UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Managing Transmission Line Ratings	)	**Docket No. ER22-2363-000**

MOTION FOR EXTENSION OF TIME TO COMPLY OF THE MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC.

Pursuant to Rules 212 and 2008 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission,[1] Midcontinent Independent System Operator, Inc. ("MISO") respectfully moves for an extension of time to implement the requirements of MISO's compliance plan[2] relating to Order No. 881 and Order No. 881-A.[3] For the reasons described below, MISO requests an extension until December 31, 2028 to fully implement the revisions proposed in its July 2022 and August 2023 compliance filings and accepted by the Commission in its June 2023 and November 2023 orders in this docket.

In addition, because the Transmission Owners[4] ("TOs") in MISO will not be able to implement their Order No. 881 requirements until MISO has the necessary software and protocols

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1 18 C.F.R. §§ 385.212, 385.2008 (2025).

2 *See Midcontinent Independent System Operator, Inc.,* Filing in Compliance with Order No. 881, Docket No. ER22-2363 (July 12, 2022); *Midcontinent Independent System Operator, Inc.,* 183 FERC ¶ 61,194; *Midcontinent Independent System Operator, Inc.,* Filing in Compliance with Order No. 881, Docket No. ER22-2363 (August 14, 2023); Letter Order Accepting Compliance Filing (November 20, 2023); *Midcontinent Independent System Operator, Inc.,* Filing in Compliance with Order No. 881, Docket No. ER22-2363 (November 12, 2024).

3 *Managing Transmission Line Ratings*, Order No. 881, 177 FERC ¶ 61,179 (2021) ("Order No. 881"), *order on reh'g and clarification*, Order No. 881-A, 179 FERC ¶ 61,125 (2022) ("Order No. 881-A").

4 The MISO Transmission Owners for this filing consist of: AEP Indiana Michigan Transmission Company, Inc.; Ameren Services Company, as agent for Union Electric Company d/b/a Ameren Missouri, Ameren Illinois Company d/b/a Ameren Illinois and Ameren Transmission Company of Illinois; American Transmission Company LLC; Arkansas Electric Cooperative Corporation; Big Rivers Electric Corporation; Central Minnesota Municipal Power Agency; City Water, Light & Power (Springfield, IL); Cleco Power LLC; Cooperative Energy; Dairyland Power Cooperative; Duke Energy Business Services, LLC for Duke Energy Indiana, LLC; East Texas Electric Cooperative; Entergy Arkansas, LLC; Entergy Louisiana, LLC; Entergy Mississippi, LLC; Entergy New Orleans, LLC; Entergy Texas, Inc.; Great River Energy; GridLiance Heartland LLC; Hoosier Energy Rural

in place to integrate TO compliance efforts into MISO's systems, these TOs have authorized MISO to request on their behalf that the Commission grant them the same extension of time to implement the requirements of Order No. 881.[5] To the extent participating transmission owners who calculate and submit transmission facility ratings to MISO are missing from the footnote, MISO requests the Commission extend the relief requested in this motion to those entities.

The extension is required for MISO and TOs to have sufficient time to implement the hardware and software enhancements that must be completed prior to MISO's implementation of Order No. 881 in a manner that ensures electric system reliability and the efficient operation of MISO markets. Delays in the delivery of vendor software for Order No. 881 compliance are an industry-wide issue.[6] Other RTOs and even MISO, which implemented Ambient Adjusted Rating ("AAR") functionality in its real-time Energy Management System ("EMS") nearly a decade ago, have encountered challenges in implementing Order No. 881 compliance while simultaneously managing existing technologies and necessary upgrades for systems that support continuous

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Electric Cooperative, Inc.; Indiana Municipal Power Agency; Indianapolis Power & Light Company d/b/a AES Indiana; International Transmission Company d/b/a ITC*Transmission*; ITC Midwest LLC; Lafayette Utilities System; Michigan Electric Transmission Company, LLC; Michigan Public Power Agency; MidAmerican Energy Company; Minnesota Power (and its subsidiary Superior Water, L&P); Missouri River Energy Services; Montana-Dakota Utilities Co.; Northern Indiana Public Service Company LLC; Northern States Power Company, a Minnesota corporation, and Northern States Power Company, a Wisconsin corporation, subsidiaries of Xcel Energy Inc.; Northwestern Wisconsin Electric Company; Otter Tail Power Company; Prairie Power, Inc.; Republic Transmission, LLC; Southern Illinois Power Cooperative; Southern Indiana Gas & Electric Company (d/b/a CenterPoint Energy Indiana South); Southern Minnesota Municipal Power Agency; Wabash Valley Power Association, Inc.; Wolverine Power Supply Cooperative, Inc.; Pioneer Transmission, LLC; The Municipal Electric Utility of the City of Cedar Falls, Iowa; and City of Ames Municipal Electric Utility.

