UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Midcontinent Independent System Operator, Inc.	)))))	Docket No. ER23-1195-000

MOTION TO INTERVENE AND COMMENTS OF THE MISO INDEPENDENT MARKET MONITOR

Pursuant to Rules 212 and 214 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("FERC" or "Commission"), 18 C.F.R. §§ 385.212 and 214 (2018), Potomac Economics respectfully moves to intervene in the above-captioned docket addressing the Midcontinent Independent System Operator, Inc.'s ("MISO") proposed reforms to its Open Access Transmission, Energy and Operating Reserve Markets Tariff ("Tariff") concerning the eligibility of wind resources to sell the ramp product.

Potomac Economics is the Independent Market Monitor ("IMM") for MISO and respectfully submits this Motion to Intervene to address issues raised by the Commission in its Deficiency Letter.[1]

[1] *Midcontinent Indep. Sys. Operator, Inc.*, Docket No. ER23-1195-000, (Deficiency Letter) (May 5, 2023).

I. NOTICE AND COMMUNICATIONS

All correspondence and communications in this matter should be addressed to:

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II. MOTION TO INTERVENE

Potomac Economics is the Independent Market Monitor for MISO. In this role, we are responsible for monitoring and evaluating the performance of the MISO's energy and ancillary services markets. We also are responsible for recommending market design changes to improve the performance of the markets and evaluating design changes proposed by MISO or market participants. Potomac Economics has a direct interest in this proceeding that cannot be adequately represented by any other party.

Good cause also exists to permit Potomac Economics' motion to intervene as it has a significant interest in this proceeding.[2] Potomac Economics did not initially intervene to comment on the filing MISO made in this docket because such comments were provided in the affidavit of Dr. Patton, president of Potomac Economics, attached to the MISO filing. Potomac Economics intervenes at this time to comment on the issues raised by the Commission in its Deficiency Letter and the responses provided by MISO.

[2] *See, e.g.*, 18 C.F.R. § 385.214(d) (2007) (requirements for motion for late intervention); *Consolidated Gas Supply Corp.*, 20 FERC ¶ 61,305, at 61,599 (1992) (factors considered by Commission in determining whether good cause exists to permit late intervention).

III. COMMENTS

MISO is proposing to temporarily disqualify wind resources from selling the ramp up product. My earlier affidavit explains that wind resources scheduled to provide the ramp product in the real-time market generally do not have the ability to ramp up to provide additional energy without overloading transmission constraints. The MISO proposal is appropriate and needed to support reliable system operations and ensure meaningful price signals. The commitment of non-deliverable resources to provide ramp up services unnecessarily increases the reliability risk to the system and results in customers paying for a service that cannot actually be provided by the supplier when needed.

The Commission's Deficiency Letter broadly questions MISO's proposal to treat DIRs and non-DIRs differently by disqualifying DIRs from providing the ramp-up product. Ideally, MISO would automatically disqualify any resource from being scheduled to provide ramp when it is not deliverable. However, this is not technically feasible today, nor will it be for some years in the future. While other resource types may sometimes be undeliverable, DIRs are virtually always undeliverable when scheduled to provide the ramp up product. This occurs because their production costs and tax incentives generally cause them to offer negative prices. This causes them only to be scheduled below their maximum output level when they are behind severely binding constraints that compel them to dispatch down and create apparent ramp up capability.

The data provided by MISO in its response to the Deficiency Letter indicates why it is reasonable to distinguish between DIRs and non-DIRs in the procurement of the ramp-up product. In particular, it is critical to understand the importance of the average marginal congestion component of DIRs and non-DIRs. In its response, MISO states:

> For the 2022 MISO Real-Time (RT) Market, DIRs cleared 15.0 percent of the total Up Ramp MWh, 99.7 percent was *economically undeliverable*, and their average Marginal Congestion Cost (MCC) of -$73.33/MWh. Non-DIRs cleared 85.0

> percent of the total Up Ramp MWh, 31.0 percent was *economically undeliverable*, and their average MCC was -$5.83/MWh. This data shows that DIR MCCs were over 12 times higher than non-DIRs, demonstrating the extraordinary behavior of DIRs in MISO markets.
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> For purposes of these percentages, MISO defines the capacity from a resource as being "economically undeliverable" if it has a Marginal Congestion Cost (MCC) < 0 in a given 5-minute RT interval.[3]

MISO's definition of "economically undeliverable" is simple, but it does accurately distinguish between how well-situated DIRs and non-DIRs are to provide the ramp-up product. In reality, a slightly negative MCC is very different than a deeply negative MCC. A slightly negative MCC does *not* indicate that a resource is undeliverable.

