

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

PJM Interconnection, L.L.C.) Docket Nos. ER22-1200-002
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REQUEST FOR REHEARING OF PJM INTERCONNECTION, L.L.C.

Pursuant to Rule 713 of Federal Energy Regulatory Commission’s (“Commission”) Rules of Practice and Procedure,¹ and in accordance with section 313 of the Federal Power Act (“FPA”),² PJM Interconnection, L.L.C. (“PJM”) hereby submits this Request for Rehearing of the Commission’s Order dated August 15, 2022.³ Specifically, PJM requests rehearing of the August 15 Order on the ground that the Commission improperly rejected PJM’s proposed intelligent reserve deployment (“IRD”) proposal without properly considering the reliability needs and benefits of such an approach.

I. STATEMENT OF ISSUES AND SPECIFICATIONS OF ERROR

In support of this Request for Rehearing, PJM specifies the following issues and errors in accordance with Commission Rule 713(c)(2):

- (1) The Commission failed to apply its Section 205 standard of review to a proposal, which PJM demonstrated is a marked reliability improvement over the status quo. By effectively retaining the status quo, which no party supported, and basing its decision on the Market Monitor’s proposed alternatives, the Commission departed

¹ 18 C.F.R. § 385.713.

² 16 U.S.C. § 825l(a).

³ *PJM Interconnection, L.L.C.*, 180 FERC ¶ 61,089 (2022) (“August 15 Order”).

from its usual Section 205 standard of review. Such an action, selectively applied in this case, is arbitrary and capricious and does not exhibit application of precedent and reasoned decision-making.⁴

- (2) The Commission erred in ignoring the clear record that IRD is designed to appropriately help the system recover from a synchronized reserve event by modeling the largest contingency loss.⁵
- (3) The Commission erred in relying on the Market Monitor’s unsupported assertion that IRD will not help the system recover from a contingency.⁶

II. BACKGROUND

On March 4, 2022, PJM proposed revisions to PJM’s Open Access Transmission Tariff (“Tariff”) and the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”) to implement intelligent reserve deployment pursuant to Section 205 of the Federal Power Act.⁷ On April 29 Order, the Commission rejected PJM’s filing by suggesting that it was not just and reasonable because IRD does not model actual system conditions.⁸ As a

⁴ See *Belmont Municipal Light Dep’t v. F.E.R.C.*, 38 F.4th 173, 184 (D.C. Cir. 2022) (“while afforded wide latitude in ratesetting due to its expertise and broad statutory mandate, FERC—like all agencies—must engage in reasoned decisionmaking mandated by the Administrative Procedure Act The Administrative Procedure Act’s arbitrary-and-capricious standard requires the agency to examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made”); see also *Burlington Truck Lines, Inc. v. U.S.*, 371 U.S. 156, 168 (1962) (agency must articulate an explanation for its decision based on a rationale connection between record facts and choice made); see also *Keyspan-Ravenswood, LLC v. F.E.R.C.*, 474 F.3d 804, 812 (D.C. Cir. 2007) (deference to agency properly withheld when decision under review fails to provide adequate explanation for agency action).

⁵ *Hagelin v. Federal Election Commission*, 411 F.3d 237, 242 (D.C. Cir. 2005) (an agency decision will not be upheld if it is not supported by substantial evidence).

⁶ See *In re NTE Connecticut, LLC*, 26 F.4th 980, 988 (D.C. Cir. 2022) (Commission is required to “either critically review the third party’s analysis or perform its own.”).

⁷ *PJM Interconnection, L.L.C.*, PJM’s Tariff revisions to implement intelligent reserve deployment, Docket No. ER22-1200-000 (Mar. 4, 2022).

⁸ August 15 Order at P 47.

result, the Commission concluded that IRD would be “likely to result in artificially inflated prices and thus prevent PJM from achieving a least cost dispatch solution to address Synchronized Reserve Events.”⁹

As an independent regional transmission operator, PJM’s primary mission is to provide for the reliable operation of the electric grid in a cost effective manner. IRD represents a thoughtfully designed enhancement to the status quo of sending an “all-call” message to Market Participants with an instruction to raise to full output (i.e., deployment of all available online resources) when initiating a spin event for immediate response to a system event. PJM’s current all-call deployment is imprecise as the manual process requests 100% response from all online resources, regardless of location or reserve assignment. This means that under the all-call procedure, PJM operators have no visibility into the expected response either in aggregate or from any particular resource and the current all-call process makes no attempt to control transmission constraints in any fashion. Additionally, the all-call dispatch instructions are not used by PJM’s real-time security constrained economic dispatch (“RT SCED”) software, and thus are not reflected in the pricing signals produced by the Locational Price Calculator. Without using PJM’s RT SCED to deploy reserves, the pricing signal comes from the previously approved RT SCED cases that do not actually account for the synchronized reserve event, and therefore do not model actual system conditions. Notably, no party in this docket supported the status quo all-call approach.