[5] *See New York Independent System Operator, Inc.*, Motion for Extension of Time to Comply, Docket No. ER22-2350-000 (January 30, 2024), and *New York System Operator, Inc.*, 186 FERC ¶ 61,237 (March 29, 2024) (Granting request for extension to implement tariff revisions accepted by the Commission in an Order No. 881 compliance filing until a to-be determined date no later than December 31, 2028).

[6] *See California Independent System Operator Corporation*, Motion for Extension of Time to Comply at 8, Docket No. ER22-2362-000 (January 27, 2025) (Discussing expectations to receive delivery of software code from external vendors after the effective date); *Southwest Power Pool*, Motion for Deferral of Effective Date at 10, Docket No. ER22-2339-000) (Discussing delays in receiving functional software).

reliable and efficient operation of the transmission system.[7] Likewise, transmission owners nationwide are unable to implement their Order No. 881 requirements until their RTO has the necessary software in place for them to perform adequate testing and training.[8] Specifically, MISO and the TOs have identified three categories of challenges and delays summarized here and explained further in Section II below: (1) The Market Clearing Engine enhancement; (2) The Joint Operating Agreement Application modernization; (3) A limited pool of qualified vendors.

First, prior to the issuance of Order No. 881, MISO began collaborating with its software vendor GE Vernova ("GEV") on a complete re-architecting and re-development of a set of "next generation" market clearing engines ("nGEM MCEs"). However, there have been delays to the original development and testing schedule. MISO must sequence the incremental software updates necessary to make systems Order No. 881 compliant after sufficient progress has been made on the nGEM MCEs software. Additionally, MISO must complete the enhancement because continued use of the legacy MCE would pose a risk to the reliability and efficiency of the market system.

Second, prior to the issuance of Order No. 881, MISO began a project to upgrade the architecture of the Joint Operating Agreement Application ("JOAA"). However, there have been significant delays to the original development and testing schedule. MISO must sequence its

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[7] *See New York Independent System Operator, Inc.*, Motion for Extension of Time to Comply, Docket No. ER22-2350-000 (January 30, 2024) (Describing challenges with implementing Order No. 881 changes on existing aged market systems that require hardware and software upgrades).

[8] *See California Independent System Operator Corporation*, Motion for Extension of Time to Comply at 2, Docket No. ER22-2362-000 (January 27, 2025) (Discussing the inability of transmission owners to implement Order No. 881 requirements until CAISO has deployed and tested the necessary systems); *New York Independent System Operator, Inc.*, Motion for Extension of Time to Comply at 2, Docket No. ER22-2350-000 (January 30, 2024) (Describing the inability of NYISO Transmission Owners to implement their Order No. 881 requirements until NYISO has in place the software and protocols that are necessary); *Southwest Power Pool*, Motion for Deferral of Effective Date at 10, Docket No. ER22-2339-000) (Stating that SPP's delay in receiving functional software has likely resulted in Transmission Owner delays due to schedules that relied upon testing with SPP).

implementation of some near-term transmission service calculations after the JOAA upgrade because the JOAA enables the communication of critical inputs to these calculations. Additionally, MISO must complete the upgrade because known cybersecurity issues could pose a risk to the reliability of the transmission system.

Third, a limited pool of qualified vendors prevents MISO and the TOs from addressing delays in software development timelines, leading to cascading delays in testing and training. MISO and the TOs cannot add additional vendors to support integrating Order No. 881 implementation with preexisting projects due to the specialized nature of the work. For the same reason, vendors cannot simply add resources with the required expertise. The delays in development timelines prevent MISO from starting all planned software testing as originally scheduled. Further, many TOs are experiencing delays with their software development timelines that also impact their readiness to test integrations with MISO. The uncertainties in development and testing also feed downstream to training, both within MISO and with TOs. MISO and the TOs recognize the risk insufficient testing and training on critical systems pose to transmission system reliability.