MISO's data indicates that the average MCC for non-DIRs is -$5.83 per MWh. The magnitude of the MCC indicates the congestion is not costly to manage. MCCs at this level generally correspond to shadow prices for the applicable constraint ranging from $-10 to -$100 per MWh of flow on the constraint. Shadow prices in this low range generally occur when the real-time dispatch has a number of resources that can be ramped up or down to provide relief on the constraint. By redispatching generation to reduce the flow on the constraint, the real-time market can access the ramp-up capability scheduled on the non-DIR resources. Therefore, it is likely that resources with MCCs of such small magnitudes are generally deliverable even though they are technically "behind a constraint". This is not true for DIR resources.

The fact that DIRs cleared to provide the ramp-up product are behind a constraint in 99.7 percent of intervals with an average MCC of -$73 per MWh indicates the following two key findings:

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3 *Midcontinent Independent System Operator, Inc.*, Response to Deficiency Letter - Dispatchable Intermittent Resources vis-à-vis Ramp Capability Products, Docket No. ER23-1195-000, (June 5, 2023).

- The real-time dispatch does not have access to redispatch capability that would allow the ramp-up capability from the DIRs to be delivered. This average MCC occurs because the DIR is either on the margin or the constraint is in violation. Hence, the real-time dispatch has exhausted all economic redispatch capability and utilized all available relief prior to this point. This makes the DIRs truly undeliverable.
- DIRs are only cleared to provide ramp-up service when they are undeliverable. This is expected because their zero or negative energy offer prices make them economic to schedule to provide ramp-up only when they are behind a severely binding constraint. On the other hand, when they are behind mildly binding constraints, DIRs are not cleared to provide ramp-up service, and the real-time market will redispatch other non-DIR generators to provide the ramp-up product in order to allow the DIR resources to instead provide energy at their maximum output levels. Therefore, an appropriate criterion to define "economically undeliverable" based on the applicable constraint's shadow price would reveal that the DIRs are almost never deliverable when scheduled to provide ramp-up while non-DIRs are almost always deliverable.

These findings explain why DIRs, based on their unique operational characteristics, are not similarly situated to non-DIR resources. The Commission also questions whether solar DIRs should be distinguished from wind DIRs in its Deficiency Letter. We support the application of MISO's proposal to all DIRs, including both solar and wind resources. This is justified because the factors that distinguish DIRs from non-DIRs and cause them not to be similarly situated are operational characteristics that wind and solar resources share, namely that their marginal energy costs are zero or negative. It is this marginal cost that results in both classes of resources predictably being scheduled for ramp-up capability only when they are undeliverable and curtailed to manage a severely binding constraint. Therefore, we find that MISO's proposal is reasonable and is not unduly discriminatory. We also find that the responses provided by MISO adequately address the questions raised by the Commission in its Deficiency Letter.

IV. <u>CONCLUSION</u>

WHEREFORE, for the foregoing reasons, Potomac Economics, Ltd. respectfully requests the Commission to grant its motion to intervene in this proceeding, grant it leave to answer, and accept this limited answer.

As described in this Answer, the data provided by MISO demonstrates that DIRs and non-DIRs are not similarly situated when providing ramp up service. In fact, MISO can virtually never utilize the ramp-up capability procured from DIR resources given their unique operating characteristics.

We believe this fully addresses the issues raised by the Commission in its Deficiency Letter, demonstrating that MISO's proposal is reasonable and is not unduly discriminatory. Therefore, we respectfully recommend that the Commission approve MISO's proposed Tariff changes in this Docket for a September 1 implementation to allow the reforms to be in effect for the 2023/2024 winter season. Without Commission approval, inefficient pricing of ramp capability will persist and will adversely impact the MISO markets and its operations.

Respectfully submitted,

/s/ David B. Patton

David Patton
President
Potomac Economics, Ltd.

June 26, 2023

CERTIFICATE OF SERVICE

I hereby certify that I have this day e-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 this 26th day of June, 2023 in Fairfax, VA.

/s/ David B. Patton