By contrast, the IRD proposal would have (1) sent resource specific basepoints to increase output for energy and reserves; (2) generated Locational Marginal Prices (“LMPs”) that more accurately represented system dispatch; and (3) deployed reserves without violating or overloading currently monitored constraints. Importantly, IRD would have resulted in the lowest production

⁹ *Id.*

cost solution based on the largest contingency loss and accounted for system congestion while recovering from the resource that tripped off line. Thus, as further discussed, *infra*, IRD represents “a just and reasonable proposal that would institute a coherent plan to address dispatch and pricing during a reserve deployment in a system emergency.”¹⁰

It should be noted that the general dispatch algorithms of all ISO/RTOs utilize forecasted information such as load, resource capabilities, interchange, and other inputs that are never 100% precise. The reality is that all dispatch instructions and prices are produced using information that is forecasted and are imprecise to some degree. Such is the nature of the power system control. The purpose of the IRD is to move towards a better reliability and pricing solution than the current all-call approach. The Commission’s August 15 Order ignored these practical realities and imposed a standard of perfection for forecasted information that is simply not attainable. In so doing, its actions were arbitrary and capricious and a marked selective departure from the Commission’s long-standing Section 205 standard of review.

III. REHEARING REQUEST

A. The Commission’s rejection of IRD is arbitrary and capricious and does not exhibit application of precedent and reasoned decision-making.

The Commission failed to properly apply its Section 205 standard of review on the IRD proposal, which PJM demonstrated is a marked reliability improvement over the status quo. By effectively retaining the status quo, which no party supported, and basing its decision on the Market Monitor’s proposed alternative, the Commission departed from its section 205 standard of review and ignored the record evidence of reliability issues with the Market Monitor’s proposed alternative.

¹⁰ August 15 Order, Commissioner Danly’s dissent at P 4.

A “just and reasonable rate is one that falls within” a “zone of reasonableness.”¹¹ The Commission has frequently acknowledged that there can be more than one possible just and reasonable approach, so PJM’s section 205 filing need only demonstrate that its proposal is within the zone of reasonableness, not that it is the only just and reasonable option.¹² Here, it is undisputed that the current all-call reserve deployment approach is imprecise and can result in periods of under- and over-response during a synchronized reserve event. PJM’s IRD proposal is a clear improvement to the status quo all-call procedure, and the proposal to model the largest reliability contingency is fully justified and necessary for the reasons discussed below. As a result, PJM’s IRD proposal falls squarely within the zone of reasonableness and should have been accepted by the Commission.

1. Modeling the Largest Reliability Contingency for IRD Ensures that Appropriate Reserves Are Deployed to Address System Needs.

The Commission erroneously criticized PJM’s proposal because IRD would have modeled the largest reliability contingency. However, PJM’s proposal to model the largest reliability contingency for IRD is entirely justified and consistent with standards set forth by the North American Electric Reliability Corporation (“NERC”). In particular, modeling the largest reliability contingency ensures compliance with NERC BAL-002-3-R2, which requires PJM “to

¹¹ *Maine Public Utilities Commission v. F.E.R.C.*, 520 F.3d 464, 471 (D.C. Cir. 2008) (per curiam) (cleaned up), *rev’d on other grounds*, 558 U.S. 165 (2010).

¹² See *Cities of Bethany v. F.E.R.C.*, 727 F.2d 1131, 1136 (D.C. Cir. 1984) (“In the past FERC has interpreted its authority to review rates under this provision of the Act as limited to an inquiry into whether the rates proposed by a utility are reasonable—and not to extend to determining whether a proposed rate schedule is more or less reasonable than alternative rate designs.”); *Calpine Corp. v. PJM Interconnection, L.L.C.*, 173 FERC ¶ 61,061, at P 256 (2020) (appeals pending) (“[W]hile we acknowledge that there may be more than one just and reasonable choice, that does not make PJM’s proposal unjust and unreasonable.”); *Cal. Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,076, at P 14 (2007) (“The initial burden of showing that the tariff proposal is just and reasonable is on the party making the FPA section 205 filing. . . . [W]e note that there can be more than one just and reasonable proposal, and the proposal under consideration will be selected unless it is found unjust and unreasonable.”); *S. Cal. Edison Co.*, 73 FERC ¶ 61,219, at ¶ 61,608, n.73 (1995) (“Having found the Plan to be just and reasonable, there is no need to consider in any detail the alternative plans proposed by the Joint Protesters.”).