While the timeframe for developing the necessary software will delay MISO in fully implementing the requirements of Order No. 881, MISO implemented AAR and Dynamic Line Rating systems in its real-time EMS and real-time economic dispatch nearly a decade prior to Order No. 881. Although the legacy system is not fully compliant with Order No. 881, the systems do allow MISO and some TOs to realize much of the value in AARs due to improved accuracy of transmission facility ratings. MISO will continue to make those systems available as it works toward full Order No. 881 compliance.

MISO and the TOs are working diligently towards implementing Order No. 881's remaining requirements. MISO also respectfully asserts that its work as an industry leader in collaborating on the Transmission Ratings and Operating Limits Information Exchange ("TROLIE") through an open-source approach, resulting in adoption at the Reliability Coordinator level by multiple ISO/RTOs, further demonstrates the MISO commitment to accelerating the implementation of Commission policy changes. However, despite this commitment, MISO is constrained by the development schedule for critical market system software and the need to maintain reliable operation of its systems during Order No. 881 implementation.

As discussed below, there is good cause for granting the requested extension because it is necessary to allow MISO to implement critical projects in a sequence and manner that does not jeopardize the integrity of its markets and the electric system. Moreover, it is necessary to allow: (1) the TOs time to develop and test their individual software systems, and (2) MISO and the TOs to adequately test and train staff on the various software, processes, and procedures being developed for Order No. 881 compliance, further assuring the integrity of the markets and electric system reliability.

I. BACKGROUND

A. Order No. 881 and MISO's Compliance Filings

On July 12, 2022, MISO submitted proposed Tariff revisions ("July 2022 Filing") to comply with the requirements of Order Nos. 881 and 881-A (collectively "Order No. 881"). On June 15, 2023, the Commission issued an Order accepting MISO's proposed Tariff revisions, implementing Attachment M effective July 11, 2025, subject to further compliance. The June 15 Order contained two directives requiring separate compliance filings. On August 14, 2023, MISO made the first compliance filing to address how MISO will use AARs as part of its market

processes. The Commission accepted these revisions by Letter Order on November 20, 2023. On November 12, 2024, MISO made the second compliance filing ("November Filing") to explain its timelines for calculating and submitting AARs.[9]

II. MOTION FOR EXTENSION OF TIME

MISO respectfully requests an extension of time to implement the revisions proposed in its July 2022 Filing, as accepted by the Commission's June 15 Order and subject to the further compliance filings referenced above until a to-be determined date no later than December 31, 2028. MISO submits this extension on its own behalf and on behalf of its TOs. The Commission should grant this motion because good cause exists to do so.[10] This extension is required to allow for the completion of hardware and software upgrades associated with Order No. 881 and delayed by preexisting projects necessary to maintain electric system reliability and administration of the MISO markets. Further, this extension is required to allow for adequate testing of the software upgrades that impact critical market systems.

A. MISO is Engaged in Both Order No. 881 Implementation and Pre-existing Market Enhancements that are Critical to System Reliability and Granting the Requested Extension Will Ensure that these Initiatives are not Disrupted

Order No. 881 implementation has required MISO to engage in a broad array of initiatives, from addressing the interoperability challenge by establishing industry specifications for information exchange to facilitating TO readiness for Attachment M obligations through monthly workshops to coordinate interoperable systems. In addition, MISO needed to coordinate these efforts with other system enhancements and initiatives, some of which were already in process at the time that Order No. 881 was issued. Below, MISO provides a description of the Market

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[9] *Midcontinent Independent System Operator, Inc.,* Filing in Compliance with Order No. 881 at P 13, Docket No. ER22-2363 (November 12, 2024).

[10] 18 C.F.R. § 385.2008(a).

Clearing Engine enhancement and the Joint Operating Agreement Application modernization with an explanation of why the preexisting projects delay Order No. 881 efforts but must be completed. MISO also explains its Order No. 881 program design and other efforts to mitigate the impact of industry-wide delays driven by the limited pool of qualified vendors.

i. The Market Clearing Engine Enhancement Preexisted Order No. 881 and is a Critical Block to Further Software Development for Multiple Market Processes

Prior to Order No. 881, MISO began collaborating with GEV on a complete re-architecting and re-development of a set of "next generation" market clearing engines ("nGEM MCEs"). The development of the new clearing engines began in 2020 and was scheduled to be completed by the end of 2025.

