UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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

LIMITED PROTEST OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION, AMERICAN CLEAN POWER ASSOCIATION, NATURAL RESOURCES DEFENSE COUNCIL, FRESH ENERGY, UNION OF CONCERNED SCIENTISTS, AND SIERRA CLUB

Pursuant to Rule 211 of the Federal Energy Regulatory Commission's ("Commission") Rules of Practice and Procedures,[1] the Solar Energy Industries Association ("SEIA"),[2] American Clean Power Association ("ACP"),[3] Clean Grid Alliance ("CGA"),[4] Natural Resources Defense Council, Fresh Energy, Union of Concerned Scientists, and Sierra Club (collectively, the "Clean Energy Coalition") submit this limited protest of the Midcontinent Independent System Operator, Inc.'s ("MISO") February 28, 2023 filing to consider Dispatchable Intermittent Resources ("DIRs") ineligible to provide Up Ramp Capability and Down Ramp Capability.[5]

[1] 18 C.F.R. § 385.213 (2022).
[2] The comments contained in this filing represent the position of SEIA as a trade organization on behalf of the solar industry, but do not necessarily reflect the views of any particular member with respect to any issue.
[3] ACP is a national trade association representing a broad range of entities with a common interest in encouraging the expansion and facilitation of wind, solar, energy storage, and electric transmission in the United States. The views and opinions expressed in this filing do not necessarily reflect the official position of each individual member of ACP.
[4] Clean Grid Alliance is a non-profit organization whose 50+ members include wind, solar and energy storage developers and manufacturers, non-profit environmental, public interest and clean energy advocacy organizations, farmer organizations, and other businesses that support renewable energy.
[5] *See generally Midcontinent Independent System Operator, Inc. Dispatchable Intermittent Resources vis-à-vis Ramp Capability Products*, Docket No. ER23-1195 (filed February 28, 2023) (hereinafter "MISO Filing").

I. MISO's Proposal to Disqualify all DIRs from Providing Up Ramp and Down Ramp is Unduly Discriminatory.

MISO has proposed an unduly discriminatory solution to a real problem. Members of the Clean Energy Coalition agree that MISO's Ramp Product has limitations that must be fixed to prevent consumers from paying for ramp service that cannot be delivered due to MISO's software limitations. However, that does not mean that any improvement to the status quo automatically meets Section 205's requirements. MISO bears the burden to establish that its proposed rate is just and reasonable and not unduly discriminatory. Here, MISO proposes a facially discriminatory solution to the problems of its own making with the ramp product, without any substantial justification for why a non-discriminatory solution is unavailable, and without any concrete commitment to rapidly alleviate the discrimination and restore technology-neutral competition to supply this service.

MISO argues that the status quo is unreasonable,[6] and seeks to remedy this problem in its tariff by removing the eligibility of all Dispatchable Intermittent Resources ("DIRs") from providing ramp service, even though MISO acknowledges these resources are technically capable of providing the service, and where some of the DIR resources are not affected by the shortcoming inherent in its own software design. This facially discriminatory proposal becomes "unduly" so when MISO refrains from providing a sufficient evidentiary record to justify why its current proposal is the only reasonable option available to it, and where MISO fails to commit to a process that will rapidly alleviate the discriminatory nature of its present filing and the shortcomings of its software design, by providing a long-term technology neutral solution. This limited protest seeks to remedy that gap.

[6] *See, e.g.*, MISO Filing at 4.

a. Section 205 prohibits rates that unduly discriminate among resources' eligibility to provide grid services.

Under Section 205, the Commission "has a duty to prevent undue discrimination."[7] This standard prohibits one type of market participant from receiving preference over another type that can provide a similar service without an adequate justification. The Commission has explained that different treatment is unduly discriminatory "when there is a difference in rates or services among similarly situated entities."[8] Determining that entities are similarly situated "does not mean that there are no differences between them; rather, it means there are no differences that are material to the inquiry at hand."[9] Entities are similarly situated "if they are in the same position with respect to the ends that the law seeks to promote or the abuses that it seeks to prevent, even if they are different in many other respects."[10] Irrelevant differences will not make parties dissimilarly situated.[11]

Additionally, a long line of precedent recognizes that it is the ability to provide the requisite service that must be evaluated in this context, not the mechanism producing it.[12] The