determine its *Most Severe Single Contingency* and make preparations to have Contingency Reserve equal to, or greater than the Responsible Entity's Most Severe Single Contingency available for maintaining system reliability.”¹³ If IRD is modeled with something less than the largest reliability contingency, it not only risks potential non-compliance with NERC standards, but also places the entire system at risk, because the RT SCED case may not be capable of restoring the system from a synchronized reserve event should the loss end up being the loss of the largest reliability contingency. The August 15 Order never reconciled its holding with the clear language of the applicable NERC standard.

Further, suggestions that IRD should instead model actual system losses places the system at increased risk during a synchronized reserve event because PJM would have to (1) first wait for an actual system loss, (2) manually input the actual loss into RT SCED or wait for the State Estimator to run and detect the unit loss, and (3) wait for SCED to calculate a solution before finally deploying the appropriate resource to address the system loss. Given that RT SCED cases are solved once for every five-minute interval, inputting the actual loss into RT SCED would necessarily mean that PJM would have to wait at least 5 minutes (and up to 10 minutes) before it can even begin to respond to the synchronized reserve event.¹⁴ Such an approach would require PJM to lose several minutes of valuable time while the system is severely exposed and make it more challenging to recover from the system loss.¹⁵ This ultimately undermines the reliability of the system when reserves are not timely deployed and risks non-compliance with the NERC standards. In fact, intentionally delaying restoration of reserve requirements would also reduce

¹³ (Emphasis added). NERC Disturbance Control Standard, BAL-002-3-R2), available at: <https://www.nerc.com/pa/Stand/Reliability%20Standards/BAL-002-3.pdf>.

¹⁴ As part of the 5-min dispatching and pricing reforms, PJM moved to regimented usage of RT SCED cases in 5-min intervals.

¹⁵ See *PJM Interconnection, L.L.C.*, Motion for Leave to Answer and Answer of PJM Interconnection, L.L.C., Docket No. ER22-1200-000, at 3-4 (Apr. 11, 2022).

the current compliance margin with NERC standards. With PJM’s large footprint, there are numerous units that would trigger a reserve event upon loss of the unit. Deploying and procuring reserves as soon as possible ensures reliability in preparing for multiple and potentially cascading unit losses.

Furthermore, delaying the response to a resource loss not only creates reliability risks within the PJM footprint, but also places undue burdens and reliability risks on all other entities within the Eastern Interconnection, because the share of initial frequency recovery is also transferred to those entities. Given its size, PJM’s actions have a dominant impact on frequency throughout the Eastern Interconnection. For all of these reasons, PJM has an obligation to respond as quickly as possible, and PJM strives to meet or exceed NERC’s requirements under the recovery period, given that reliability is paramount and core to PJM’s mission. In short, modeling the largest reliability contingency in the RT SCED software is simply the only option (besides an all-call deployment) that allows for the most expedient deployment of reserves during a reserve shortage event.¹⁶ The Order failed to recognize this reality, and therefore departed both from its 205 standard of review and reasoned decision-making.

2. IRD Does Not Result in Artificially Inflated Prices and Instead More Accurately Reflects Prices that Incentivize the Dispatch Actions.

PJM’s IRD proposal does not result in “artificially inflated prices” because the RT SCED software optimizes dispatch signals to meet load and reserve requirements in a lowest production cost solution and honors system congestion while recovering from a synchronized reserve event.

¹⁶ While it may be true that other RTOs produce a solution after a contingency has occurred, operators at those RTOs manually deploy reserves and then bias their dispatch tool to account for the operator actions. Thus, unlike IRD, such an approach does not result in a least cost solution. In any event, “the Commission has permitted different just and reasonable rate designs reflective of particular system characteristics and stakeholder input.” *PJM Interconnection, L.L.C.*, 119 FERC ¶ 61,063, at P 39 (2007) (“In this regard, we have stated our deference to regional preferences a number of times . . . as well as in our approval of rate designs for different regional markets.”).