After the issuance of Order No. 881, MISO assessed the expected schedule for the nGEM MCEs completion against Order No. 881 requirements. The assessment included efforts to accommodate the incremental Order No. 881 work by adjusting schedules and deploying a full team of engineers and project managers to meet the effective date in July 2025. MISO determined that it was necessary to sequence the development of Order No. 881 functionality for forecast AARs after completion of the nGEM MCEs in 2025. MISO based this decision predominately on three factors: (1) The limited lifetime of the legacy market clearing engine; (2) Increased requirements for data transfer for AARs, both in frequency and volume; (3) A limited pool of vendors capable of developing the required software or modifying the existing software.

This means that MISO must sequence the incremental software updates necessary to make nGEM MCEs Order No. 881 compliant after sufficient progress has been made on the nGEM MCEs software for it to be updated. The software must be developed in sequence because the Order No. 881 compliant EMS and Limit Exchange Portal ("LEP") upgrades are designed to function on the enhanced nGEM MCEs platform and would be incompatible with the legacy MCE.

However, due to the complexity and scope of the nGEM MCEs project, MISO has experienced significant delays to the original development and testing schedule, which propagate downstream to Order No. 881 efforts.[11] MISO worked with GEV to reassess the expected schedule for completion against Order No. 881 requirements and has determined that it would take longer to alter the nGEM MCEs design mid-development. The nGEM MCE associated delays impact the implementation of forecasted ratings only within the market unit commitment processes. The dispatch study process for the real-time market uses real-time AARs passed from the EMS so completion of the nGEM MCE is not a pre-requisite to implementation.

MISO requires this extension because it cannot implement Order No. 881 compliant EMS and LEP upgrades by July 11, 2025. The upgrades must be implemented on the enhanced market clearing engines in order to ensure the reliability of the markets and electric system by implementing hybrid cloud capability, fortifying cybersecurity, and integrating advanced data analytics. However, MISO cannot accelerate the development of the nGEM MCEs platform.

ii. The Joint Operating Agreement Application Modernization Preexisted Order No. 881 and is a Critical Block to Further Software Development for Transmission Service Processes

In 2018, MISO began a project to modernize the architecture of the Joint Operating Agreement Application ("JOAA"), which fulfills the obligations in MISO's interregional operating agreements and enables bulk data exchange between MISO and its neighbors, including Transmission Service activities. A primary goal of the modernization was to address cybersecurity

[11] *See* MISO Technology Committee of the Board of Directors March 11, 2025 meeting webpage, Item 06 Reliability Imperative System Enhancements at 4, available at: https://cdn.misoenergy.org/20250311%20Technology%20Committee%20of%20the%20BOD%20Item%2006%20Reliability%20Imperative_System%20Enhancements682907.pdf.

concerns because external support was no longer available for the existing JOA platform. Application development began in 2020 and was scheduled to be completed by Q2 2024.

This JOAA modernization is a critical enhancement to enable Order No. 881 compliance because the JOAA output of Market-to-Market flows serves as an input to Available Share of Total Flowgate Capability ("ASTFC") calculations, which solve for the amount of capacity that remains available on a reciprocally coordinated flowgate for use as Firm Transmission Service. The JOAA modernization must be completed prior to Order No. 881 implementation work so that MISO can address known security vulnerabilities and update deprecated software. The existing JOAA platform still depends on a software framework that lacks external support and failure to update could pose a risk to the security of MISO's and its neighbors' systems. Order No. 881 work must be sequenced after the JOAA modernization because the JOAA is the mechanism through which Market-to-Market flows are input into the Available Share of Total Flowgate Capability calculations, which must use AARs to be compliant with Order No. 881. Even if MISO began the development of the software required to implement Order No. 881 compliance for the legacy JOAA, the software enhancements would not be completed prior to the current estimated JOAA completion date of June 2025.

Further, adequate testing of the JOAA requires MISO to coordinate implementation and testing with multiple external entities. As part of the implementation of ASTFC for Order No. 881, it is imperative for system reliability that MISO and the Congestion Management Process entities, which include, but is not limited to, PJM, SPP, and TVA, are able to both test and implement the enhancements in synchronicity together. This additional complexity for integration testing adds to the timeline for implementation as it requires all entities to have compatible systems capable of

receiving forecasted and real-time AARs and have their systems ready for Available Share of Total Flowgate Capability testing and implementation at the same time.

In addition to this heightened coordination, MISO has identified other challenges beyond its control. For example, MISO staff attempted to plan for and mitigate potential issues caused by effective dates that became out of sync after a Commission order granting extension with a seams partner.[12] MISO notes that its extension request allows entities with a Joint Operating Agreement to coordinate Order No. 881 implementation without risking compliance.

