (120) days after this filing. Acceptance of these revisions by the requested effective date will allow MISO to maintain its PRA schedule and successfully execute the 2026 PRA.

**VI. COMMUNICATIONS**

MISO respectfully requests waiver of Rule 203(b)(3) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.203(b)(3) (2025), to the extent necessary to permit the designation of more than two persons for service on behalf of MISO in this proceeding and requests all communications related to this filing be directed to:

Michael Kessler  
Managing Assistant General Counsel  
Michelle Quinn  
Managing Senior Corporate Counsel  
Whitney Carter  
Corporate Counsel  
Midcontinent Independent  
System Operator, Inc.  
720 City Center Drive  
Carmel, Indiana 46032  
Telephone: (317) 249-5400  
mkessler@misoenergy.org  
mquinn@misoenergy.org  
wcarter@misoenergy.org

**VII. SERVICE**

MISO has served a copy of this filing electronically, including attachments, upon all Tariff Customers, MISO Members, Member representatives of Transmission Owners and Non-Transmission Owners, as well as state commissions within the Region. In addition, the filing has been posted electronically on MISO's website at <https://misoenergy.org/legal/ferc-fiings/> for other parties interested in this matter.

MISO also requests waiver of Section 35.13 of the Commission's regulations, 18 C.F.R. § 35.13 (2025), to the extent applicable to this filing, and requests waiver of any other applicable requirement of 18 C.F.R. Part 35 for which waiver is not specifically requested, if necessary, in order to permit Commission acceptance of this filing.

## VIII. CONCLUSION

For all of the foregoing reasons, MISO respectfully requests that the Commission accept this filing and grant the proposed effective date of October 27, 2025, and grant waiver of any Commission regulations not addressed herein that the Commission may deem applicable to this filing.

Sincerely,

/s/ Michelle Quinn

Michelle Quinn

Managing Senior Corporate Counsel

Midcontinent Independent

System Operator, Inc.

*Attorney for the Midcontinent Independent System  
Operator, Inc.*

/Attachments

Tab A



***Legitimate Risks:*** Business operation risks, incurred by a Market Participant, that increase as a result of providing any of the products described in the Tariff. These risks include, but are not limited to, the risk of repair expenses; business interruption due to outages resulting from either a failure to start, or unplanned outages that occur when the facility is in service; regulatory restrictions; and disruptions from labor relations problems. These risks are in the nature of marginal costs included in Reference Levels. In contrast, the risk associated with fuel purchase price is not a component of Reference Levels, but rather a basis for the Fuel Cost Uncertainty Adder and some of the conduct thresholds under Module D.

***Letter of Credit:*** A Credit Support Document taking the form found in Exhibit II of Attachment L to this Tariff.

***Line Outage Distribution Factor (LODF):*** The percent of flow on line A, which is transferred to line B for the loss of line A.

***Load:*** A term that refers to either an end-user of Energy, net of system losses, or the amount of Energy (MWh) consumed by such end-user within the Transmission Provider Region.

***Load Forecast:*** An estimate of the amount of Energy (MWh) or Capacity (MW) to be consumed within the Transmission Provider's Region, prepared by the Transmission Provider based upon input from Local Balancing Authorities and Load Serving Entities, and used in the Transmission Provider's scheduling and dispatch decisions to ensure reliable operation of the MISO Balancing Authority.

***Load Modifying Resource:*** A Demand Resource or Behind the Meter Generation Resource.

***Load Modifying Resource Market Participant (LMR MP):*** A Market Participant that has the

rights to control the energy demand or the energy production from a Load Modifying Resource.

***Load Ratio Share:*** Ratio of a Transmission Customer's Network Load in a Zone to the total Load in that pricing Zone computed in accordance with Module B, Section 34.2 of this Tariff.

***Load Serving Entity (LSE):*** Any entity that has undertaken an obligation to serve Load for end-use customers by statute, franchise, regulatory requirement or contract for Load located within or attached to the Transmission System, including but not limited to purchase-selling entities and retail power marketers with the obligation to serve Load. Where a distribution cooperative or a municipal distribution system otherwise covered by the prior sentence is a wholesale customer of a generation and transmission cooperative or a municipal Joint Action Agency, the generation and transmission cooperative, a state or federal agency or municipal Joint Action Agency may act as the Load Serving Entity for such distribution cooperative or municipal distribution system. Where retail Load switching occurs in a state, the entity with the obligation to serve Load is the LSE

***Load Shedding:*** The systematic reduction of system demand by temporarily decreasing Load in response to a Transmission System Emergency, Local Transmission Emergency, or MISO Balancing Authority Area or Sub-Area Capacity shortages, system instability, or voltage control considerations under Module B and Module C, of this Tariff.

***Load Zone:*** A Zone determined by Market Participants representing an aggregate area of consumption for a single Load Serving Entity within the MISO Balancing Authority Area and used for the purposes of scheduling, reporting Actual Energy Withdrawal volumes,

and settling Energy transactions at aggregated Load levels, approved and maintained by the Transmission Provider to facilitate transactions.