By contrast, the current all-call procedure deploys all synchronized reserves on the system regardless of the size of the disturbance. Consequently, the current all-call approach always deploys more reserves than the MWs from the largest contingency as there is no cap on the amount of synchronized reserves on the system so the MW amount being deployed can be much greater than the size of the largest contingency.¹⁷ This results in prices that do not reflect the desired dispatch actions and prices that do not incentivize the desired response - and in many instances costs customers more than the IRD solution. In fact, the all-call approach only sends verbal dispatch instructions deploying all resources while prices remain based on the last approved RT SCED case prior to the event, which could directly conflict with the all-call instructions directing resources to increase output. With the removal of the Tier 1 premium as part of the reserve pricing changes,¹⁸ resources will have less avenues to recoup deployment costs, which may further impact performance during events. In short, rather than artificially inflating prices, IRD would result in prices that more accurately reflect actual dispatch instructions and incentivize the desired response and desired dispatch actions.

As indicated above, the need to promptly respond to a synchronized reserve event is consistent with sound reliability practices and NERC's standards. In contrast, the Commission's conclusion about pricing pre-supposes that it would be prudent for PJM to wait to respond to that synchronized reserve event in order to determine "actual system needs" in the middle of that event.

¹⁷ See *Monitoring Analytics, Synchronized Reserve Event Response*, slides 4-7, available at: <https://www.pjm.com/-/media/committees-groups/task-forces/srdtf/2021/20210408/20210408-item-08-synchronized-reserve-event-response.ashx> (showing July 6, 2020 event: 1464 (cleared T1) + 413.8 (Gen T2) + 65.9 (DR T2) = 1,943.7 MW synchronized reserves deployed and March 9, 2021 event: 1215 (cleared T1) + 596.8 (Gen T2) + 287.2 (DR T2) = 2,099 MW synchronized reserves deployed); compare with *PJM Interconnection, L.L.C, Reserve Market Price Formation Enhancements* at slide 20, available at <https://www.pjm.com/-/media/committees-groups/task-forces/srdtf/2021/20210430/20210430-item-04-reserve-market-price-formation-enhancements.ashx> (showing PJM's largest contingency is roughly 1,450 MW). This imprecise and over-deployment is a reason why the all-call procedure has been able to maintain reliability despite the resource performance issues.

¹⁸ *PJM Interconnection, L.L.C.*, 180 FERC ¶ 61,135 (2022).

That approach jeopardizes reliability and ignores the need for PJM to promptly respond and base its modeling on the single largest contingency that could occur should the next chain in the event cycle come to fruition.

For these reasons, Commissioner Danly rightly recognized that “PJM easily met its section 205 burden” with its IRD proposal because it is “prudent to account for the next largest contingency during an emergency.”¹⁹ The Commission should likewise find PJM’s IRD proposal to be just and reasonable and the inquiry should end there. Instead, however, the Commission rejected PJM’s proposal by focusing on the Market Monitor’s assertion that IRD should model actual system losses in real time. The Commission’s conclusion was premised on a flawed finding that modeling the largest contingency “is likely to result in artificially inflated prices and procure energy and reserves in a manner disconnected from actual system needs.”²⁰ The Commission’s ruling was divorced from the need to prudently operate the system to prevent a further deterioration in system conditions. By failing to consider these realities and failing to even reconcile PJM’s stated reliability concerns with the Market Monitor’s proposal, the Commission’s order does not constitute reasoned decision-making, especially given the Section 205 context in which IRD was presented by PJM as an improvement over the status quo.²¹

B. The August 15 Order is Arbitrary and Capricious as it Does Not Provide Adequate Consideration for Ensuring the Reliability of the Grid.

In finding PJM’s IRD proposal to be unjust and unreasonable, the August 15 Order’s laser focus on cost misses the mark by failing to acknowledge that the existing all-call procedure does

¹⁹ August 15 Order, Commissioner Danly’s Dissent at P 2.

²⁰ August 15 Order at P 48.

²¹ See *F.C.C. v. Prometheus Radio Project*, 141 S. Ct. 1150, 1158 (2021) (If the Commission determines a Section 205 filing does not fall within that zone of reasonableness, it must explain why, and its explanation must be “reasonable and reasonably explained.”).

not provide accurate price signals that reflect deployment of reserves, and also fails to consider the reliability needs of the system during a synchronized reserve event. As explained, *supra*, modeling the largest contingency ensures that PJM operators have access to a full RT SCED case whenever there is a need to deploy synchronized reserves. This approach ensures that PJM operators are able to immediately respond to a synchronized reserve deployment event and maximizes the ability for the system to recover from a shortage event.