MISO requires this extension because it cannot implement Order No. 881 compliant ASTFC software by July 11, 2025. The software must be implemented on the upgraded JOAA in order to ensure the reliability of the electric system for MISO and its neighbors. However, MISO cannot accelerate the development, testing, and implementation of the JOAA platform or subsequent ASTFC software.

iii. The MISO Order 881 Program is Ongoing, but the Limited Selection of Qualified Vendors Drive Delays in Software Development Timelines That Prevent Sequential Work

As described in the November Filing,[13] MISO organized its Order No. 881 compliance activities as a collection of related workstreams grouped together as a program. This structure ensures a singular focus on the outcome coordinated across the MISO organization and its vendors. The program has four workstreams: Core AAR, AAR Archive, Forward Market AAR, and Seams AAR. MISO explains the workstreams and their role in implementing AARs below to explain the project dependencies and sequencing that necessitate this request for an extension.

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[12] *Southern Company Services, Inc.*, Letter Order, 187 FERC ¶ 61,055 (2025).

[13] November Filing at 6-7.

The Core AAR workstream includes updating MISO's Model Manager and its EMS. There are also two new services being implemented as part of this workstream. The first service, the LEP, enables TOs to submit AARs. The second service, the Weather Information Interface ("WII"), provides weather station observed and forecasted ambient conditions for MISO TOs to use in calculating AARs, and provides the EMS with weather station forecast ambient conditions. All other workstreams are dependent on the Core AAR systems because the LEP enables the functionality required for TOs to communicate AARs to MISO.

The work to implement the WII and update MISO's Model Manager has largely progressed as expected. The WII went live on February 13, 2025. More than 20 TOs are provisioned to access the service. As TOs and their vendors progress in their Order No. 881 compliance activities, MISO is seeing additional requests for access to the WII. MISO's Model Manager has completed internal MISO testing and testing with TOs is in progress. However, as described further below in Section B (ii), integration tests[14] with the EMS and LEP are delayed due to the dependencies on those systems.

The AAR Archive workstream is focused on the data retention requirements of Order No. 881, including password protected access. MISO is implementing the Forecasted Operational Ratings Transparency Archive ("FORTA") to house historical ratings and operator overrides, as well as TO Ratings Methodologies. The necessary software to implement storage of TO Ratings Methodologies was deployed in January 2025, with training currently scheduled for March. However, full implementation of FORTA is delayed due to dependencies on LEP because it both

[14] Integration testing is a testing phase in which different components of a system are tested to ensure they work together correctly. Prior to this phase, individual components will have been tested for proper functionality.

enables the exchange of AARs between entities and determines the appropriate rating to be stored in compliance with Order No. 881 requirements.

The Forward Market AAR workstream focuses on Day Ahead and Real Time Markets ("DART") and supporting systems. The supporting systems enable systems reliability engineering and support studies and forward market operations processes, which are involved in near-term Transmission Service activities. Some development work is in progress for systems not dependent on nGEM MCEs nor DART changes for Order No. 881, but integration testing will still require completion of DART updates due to interdependencies with LEP.

Seams AAR covers the functionality needed to use AARs for Transmission Service with neighboring entities including PJM, SPP, and TVA. A small amount of preparatory work is in progress. As described previously in Section A(ii), the majority of the work is blocked pending delivery of LEP and completion of MISOs JOAA modernization.

1. Vendor Participation is Strong, but the Number of Qualified Vendors is Limited

MISO worked with multiple software vendors to update systems and provide mechanisms for the exchange of information required to facilitate Order No. 881 compliance. However, MISO has found that, due to the highly specialized nature of the work and software required, and the expertise needed to implement Order No. 881 requirements, MISO and its TOs largely must draw from the same limited pool of qualified vendors as neighboring Transmission Providers. For the same reasons, these tend to be vendors who already are engaged in developing processes and software that antedate Order No. 881 compliance, or which must be completed to provide the foundation for Order No. 881 implementation. As such, Order No. 881 implementation has presented significant challenges across the industry that were not foreseen at the time of the proposed rulemaking process.