[7] *Preventing Undue Discrimination and Preference in Transmission Serv.*, Order No. 890, 72 Fed. Reg. 12,266, 12,318, P 425 (Mar. 15, 2007).
[8] *Calpine Oneta Power, L.P.*, 116 FERC ¶ 61,282 at P 36 (Sept. 26, 2006); *El Paso Nat. Gas Co.*, 104 FERC ¶ 61,045 at P 115 (July 9, 2003).
[9] *New York Indep. Sys. Operator, Inc.*, 162 FERC ¶ 61,124 at *3 (Feb. 15, 2018) (Order granting, in part, and denying, in part, rehearing and clarification, and requiring further compliance).
[10] *Id*. The Commission further explained "Consistent with those precedents, the Commission has, for example, determined that new and existing generators were similarly situated for 'reactive power compensation purposes' because they were equally capable of providing that service, notwithstanding other significant differences." *Id*. (citing *Calpine Oneta Power, L.P.*, 116 FERC ¶ 61282 (Sept. 26, 2006)); *see also PJM Interconnection, L.L.C.*, 168 FERC ¶ 61,121 (Aug. 27, 2019) ("'[N]on-federal renewable resources are similarly situated to federal hydroelectric and thermal resources for purposes of transmission curtailments because they all take firm transmission service'").
[11] *Calpine Corp., et al. v. PJM Interconnection, L.L.C.*, 171 FERC ¶ 61035 at *124 (Apr. 16, 2020).
[12] *See, e.g., Calpine Oneta Power L.P.*, 113 FERC ¶ 63,015 (Oct. 28, 2005).

Commission has upheld this standard in recent rulemakings, including Orders No. 841 and 2222, and required RTOs such as MISO to ensure that resources can fully participate in all markets, and receive compensation, based upon technical and physical capability.[13] The only relevant characteristic for the Commission to consider with regard to the eligibility of wind, solar, and battery hybrid resources to provide ramp service is operational, specifically, the quality and accuracy of the services wind and solar can provide.[14]

b. MISO's proposed rules for ramp up are unduly discriminatory.

The root cause of the present problem impacts both DIRs and non-DIR generators but, according to MISO, is statistically more likely to impact DIRs. DIRs are capable of providing both ramp up and ramp down services, but MISO's own market engine is allegedly "currently incapable of automatically screening out undeliverable capacity from *both* DIRs and non-DIRs ramp product."[15] In lieu of an automated process, which MISO admits would be ideal, currently "MISO instead attempts to mitigate the impacts of the non-deliverability problem by manually flagging as ineligible the Resources whose ramp capability is expected to be undeliverable."[16] In short, undeliverable resources are not able to reach their intended destination or perform the ramp up function when congestion on the system prevents it. MISO's software cannot

[13] *See Elec. Storage Participation in Markets Operated by Reg'l Transmission Organizations & Indep. Sys. Operators*, 162 FERC ¶ 61,127 at P 76 (2018) (directing RTOs/ISOs, including MISO, to establish market rules allowing any electric storage resource to provide all capacity, energy, and ancillary services that it had the technical capability to provide); *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 172 FERC ¶ 61,247 at P 3 (2020) (requiring same for aggregations of distributed energy resources).
[14] *See Demand Response Supporters v. NYISO*, 145 FERC ¶ 61,162 at PP 31–32 (Nov. 22, 2013) (different forms of demand response must be allowed to compete on "equal footing" regardless of the mechanism used to reduce the amount of energy purchased).
[15] MISO Filing at 2 (emphasis added).
[16] *Id*. at 6.

distinguish when a resource is unable to provide ramp services due to limiting congestion on MISO's own system.

After identifying a market engine shortcoming that affects all resource types, and implementing a manual workaround that it has apparently employed to date, MISO then attempts to explain why it must instead completely eliminate the eligibility of only one resource type from supplying ramp product. MISO contends that it is "infeasible and unworkable" to manually flag DIRs, because "the non-deliverability problem is much greater, and manual mitigation measures are ineffective, with DIRs due to their larger number and geographical concentration."[17] This explanation is weakly supported and includes several contradictory statements.

First, MISO asserts that the non-deliverability problem is greater for DIRs than for non-DIRs due to their "unique offer-pricing."[18] But the support MISO relies upon does not establish that DIRs are uniformly unable to deliver ramp capability, only that there is some likelihood of it. For example, MISO cites Dr. Patton's earlier statement that wind resources "will generally be pushing into transmission constraints if MISO attempts to ramp them up."[19] First, Dr. Patton's statement addresses only wind resources, not solar or other types of DIRs. Second, Dr. Patton only asserts that this is "generally" true, not universally so.[20] This is, at best, a shaky foundation upon which to impose a blanket ban on all DIRs from providing ramp product. Indeed, the Commission has admonished MISO in the past where MISO's tariff "unnecessarily restrict[ed] competition by preventing [a resource] from providing all the services that they are technically

[17] *Id*. at 2. MISO's filing is vague as to whether it has previously been manually flagging DIRs and only recently determined that it is infeasible, or whether it has never manually flagged these resources in a comprehensive way.
[18] *Id*. at 2.
[19] *Id*. at 6.
[20] *Id*. at 3.

capable of providing . . . ."[21] Dr. Patton's affidavit submitted with MISO's filing is no more conclusive, noting that DIRs "generally do not have the ability to ramp up to provide additional energy without overloading transmission constraints."[22] Neither Dr. Patton nor MISO appear to differentiate among DIRs based on resource type, where they are located on the transmission system, or other possibly relevant factors.