***Local Balancing Authority (LBA):*** An operational entity or a Joint Registration Organization which is (i) responsible for compliance to NERC for the subset of NERC Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for their local area within the MISO Balancing Authority Area, (ii) a Party to Balancing Authority Agreement, excluding MISO, and (iii) shown in Appendix A to the Balancing Authority Agreement.

***Local Balancing Authority Area:*** Shall have the meaning set forth in the Balancing Authority Agreement.

***Local Clearing Requirement (LCR):*** The minimum amount of Seasonal Accredited Capacity for an LRZ that is required to meet its LOLE for each Season while fully using the Zonal Import Ability for such LRZ and accounting for controllable exports.

***Local Clearing Requirement Charge:*** A charge that is assessed to Load Serving Entities whenever an LRZ's Auction Clearing Price for a Season is increased due to its LCR being greater than the sum of individual Final PRMR of the LSEs.

***Local Reliability Requirement (LRR):*** The minimum amount of Unforced Capacity for an LRZ to meet its LOLE for each Season, without considering transmission ties to systems outside of the LRZ.

***Local Resource Zone (LRZ):*** A geographic area within the Transmission Provider Region that is prescribed by the Transmission Provider, based upon the criteria in Section 68A.3, to address congestion that limits Planning Resource deliverability.

***Local Resource Zone Peak Demand:*** The Demand in MWs, for an LSE and/or EDC, in a Local Resource Zone that occurs coincident to the peak Demand for each Season in the Local Resource Zone, where all Demand has been augmented to include any known reductions in Demand related to LMRs and/or Energy Efficiency Resources.

***Local Short-Term Reserve:*** Short-Term Reserve available to the Transmission Provider to address transmission constraints in any Reserve Zone(s).

***Local Short-Term Reserve Requirements:*** The amount of Local Short-Term Reserve, as determined pursuant to Module C of the Tariff, that the Transmission Provider is required to procure in a Reserve Zone.

***Local Transmission Emergency:*** Transmission System conditions or events that have the potential to exceed or have exceeded operating limits that do not pose a risk of cascading to the interconnection but require emergency-level actions.

***Locational Marginal Price (LMP):*** A price for Energy at a given Commercial Pricing Node in the Transmission Provider Region which is the marginal cost of serving demand at the Commercial Pricing Node while meeting Zonal and Market-Wide Operating Reserve Requirements, Up Ramp Capability requirements, Down Ramp Capability requirements, and Short-Term Reserve Requirements. Such price may be either Ex Ante or Ex Post.

***Long-Term Firm Point-To-Point Transmission Service:*** Firm Point To Point Transmission Service under Module B of this Tariff with a term of one (1) year or more.

***Long Term Transmission Rights (LTTR):*** ARRs allocated in Stage 1A of the Annual ARR Allocation process. LTTRs carry annual rollover rights lasting ten (10) years or more.

***Look Ahead Commitment (LAC):*** A process performed during the Real-Time Energy and

Operating Reserve Market that develops Resource commitment and decommitment options that may be used by the Transmission Provider to ensure sufficient Resources will be available to meet Load Forecast, Operating Reserve, Up Ramp Capability, Down Ramp Capability, Short-Term Reserve and other demand requirements for the near term intra-hour intervals.

***Loss of Load Expectation (LOLE):*** ~~The sum of the loss of Load probability for the integrated daily peak Hour for each Day of the year.~~ An estimate of the average number of days with supply interruption to end use customers, whether for a single hour or multiple hours in a day.

***Loss of Load Probability Curve:*** The probability of shedding firm Load under varying levels of Contingency Reserve shortages, to be used in accordance with Schedule 28. This curve is further described in the Transmission Provider's Business Practices Manual for the Energy and Operating Reserves Markets (BPM-002).

***Loss Pools:*** A single Local Balancing Authority Area or an aggregation of Local Balancing Authority Areas, including those Local Balancing Authority Areas operated by Coordinating Owners consistent with the terms and provisions of the Coordinating Owners agreement, designated by the Transmission Provider for the purposes of calculating and distributing Day Ahead and Real Time Hourly Marginal Losses Revenue Surplus.

***Lost Opportunity Cost:*** The LMP revenues that were not realized relative to a theoretical future operating point.

Tab B

***Legitimate Risks:*** Business operation risks, incurred by a Market Participant, that increase as a result of providing any of the products described in the Tariff. These risks include, but are not limited to, the risk of repair expenses; business interruption due to outages resulting from either a failure to start, or unplanned outages that occur when the facility is in service; regulatory restrictions; and disruptions from labor relations problems. These risks are in the nature of marginal costs included in Reference Levels. In contrast, the risk associated with fuel purchase price is not a component of Reference Levels, but rather a basis for the Fuel Cost Uncertainty Adder and some of the conduct thresholds under Module D.

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