As described in the November 12 Filing,[15] GEV is actively developing the LEP to implement the TROLIE specification. However, GEV must also update the EMS ratings application to handle ratings clearinghouse calculations and manage the forecast AARs submissions and temperature lookup tables for Order No. 881 compliance. Further, MISO worked with Siemens to develop updates to the MISO Model Manager software to allow MISO systems to accept AARs and TO Facility Ratings methodologies. The same resources at MISO who support the Model Manager to enable critical reliability functions are required for Order No. 881 implementation. The extension request is required because the limited availability of qualified resources means that MISO cannot mitigate resource constraints sufficiently to implement Order No. 881 compliant systems by July 11, 2025.

2. Transmission Owner Workshops and Surveys Verify that Integration Testing Cannot Be Completed in Time

MISO and the TOs have collaborated extensively to implement Order No. 881 requirements due to the interdependent nature of the division of responsibilities in Attachment M. As described in the November Filing,[16] MISO has conducted a monthly closed workshop with impacted TOs since March 2022. MISO also disseminated and collated the results of readiness surveys ("TO Surveys") to track overall progress. MISO has also hosted a variety of Order No. 881 workshops open to all stakeholders and provided updates to existing stakeholders and external entities.

Since the November Filing, MISO and the TOs completed a January 2025 readiness survey. TOs continue to express concern about their ability to exchange a full set of real-time AARs by this July, primarily due to vendor or Transmission Operator timelines outside of their control. Less

[15] November Filing at 5-6.

[16] November Filing at 3-4, 14-16.

than half of respondents have received a firm delivery date from their vendor and almost half have already been informed of a delayed delivery.

Like MISO, the TOs face similar delays in software development timelines, including lack of firm delivery times and already announced scheduled slippages. The TOs will not be able to comply with the Attachment M if they are unable to electronically communicate all required Order No. 881 compliant AAR information to MISO because MISO does not have the systems in place to receive it on July 11, 2025.[17] While some software development work can be done in parallel, TOs will need additional time to adequately test their system functionality after the MISO systems are in place for them to integrate with the MISO systems. These tests are critical to ensuring system reliability because they involve the exchange of transmission facility ratings.

3. TROLIE Demonstrates that MISO has Aggressively Supported Vendor Interoperability to Accelerate Widespread Adoption of Order No. 881 Requirements

MISO has been an industry leader in helping support innovative tools to support Order No. 881 compliance. As discussed in the November Filing,[18] MISO collaborated with the Linux Foundation's energy subgroup to define an open-source vendor-neutral community standard to address the interoperability challenge presented by Order No. 881. The TROLIE is a specification for an application programming interface ("API") that enables reliable and efficient exchange of the information necessary to comply with Order No. 881.

MISO notes that it invested considerable resources in collaborating on TROLIE and communicating progress to other entities. Accordingly, it has been adopted by multiple ISO/RTOs

[17] MISO Tariff, Attach. M § I.

[18] November Filing at 4-5.

and the MISO TOs.[19] The need for interoperability has driven other vendors to engage with the project, which could be a key factor in expanding the pool of qualified vendors. A denial of MISO's extension request may deter entities from using resources to pursue proactive implementation of Commission requirements that enable not only themselves, but others, to more efficiently operate markets and the grid and, in turn, lower costs for consumers.

B. The MISO Order No. 881 Implementation Impacts Multiple MISO Systems that Perform Critical Market and Reliability Processes and Delayed Software Development Timelines Cascade Downstream to Testing and Training that Must Be Adequate to Ensure System Reliability

MISO's Attachment M implemented the requirements of Order No. 881 in a manner consistent with MISO's Tariff framework and the division of responsibilities between TOs and the Transmission Provider under MISO's organizational documents. As the Commission expected,[20] the TOs are obligated to communicate Transmission Facility Ratings and methodologies, while MISO is required to use AARs based on information provided by the applicable TO as Transmission Facility Ratings in a variety of processes.

The division of responsibilities in Attachment M increases the complexity of adequately testing software. TOs cannot perform integration testing until MISO has the necessary systems in place. Likewise, MISO cannot perform integration testing until TOs have the necessary systems

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[19] *See, e.g., SPP LEP/TROLIE API Data Exchange Guide, available at https://www.spp.org/documents/72496/spp%20lep%20api%20data%20exchange%20guide.pdf; ISONE Managing Transmission Line Ratings Technical Rating Communication implementation workshop*, available at https://www.iso-ne.com/static-assets/documents/100016/ferc-881-rating-communications-working-group-sept.pdf.