Second, MISO contends that the "manual mitigation measure of disqualifying Resources due to undeliverable ramp capacity is infeasible and unworkable with DIRs because they are more geographically concentrated, such that multiple DIRs can be affected by a single transmission constraint."[23] MISO does not explain why geographic concentration and the joint effect of a single transmission constraint would make it harder to manually flag a large number of concentrated DIRs, instead these factors would seem to make it easier to quickly flag a large number of resources behind the same transmission constraint, if it is in fact binding. Moreover, MISO's effort to justify this disparate treatment as impractical casts doubt on its bald assertions that wind and solar can never legitimately provide ramp.[24]

MISO further muddies the waters by arguing that it is infeasible to flag DIRs because "[n]on-DIRs are also slower ramping, necessitating the clearing of more Resources, typically

[21] *See Indianapolis Power and Light v. MISO*, 158 FERC ¶ 61,107 at PP 69–72 (2017).
[22] MISO Filing, Patton Aff. at P 7.
[23] *Id*. at 6.
[24] *See generally CAISO et al., Avangrid Renewables Tule Wind Farm: Demonstration of Capability to Provide Essential Grid Services*, California ISO (Mar. 2020), http://www.caiso.com/Documents/WindPowerPlantTestResults.pdf; CAISO et al., *Using Renewables to Operate a Low-Carbon Grid: Demonstration of Advanced Reliability Services from a Utility-Scale Solar PV Plant*, at 5 (Nov. 2017), http://www.caiso.com/Documents/UsingRenewablesToOperateLow-CarbonGrid.pdf; M. Milligan et al., *Alternatives No More: Wind and Solar Power Are Mainstays of a Clean*, Reliable, Affordable Grid, IEEE (Oct. 2015), https://ieeexplore.ieee.org/document/7299793.

from different locations, that are needed to meet reserve requirements."[25] In other words, MISO states that the ramp product from non-DIRs is inferior (slower), thus necessitating the clearing of more resources to provide the same amount of service. This again suggests that manually flagging non-DIRs to be eligible is in some ways *more* labor intensive than the smaller number of DIRs for which deliverability of ramp service would need to be confirmed.

MISO's filing shows no effort to consider alternative, resource-neutral bases to determine which resources are worth the effort to manually flag. For example, MISO could have determined that resources will be ineligible to provide ramp service based on historic data about how often these resources were curtailed. MISO discusses the likelihood of curtailment of wind resources in the north central part of its system, but offers no evidence that a solar system in MISO south (just as an example) or any other part of its system, would regularly face the same transmission constraints. Solar projects are not as location dependent as wind, they are not as likely to be on the contributing side of a constraint. In addition, MISO's simplified view of DIR offer economics does not consider that some DIRs, especially solar generation, could be injecting power on the grid at less than their full capability, not because they are transmission constrained, but because they are charging paired storage. Depending on the economics, including the demand for Up Ramp, such resources may choose to stop charging the battery and provide ramp service. MISO's blanket prohibition of DIRs selling ramp based on an assumption that these resources' ramp product would be undeliverable does not reflect the diversity of DIR resource types, locations, and configurations.

MISO also fails to make any effort to differentiate between times of year where transmission constraints might bind and times when they might not. Instead, it imposes a

[25] MISO Filing at 6.

footprint-wide ban applicable to all types of DIRs, wind and solar, without sufficient evidence to justify such a sweeping and discriminatory approach. MISO has not shown in its filing that it considered any non-discriminatory options for identifying resources that may be able to provide ramp service without being limited by constraints (and are therefore worth the trouble to manually flag), versus those resources that are unable to provide up ramp because they are curtailed due to transmission congestion. Just as MISO bears the burden of proof to establish that a proposed rate is just and reasonable, it also bears the burden of showing that the rate is not unduly discriminatory – a burden which cannot be met without explaining why non-discriminatory solutions would be infeasible or inadequate.[26] MISO points to no Commission precedent where the Commission has accepted a facially discriminatory solution to a perceived market problem, with no explanation as to what other solutions were examined, and without a concrete timeline and plan for the later implementation of a non-discriminatory solution.

Finally, MISO has not provided evidence that it is technically infeasible to manually flag DIRs as it plans to do for thermal resources. MISO offers only minimal statements in its transmittal letter that such flagging would be infeasible or ineffective, but no details as to why, such as time constraints, complexity, available staffing, or existing information systems that could streamline this process. MISO simply asks the Commission to accept its word that it's worthwhile to facilitate market participation by one class of resources, but not another. Enabling RTOs to discriminate among resource types based on the labor involved in promoting broader

[26] We note that bearing this burden of proof alone would not change MISO's present filing from being unduly discriminatory, as MISO must also commit to a process to alleviate the discriminatory nature of its present filing, which is described in the next subsection below.

participation would set a harmful precedent, especially as the Commission has adopted a clear vision of broadening market access to more distributed resources.[27]

c. MISO asserts that its discriminatory solution will be temporary, but offers little reassurance in light of its poor record of performance on similar issues.

MISO asserts that "[t]he proposed disqualification of DIRs from providing the Ramp Capability Products is a necessary temporary solution until appropriate market design and system changes can be developed and implemented by MISO in the next several years."[28] Yet, MISO's filing also reveals that it is at a very early stage of figuring out what an appropriate solution might be, much less implementing it.[29]

In essence, MISO asks the Commission to approve as merely "temporary" a solution that in all likelihood could endure for a decade or more, given MISO's poor record on similar matters. In 2011, MISO stated that its ban on DIRs providing other ancillary services was only a temporary prohibition "to gain experience with this new method of modeling and dispatching [DIRs]" before "extending to DIRs the capability of providing Operating Reserves."[30] Twelve years later that prohibition remains in place, with no efforts to remove it, despite regularly urging by stakeholders for MISO to allow DIRs to provide ancillary services.[31]

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[27] *See, e.g.*, Order on Compliance Filing, Docket No. ER21-2460 at P 93 (June 7, 2022) (In the Commission's order addressing NYISO's Order 2222 Compliance Filing, the Commission faulted NYISO for failing to propose tariff modifications that would permit aggregations of inverter-based resources to provide all the ancillary services for which they are technically capable).

[28] MISO Filing, at 2.

[29] *See id*. at 11 (briefly discussing a wide range of potential conceptual solutions).

[30] Motion for Leave to Answer and Answer of the Midwest Independent Transmission System Operator, Inc., ER11-1991 at 12 (Dec. 8, 2010).

[31] MISO's prohibition on DIRs participating in ancillary markets is the subject of a pending complaint. *See generally* Complaint of Solar Energy Industries Association, Docket No.EL23-28 (filed January 31, 2023).

MISO provides no details of a plan or timeline for developing a non-discriminatory solution. As such, neither MISO (nor the IMM, which endorses MISO's view that this should be only a temporary solution) specifies a mechanism to hold MISO accountable for limiting the proposed discriminatory solution to "temporary" status. For all intents and purposes, what MISO proposes here is a permanent ban, and therefore not entitled to any leniency that the Commission might otherwise be inclined to grant to a transitional or truly temporary, but flawed, proposal. It is one thing for an RTO to face legitimate practical limitations with fully enabling market participation in the near-term, but such a justification for facially discriminatory treatment must have an expiration date. Even if MISO were able to demonstrate that it has proposed the least discriminatory solution possible, the Commission must also require MISO to commit to a firm, near-term timeline to fully enable participation by DIRs in the ramp market. Without such a commitment, what is otherwise merely discriminatory becomes unduly so.

In summary, MISO's proposal could only be deemed *not unduly* discriminatory under Section 205 if two conditions are met: (1) MISO establishes with record evidence that no less discriminatory solutions were available, and substantiates that a non-discriminatory solution is currently technically infeasible; and (2) if MISO commits to a concrete plan to develop a non-discriminatory solution in an expedient manner.

II. DIRs are Rapidly Becoming a Higher Portion of MISO's Generation Mix, Necessitating the Rapid Development of a Nondiscriminatory Ramp Product.

The rapidly evolving generation fleet within MISO is one reason why MISO must commit to develop a non-discriminatory solution in an expedient manner. The thrust of this protest is not merely to ensure non-discriminatory treatment of different classes of generating resources within MISO, but to help ensure that MISO is able to call on all resources that are technically capable of providing ramp product when MISO is in a time of need. Even if FERC

were to determine that MISO's present filing is not unduly discriminatory *today* without consideration of the future, we request that FERC look to the rapidly evolving nature of MISO's generation fleet and consider that MISO will very soon need to commit wind, solar, and other DIRs to resolve any ramp needs in the near future. We want to ensure that MISO does not wait to start developing a solution until that day comes, but instead ensure that MISO has a solution already up and running by the time it is in fact needed. As we have already seen with MISO's Market System Enhancement to upgrade its system software, such a process can be lengthy and can take years to develop and implement software changes. Considering the rapid nature of the change of MISO's generation fleet, we posit that this day is arriving sooner than expected. Thus, if the Commission accepts MISO's proposed changes to its Ramp Capability Products, MISO must also have in place a clear plan and aggressive timeline to develop a non-discriminatory solution to allow all resource types to provide ramping.

One of the key findings of the 2021 Renewable Integration Impact Assessment Summary Report ("RIIA") was that MISO's grid will reach a key "inflection point" once renewable generating resources make up somewhere between 30 and 40 percent of MISO's grid.[32] This inflection point represents the point in time "where the underlying infrastructure, system operations, or both need to be significantly modified to reliably achieve the next tranche of renewable deployment."[33] Per MISO's RIIA Report:

> Between 30% and 40%, the system experiences a fundamental shift. Region-wide renewable generation availability surpasses 100% of load for a few hours of the year. Large amounts of energy are curtailed during periods of low load and high renewable generation in order to keep long-lead time conventional units online for when renewable generation decreases again. Substantial regional pockets form

[32] MISO, Renewable Integration Impact Assessment Summary Report, February 2021, at 4, *available at* https://cdn.misoenergy.org/RIIA%20Summary%20Report520051.pdf.
[33] *Id.* at 11.