[20] *See, e.g.*, Order No. 881 at PP 140-141, 299 (explaining that the Commission expects transmission owners to be the entity responsible for calculating ratings and provide them to the ISO/RTO); 251 (explaining that the Commission expects the RTO/ISO to be the entity responsible for establishing and implementing the procedures necessary to allow transmission owners to electronically update their ratings); and 11 (explaining that the Commission expects the RTO/ISO transmission provider to be the entity charged with maintaining the database of its transmission owner's ratings).

in place. Further, MISO's market systems are comprised of multiple software that perform a variety of interwoven functions, and MISO's ongoing Order No. 881 system updates alter the number and nature of these systems and their interfaces. MISO has encountered delays and challenges attributable to the complexity of this undertaking. A description of the dependencies and interfaces between MISO systems and the accompanying testing and training is below.

i. The MISO Transmission Service and Market Systems Implementing AARs Will Perform Sequential Functions from Multiday Ahead to Real Time

The Multi-Day Reliability Assessment Commitment ("MDRAC") is used to assess system reliability for the next three to seven days. The MDRAC is dependent on AARs supplied by LEP as an input to its SCUC algorithm. The MDRAC output of Energy and Operating Reserve requirements is used as an input to the DA market.

The Day-Ahead Energy and Operating Reserve Market ("DA") is a forward market in which various products are cleared and simultaneously co-optimized for each hour of the next operating day. The DA is dependent on AARs supplied by LEP as an input to its SCUC, SCED, and SCED-pricing programs to satisfy the requirements of the DA. The DA market output of a final schedule and load forecast is used as an input by the Next-Day Forward Reliability Assessment Commitment ("FRAC").

The FRAC ensures sufficient resources are available to meet demand and reserve requirements for each hour of the next operating day. The FRAC is performed after the DA market has established a final Day-Ahead schedule and produced load forecast data. The FRAC is dependent on AARs supplied by LEP as an input to its SCUC algorithm to minimize the cost of committing the required capacity to meet forecasted demand and confirmed Interchange Schedule Exports and Operating Reserve requirements. The FRAC is also dependent on transmission constraint input supplied by systems reliability engineering and support studies and forward

market operation processes. The FRAC output of the optimal schedule for the next operating day is an input that is incrementally updated by the Look-Ahead Commitment ("LAC").

The LAC processes provide the dispatch to minimize the total production cost of committing sufficient resources to meet the demand and Operating Reserve requirements throughout the operating day. It looks ahead three hours to commit resources necessary due to forecast or resource availability changes. The LAC is dependent on AARs supplied by LEP as an input to its SCUC algorithm. The LAC output of dispatch is used as an input by the Intra-Day RAC ("IRAC").

The IRAC is used to select and commit additional resources to meet hourly requirements within the operating day. The IRAC is dependent on AARs supplied by LEP in its SCUC algorithm. The IRAC output of dispatch is used as an input by the Unit Dispatch System ("UDS") in the real-time market.

The UDS sends dispatch targets every five minutes in the Real-Time energy market to satisfy system demand. The UDS uses AARs as an input to its SCED algorithm to balance injections and withdrawals, meet Operating Reserve requirements, manage congestion, and produce Locational Marginal Prices and Market Clearing Prices on a simultaneously co-optimized basis. The ability to balance injections and withdrawals is fundamental to the reliability of the electric system.

The Available Flowgate Capability ("AFC") process is used to evaluate near-term Transmission Service requests. The AFC is dependent on AARs supplied by LEP in calculations. The Available Share of Total Flowgate Capability ("ASTFC") solves for the amount of capacity that remains available on a reciprocally coordinated flowgate for use as Firm Transmission Service. The ASTFC is dependent on market-to-market flows supplied by the JOAA. The

implementation of systems related to Firm Transmission Service must be adequately tested to ensure system reliability because it is assumed to be guaranteed, reliable service.

As the software constituting these processes are updated to be Order No. 881 compliant, they cannot simply be tested against legacy systems because they are incompatible due to different architectures or communication protocols. This means that as various software tools supporting each of these market processes are delayed during development, such delays pose significant downstream challenges to testing.

ii. MISO and the Transmission Owners have Coordinated and Determined They Cannot Perform Adequate Testing and Training for the Critical Functions of the Market Systems in Time

Consistent with the Commission's agreement that system safety and reliability are paramount to the requirements for transmission line ratings adopted in Order No. 881,[34] MISO's approach to Order No. 881 implementation prioritized solution quality and user ability as equally important to timely realizing the value of AARs. This is warranted because defects that are undiscovered due to inadequate testing pose risk to the safety of the market system. Additionally, software that users have not been trained adequately on provides little value and increases risk.