> where the average renewable generation output approaches 100% of the subregional load.[34]

MISO is rapidly moving toward that inflection point, and even if MISO were correct that it is uneconomic for DIRs to provide ramp today, it is clear by other MISO reports (discussed *infra*) that this inflection point is happening much sooner than it was even expected two years ago when the RIIA Report was first published. As demand for ramping products increases, it may become economic for renewable generation to maintain headroom in order to provide up ramp. Additionally, when renewable generation availability surpasses 100 percent of load during any particular hour, there will unquestionably be surplus renewable generation leftover to provide ramp to the system.

MISO's interconnection queue, utility resource plans, and state decarbonization goals reflected in both MISO's planning Futures and its Regional Resource Assessments, as well other public reports, provide the evidence that the growth of DIRs is significant and happening now. Following the RIIA report, MISO published its first Regional Resource Assessment ("2021 RRA"),[35] which stated that, "[t]he RRA projects renewables will supply approximately 30 percent of the region's energy by 2030, and slightly more than 40 percent by 2040."[36] One year later, MISO published its 2022 Regional Resource Assessment ("2022 RRA"), in which it found that "MISO's system could approach 30% of annual energy from wind and solar generation within five years, and renewable penetration levels may increase by approximately 10% every

[34] *Id.* at 14.
[35] The RRA Reports seek to inform states and utilities on the changing resource mix across the MISO region by consolidating all the utility resource plans and augmenting that with model-built resources that are driven by state and federal decarbonization goals among other modeling assumptions.
[36] MISO, 2021 Regional Resource Assessment, November 2021, at 10, *available at* https://cdn.misoenergy.org/2021%20Regional%20Resource%20Assessment%20Report606397.pdf.

five years after."[37] Figure 15 of the 2022 RRA indicates that MISO will reach this inflection point sometime between 2027 and 2030. It is important to keep in mind that these are system averages, and that the RIIA was explicit in pointing that out.

MISO's RRA report findings also show an accelerated transition to clean energy resources further out into the future. The 2021 RRA report estimates that the MISO footprint will have 44 GW of wind and 48 GW of solar capacity by 2040.[38] Incorporating updates to utility plans and new state and federal clean energy goals, the 2022 RRA reports that by year 2041 MISO will have approximately 87 GW of wind and 87 GW of solar capacity.[39] This dramatic increase in the estimated clean energy resources in the MISO footprint from one year to the next is likely to increase in the future as more states, local governments, and utilities adopt more aggressive clean energy plans, and as investors respond to incentives in the Inflation Reduction Act.

We also note that both the 2021 and 2022 RRA reports highlight the increasing need for ramp capability over the next two decades. The 2022 RRA specifically states that "Maximum short-duration up-ramps increase by three times by 2031 and four times by 2041 compared to current levels."[40] MISO must ensure that its ramp product is designed in such a way to allow all resource types to meet this need, especially given MISO's acknowledgment that DIRs provide

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[37] MISO, 2022 Regional Resource Assessment, November 2022, at 5, *available at* https://cdn.misoenergy.org/2022%20Regional%20Resource%20Assessment%20Report627163.pdf.

[38] ttps://cdn.misoenergy.org/2021%20Regional%20Resource%20Assessment%20Report606397.pdf – page 15.

[39] https://cdn.misoenergy.org/2022%20Regional%20Resource%20Assessment%20Report627163.pdf – page 22.

[40] *Id*., page 6.

faster ramping capability.[41] Therefore, to the extent FERC approves the ban, MISO must be required to provide a plan and timeline for revising its Ramp Capability Products and related software as soon as possible.

This same trend in an accelerating expectation of MISO's fleet transformation is reflected in MISO's analysis of its Futures, which attempt to predict what MISO's load and generation fleet might look like in 20 years in order to aid its long range transmission planning processes.[42] MISO's original set of Futures (called "Series 1")[43] was published in April, 2021 and updated in December 2021, and MISO is currently undertaking a "Futures Refresh," in which it is updating Series 1 in light of further analysis, information, and trends (called "Series 1A").[44] Series 1 and Series 1A each contain a set of three distinct "Futures," which represent varying levels of carbon reduction, renewables penetration, and energy consumption.[45] Of the three distinct Futures published within Series 1, only a draft version of Future 2 has been published in Series 1A (called "Future 2a"). Similar to the RRA Reports, a comparison of Future 2 and Future 2a shows a very rapid increase in how quickly MISO is expecting its grid to adopt new renewable generating resources. Over the next 20 years, Future 2 showed an increase of 87 GW of