Further, many TOs have indicated in the TO Survey responses that they are experiencing delays with their software delivery timelines, impacting readiness to test integrations with MISO. MISO and the TOs must sequence integration testing after all participating entities have the required systems in place in order to ensure system reliability because unforeseen defects could impact the ratings of transmission facilities and pose risk to the reliability of the transmission system. In addition, the uncertainties in development and testing also feed downstream to training, both within MISO and with TOs. MISO and the TOs cannot perform adequate integration testing of systems that ensure reliability until they have the required systems in place. The Commission

has previously found good cause because of the importance of ensuring that software and testing requirements are met for both MISO and its market participants.[21]

C. The Proposed Extension Is Reasonable Under the Circumstances and Is Not Prejudicial to Any Party

As explained above, MISO and the TOs have collaborated extensively together and with vendors to verify that delays in software development timelines mean that critical system enhancements, testing, and training cannot be completed by July 11, 2025. Additionally, MISO has worked extensively with GEV to develop revised timelines updated to reflect current progress on the nGEM MCEs. Further, MISO and the TOs have demonstrated commitment to implementing Order No. 881 requirements expeditiously by implementing completed projects when practicable. MISO's requested extension provides for the same effective date for MISO and all of the TOs. Therefore, MISO requests that the Commission extend the deadline for implementing its compliance plan until a to-be determined date no later than December 31, 2028.

i. MISO and the TOs have Shown that Software Dependencies Necessitate the Length of the Request

MISO and the TOs intend to implement AAR functionality as soon the required systems are available, tested, and integrated. MISO and the TOs intend to continue their Order No. 881 collaborative efforts and refine development and testing milestones as software tool functionality is completed. However, MISO has only a limited ability to accelerate software development due to resource constraints and critical dependencies that necessitate sequencing activities.

ii. MISO Commits to Providing Transparent and Public Informational Reports

[21] *Midcontinent Indep. Sys. Operator, Inc.,* 162 FERC ¶ 61,179 (2018).

MISO commits to implementing its Order No. 881 compliant tariff revisions as early as practicable. However, MISO recognizes the importance of transparency in its progress related to Order No. 881. Therefore, MISO commits to submitting an annual informational filing with the Commission, beginning one year after the issuance of an order granting this motion, that details MISO's progress in completing the upgrades and implementing its Order No. 881 compliance plan.

MISO notes that the effective date requested is necessary to ensure full implementation of Order No. 881 requirements. As explained previously, MISO redeveloped its Order No. 881 program with revised timelines updated to accommodate the downstream impacts of the MCE and JOAA driven delays. As MISO and the TOs complete implementation of stages of the four workstreams that enable sequential software deployments, they intend to implement Order No. 881 compliant functionality as early as practicable. MISO will continue its stakeholder process and commits to providing at least fourteen days' notice to Transmission Owners and neighboring entities. MISO further commits to notifying the Commission of the effective date for its Tariff revisions at least two weeks prior to that date.

III. REQUEST FOR ACTION

MISO respectfully requests that the Commission grant this Motion by May 30, 2025. On June 17, 2025, MISO and the TOs will participate in the last Order No. 881 monthly closed workshop scheduled prior to the current July 11, 2025, effective date. Commission action on this Motion prior to the June monthly workshop will provide MISO and the TOs with the certainty necessary to proceed with the revised Order No. 881 program timelines, which were updated to accommodate the necessary nGEM MCEs and JOAA upgrades and integration testing.

IV. NOTICE AND COMMUNICATIONS

All notices and communications regarding this Motion should be directed to the following persons:

Kalen Coleman*
Midcontinent Independent System Operator, Inc.
720 City Center Drive
Carmel, Indiana 46032
Telephone: (501) 378-4100
Fax: (317 249-5912
kcoleman@misoenergy.org

*Persons authorized to receive service.

V. CONCLUSION

In accordance with the foregoing, MISO respectfully requests that the Commission grant this Motion, as discussed herein.

Respectfully submitted,

/s/ Kalen Coleman

DATED: March 17, 2025

CERTIFICATE OF SERVICE

I hereby certify that I have, on this day, electronically served a copy of this document upon all parties listed on the official service list, compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Carmel, Indiana this 17th day of March 2025.

/s/ *Kandi Hahn*
Midcontinent Independent System Operator, Inc.
720 City Center Drive
Carmel, Indiana 46032
Telephone: (317) 249-5400