[41] MISO Filing at 6.
[42] MISO, *MISO Futures Report*, Published April 2021, Updated December 2021, available at https://cdn.misoenergy.org/MISO%20Futures%20Report538224.pdf.
[43] MISO recently changed the nomenclature by which it refers to its various Futures. This protest will use the updated naming conventions, which may differ from that used in prior MISO publications. *See* MISO, Planning Advisory Committee, *Futures Refresh Update*, at slide 4, published March 8, 2022, *available at* https://cdn.misoenergy.org/20230308%20PAC%20Item%2008a%20Futures%20Refresh%20Update%20Presentation628111.pdf.
[44] MISO, Futures Refresh Update, presented at the Planning Advisory Committee on November 29, 2022, available at https://cdn.misoenergy.org/20221129%20PAC%20Item%2007a%20Futures%20Refresh%20Update627143.pdf.
[45] *See supra* fn. 42, pages 3-6, for a summary of assumptions and inputs used in Series 1.

renewable resources, whereas the latest draft update of Future 2A predicts an additional 239 GW of renewable resources.[46] This almost-tripling of the expected additions to the renewable resource fleet is further evidence that MISO's generation fleet is transitioning to renewable resources at an increasing rate.

While the Futures look to the next 20 years, one only needs to view the current Interconnection Queue to see this process occurring today. MISO's data from January 2023 on the status of its generation interconnection queue[47] shows a total of 277 Gigawatts ("GW") in active projects, with solar, hybrids, and wind accounting for 79% (or 220 GW) of the total capacity in the queue. Further evidence on the growing role of DIR's can be found when looking at MISO's 2022 Generator Interconnection Queue submittals. Of the 171 GW of proposed new generation, DIRs accounted for 131.9 GW.[48] Historically, a large percentage of generation interconnection requests do not result in finished projects, but even if one were to account for a historic success rates, these numbers still show that the industry is ready to serve the growing

[46] MISO, Future 2A Expansion and Preliminary Siting, presented at the Planning Advisory Committee on March 10, 2023, *available at* https://cdn.misoenergy.org/20230310%20LRTP%20Workshop%20Item%2002%20MISO%20Future%202A%20Expansion%20and%20Preliminary%20Siting628178.pdf. The 239GW cited here accounts for the addition of 145GW of wind and 113GW of solar while also accounting for the retirement of 18 GW of wind and 1 GW of solar. This is a further increase from the 196 GW net addition of wind and solar that MISO initially published in a November 2022 draft at *supra*, fn. 44, slide 6. Note that these numbers differ from the increase forecasted in the 2022 RRA Report at p. 13, which predicted an additional 174 GW of wind and solar, and an unstated additional amount of hybrid resources. The RRA and Futures Refresh numbers are derived from separate internal processes at MISO, and the fact that they are increasing with each subsequent draft further suggest that renewable penetration forecasts continue to accelerate.

[47] MISO, *MISO Monthly Operations Report*, January 2023, at 56, *available at* https://cdn.misoenergy.org/202301%20Markets%20and%20Operations%20Report628051.pdf.

[48] MISO, *2022 Generator Interconnection Queue Submissions*, *available at* https://cdn.misoenergy.org/2022%20GIQ%20Submission%20Statistics626443.pdf.

demand for DIRs. Considering this rapidly changing resource mix, MISO ought to be committed to breaking down barriers for DIRs participation in its markets, rather than erecting new ones.

III. MISO Reliability Imperative, Markets of the Future, and System Attributes Discussions Highlight the Need for Increased Flexibility and Grid Services.

MISO proposed Tariff changes and the lack of a detailed plan to ensure these changes are indeed temporary are counter to MISO's ongoing initiatives that recognize the need for increased system flexibility in the future. DIRs can meet this need and their technical capability to provide flexibility through ancillary services including ramp up and down products, must be recognized and enabled to prepare for a system with high shares of wind, solar and hybrid resources. Ensuring MISO's markets are operating in a technology-neutral manner can enhance system reliability and strengthen MISO's efforts to deliver on its Reliability Imperative in the least cost manner.[49] MISO's ongoing initiatives can contribute to identifying solutions and implementing market reforms that remove barriers to DIR participation in all market products and ancillary services but MISO's ongoing efforts are not in and of themselves sufficient to timely rectify the discriminatory nature of MISO's current filing or to ensure that a technology neutral fix to the ramp product will be implemented in a timely manner.

MISO's roadmap for wholesale market reforms to be implemented in the next 10 to 15 years, released as part of its 2021 "Markets of the Future"[50] report, identified the need to

[49] MISO, "MISO's Response to the Reliability Imperative," January 2023 update, at 4, available at https://cdn.misoenergy.org/MISO%20Response%20to%20the%20Reliability%20Imperative504018.pdf, stating "The Reliability Imperative is the term MISO uses to describe the shared responsibility that MISO, its members, and states have to address the urgent and complex challenges to electric system reliability in the MISO region."

[50] MISO, Markets of the Future A Reliability Imperative Report, 2021, available at https://cdn.misoenergy.org/MISO%20Markets%20of%20the%20Future604872.pdf ("Reliability Imperative").

implement market solutions to address a "sub-optimal use of resources,"[51] which includes implementing reforms to "[e]nable ancillary services from inverter-based resources." The target date to implement these solutions ranges from 2027 to 2035 or later.[52] In this roadmap MISO also recognizes the lengthy process to design and implement market products, which can take several years.[53] This need to enable ancillary services from DIRs combined with the possibly lengthy implementation timelines associated with market system and software improvements further amplify the need for MISO to modify its proposal to include a detailed plan to expeditiously implement a non-discriminatory solution. The Tariff changes as presented in MISO's filing lack necessary accountability mechanisms and could result in DIRs left operating in a wholesale market that prevents them from providing the ramp and other ancillary services that they are technically capable of providing for an extended and unreasonable length of time. The Commission has already found that "it is unjust and unreasonable to expect [a complainant] to wait for a multi-year stakeholder process . . . while it is effectively prohibited" from providing its services and being compensated.[54] With DIRs rapidly constituting a greater and greater proportion of MISO's resource fleet, their inclusion in the provision of ancillary services, including ramp, will become even more vital to the continued reliability of MISO's grid.

In 2022, MISO initiated a stakeholder process focused on identifying the "system attributes"[55] needed to operate its system reliably as its resource mix evolves to include a greater penetration of DIRs. The system attributes initiative recognizes that any process to identify and

[51] *Id*. at 27.
[52] *Id*. at 27.
[53] *Id*. at 5.
[54] *Indianapolis Power & Light Co.*, 158 FERC ¶ 61,107 at P 22 (Feb. 1, 2017).
[55] MISO, System Attributes Stakeholder Workshop, September 21, 2022, available at https://cdn.misoenergy.org/20220921%20System%20Attributes%20Workshop%20Presentation626391.pdf.

determine system attributes must be technology-neutral.[56] MISO's discriminatory proposal to exclude DIRs from providing ramp services without a concrete roadmap to address MISO's underlying problem creates uncertainty and additional barriers to ensure DIRs can provide needed grid reliability services. MISO's preliminary list of attributes included a category "flexibility,"[57] and ramp up capability as a specific system attribute.

The processes outlined above demonstrate MISO's long-term views on needs and possibilities to adapt its markets and systems for a changing resource mix, but they don't address or guarantee that they will prioritize the identification and implementation of a long-term non-discriminatory solution to ensure the proposed Tariff changes are effectively temporary.

The root cause of the present problem is not DIRs or their inherent capabilities, but the limitations of MISO's ramp product, which operates on a system-wide basis and is unable to automatically dispatch ramp on a locational basis or to account for which resources are unable to provide up ramp due to transmission congestion. Considering MISO's decreasing share of non-DIRs in its resource mix, and to the extent the Commission accepts MISO's filing, the Commission must ensure that a non-discriminatory solution is implemented in a timely manner. Neither MISO's transmittal letter nor proposed Tariff changes offer any description of the steps MISO will take to eliminate the undue discrimination in its tariff, nor are there any guarantees that such a solution will be effectively pursued through any ongoing stakeholder processes.

IV. Acceptance of MISO's Filing Should be Contingent on MISO Demonstrating that its Proposal Minimizes Unduly Discriminatory Effects in the Near-Term, Including a Sunset Date in a Compliance Filing, and Making Periodic Informational Filings.

[56] *Id*. at 2.
[57] MISO, System Attributes Stakeholder Workshop, September 21, 2022, at 13, available at https://cdn.misoenergy.org/20220921%20System%20Attributes%20Workshop%20Presentation626391.pdf.

As shown above, MISO's proposal will result in the unduly discriminatory treatment of DIRs because: (1) its prohibition is not tailored to those DIRs most likely unable to deliver ramp product; (2) MISO has not established that continued manual flagging is infeasible; and (3) because MISO has omitted any commitment to rapidly update its ramp capability product to end such discrimination. This discrimination is not a result of the technical capabilities of DIRs versus thermal resources, nor does MISO assert this is the case. There is no question, as MISO admits, that DIRs are capable of providing ramping.[58] DIRs are now being targeted and punished not because of any inherent traits, but because MISO's market engine is "currently incapable of automatically screening out undeliverable capacity from both DIRs *and non-DIRs*."[59] The difference between DIRs and non-DIRs is the result of MISO's treatment of the resources. For non-DIRs, MISO plans to continue to manually flag as ineligible those resources whose ramp capabilities are undeliverable.[60] MISO does not afford DIRs the same special treatment.

We recognize that non-deliverability of ramp capabilities is a reliability and market problem.[61] We do not expect consumers to pay for a product that is not deliverable. However, those concerns do not alleviate MISO's burden under Section 205 of the Federal Power Act to maintain rates that are not unduly discriminatory. Even if MISO could substantiate that its proposal minimizes the discriminatory, near-term effects as much as possible, MISO's proposal would remain unduly discriminatory in the absence of an order establishing a process by which MISO will be able to institute a non-discriminatory ramp product in the very near future. As indicated in Section II above, MISO's generation mix is changing faster than initially

[58] MISO Filing at 3.
[59] *Id*. at 2 (emphasis added).
[60] *Id*. at 6.
[61] As explained above, MISO has not established that ramp product from all DIRs is non-deliverable, nor that manual means of ascertaining deliverability are not feasible for DIRs.

anticipated, suggesting that a discriminatory treatment of DIRs will only reflect an increasing cost and reliability problem in the immediate future. If there is no other solution that MISO is capable of enacting presently, then MISO must direct resources to find one.

To ensure that MISO appropriately allocates resources to resolve any residual discriminatory treatment, we request that the Commission direct MISO to make a compliance filing in this proceeding to: (1) update the proposed tariff language with a sunset provision to give a date certain as to when the discriminatory treatment will no longer be in effect; and (2) outline the steps and timelines MISO will follow to enact a nondiscriminatory solution. The sunset date should reflect MISO initiating a robust stakeholder process, no later than the end of Quarter 3 of 2023, to develop replacement, non-discriminatory ramp capability products. MISO's description of the process to be employed should include detail regarding how MISO will ensure that sufficient staffing is made available to ensure the stakeholder process is robust and efficient, and to ensure that the development of a replacement, nondiscriminatory ramp product is timely, as well as confirmation that MISO will include the development of a replacement, nondiscriminatory ramp product as a high priority item within the MISO Dashboard.[62]

Directing MISO to make this compliance filing would not run afoul of *NRG Power Mktg., LLC v. FERC*.[63] Adding a sunset provision to the proposed tariff provisions would not result in a materially different rate or "new rate scheme."[64] It does not make DIRs eligible for

[62] The MISO Dashboard is available at https://www.misoenergy.org/stakeholder-engagement/MISO-Dashboard/#status=Active&category=all&entity=all&order=5&by=desc.
[63] *NRG Power Mktg., LLC v. FERC*, 862 F.3d 108, 115-116 (D.C. Cir. 2017).
[64] *Id*.

providing ramping. It formally recognizes in the tariff MISO's statement that the prohibition is temporary.[65]

Furthermore, given MISO's pattern of failing to timely develop and implement software changes to alleviate unduly discriminatory market rules, the Commission should require MISO to submit annual informational filings, with the first filing to occur no later than the end of Quarter 1 of 2024, addressing the following:

1) An updated timeline for the stakeholder process to develop a non-discriminatory solution and implementation of that solution, taking into account the fact that implementation timing is dependent on the nature of the underlying problems that any new solution is attempting to resolve.
2) Description of progress on stakeholder discussions, solution development, software development, and implementation.
3) Description of technical progress made for each solution analyzed in the reporting period, including:
    i) Description of the scope of the solution;
    ii) Description of analysis results obtained, final or preliminary;
    iii) Description of steps taken, or next steps expected based on results obtained;
    iv) Criteria to evaluate and prioritize solution development;
    v) Expected timeline for implementation of each solution.
4) Data on ramp needs within MISO
    i) Ramp capability needs per interval;
    ii) Ramp capability availability per interval per resource type;
    iii) Ramp capability offered per resource type;
    iv) Ramp capability cleared per resource type;
    v) Ramp capability delivered per resource type;
    vi) Ramp capability payments per resource type;
    vii) Ramp capability limited by transmission congestion per resource type;
    viii) Ramp capability performance during MaxGen events per resource type;
    ix) Other data as identified though the stakeholder process.

V. Conclusion

[65] *See* MISO Filing at 2 ("The proposed disqualification of DIRs from providing the Ramp Capability Products is a necessary temporary solution until appropriate market design and system changes can be developed and implemented by MISO in the next several years").

WHEREFORE, for the foregoing reasons, the Clean Energy Coalition respectfully requests that the Commission approve MISO's proposed tariff only if MISO is able to (1) provide an evidentiary basis supporting its proposed ramp product solution as not unduly discriminatory; (2) require MISO to submit a compliance filing with tariff language that includes a sunset date on the prohibition on DIRs from selling ramp products; (3) require MISO to submit annual informational filings documenting MISO's progress in developing a replacement, non-discriminatory ramp product; and (4) grant such additional and further relief as may be lawful and proper.

Dated: March 21, 2023

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CERTIFICATE OF SERVICE

I hereby certify that I have on this date caused a copy of the foregoing document to be served upon Midcontinent Independent System Operator, L.L.C., and upon all parties listed on the official service list as 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.

Dated: March 21, 2023

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