The Commission’s rejection of PJM’s IRD proposal is primarily premised on the faulty finding that IRD should be modeled on actual system conditions rather than the largest reliability contingency during a reserve shortage.²² Crucially, in reaching the conclusion that modeling the largest reliability contingency does not result in just and reasonable prices, the Commission entirely neglects to explain how PJM could ensure compliance with NERC BAL-002-3-R2 (other than the current all-call procedure), which requires PJM “to determine its Most Severe Single Contingency and make preparations to have Contingency Reserve equal to or greater than the Responsible Entity’s Most Severe Single Contingency available for maintaining system reliability.”²³

Besides neglecting to even acknowledge the NERC requirement for PJM to ensure that contingency reserves are equal to or greater than its most severe single contingency, the Commission failed to provide any support for its sweeping conclusion that “by failing to model the magnitude and location of the event that triggered the Synchronized Reserve Event, IRD may fail . . . to help the system recover from a contingency.”²⁴ As a threshold matter, there is no analysis

²² August 15 Order at P 47.

²³ NERC Disturbance Control Standard BAL-002-3-R2, available at: <https://www.nerc.com/pa/Stand/Reliability%20Standards/BAL-002-3.pdf>.

²⁴ August 15 Order at P 49.

in the record that supports the conclusion that IRD would fail to help the system recover from a contingency. To the contrary, there is ample justification in the record that IRD would enable PJM to deploy reserves in an efficient and timely manner, which is indisputably an improvement from the status quo of deploying reserves through an all-call.

In fact, modeling the largest system contingency was a critical component of the IRD proposal given the reserve requirements under the NERC BAL standards. This family of standards govern reserve requirements and the requisite timing to recover reserves after a deployment event. Although BAL-002 includes a 90-minute period for reserve restoration (permitting a lower requirement after a deployment event),²⁵ a faster turnaround under the IRD proposal is a more prudent approach to ensure reliability. As evidenced by previous events,²⁶ PJM's reserves are generally recovered very quickly after deployment. However, while back-to-back events are uncommon, a subsequent event could be triggered within that 90-minute restoration period specified by BAL-002. In such an instance, PJM would need sufficient reserves available after that first event, in order to be positioned to recover from the subsequent event. Modeling the largest system contingency in IRD ensures that the reserves can be replenished in an expedited manner.

Additionally, the IRD proposal would have incentivized resources to follow the basepoints determined by RT SCED, which would provide a more reliable, economic, efficient and orderly response to the loading of synchronized reserves. In short, the Market Monitor's²⁷ unwarranted

²⁵ NERC Reliability Standard BAL-002 – Disturbance Control Performance, Requirement R3.

²⁶ See PJM Interconnection L.L.C., *System Operations Report*, Operating Committee, at 10 (December 2, 2021), <https://www.pjm.com/-/media/committees-groups/committees/oc/2021/20211202/20211202-item-03-review-of-operating-metrics.ashx>. The referenced slide identifies three events from November 2021, all of which were completed within 13 minutes.

²⁷ The role of PJM's Market Monitor is to “objectively monitor, investigate, evaluate and report on the PJM Markets.” Tariff, Attachment M. In other words, the *Market* Monitor should have no role, and in fact, has neither the operational

claims that the IRD solution relies on resources that do not have the same performance incentives to produce additional energy, while holding back some reserves that do not have such a performance incentive²⁸ is without merit. Although such concerns may be applicable to the current all-call approach, where all resources are deployed without regard for performance obligations assigned for synchronized reserves, all resources are provided the same incentives under IRD and would be required to follow their unit specific basepoints.

Finally, although the current all-call approach may allow for a quick response to a reserve shortage event, the lack of granular deployment to a resource level can hamper visibility into expected responses and create congestion by violating operational constraints. As a result, even the Market Monitor acknowledges that “the all call [approach] often results in over generation and the Area Control Error overshooting the target range in the minutes after a spin event is declared, and requires PJM operators to take manual actions to reduce generation to control ACE and to ensure flows on transmission facilities remain within their defined limits.”²⁹ By contrast, the IRD proposal would have allowed for a more controlled deployment of synchronized reserves and will improve system reliability during and after a reserve deployment event by ensuring continued BAL recovery compliance, coupled with control of transmission constraints and post event generation to load balancing. As a result, the Commission’s failure to recognize the (a) lack of support for the status quo coupled with (b) its embrace of an alternative untested proposal from the Market Monitor that does not square with the sound management of a synchronized reserve event and its attendant potential impacts on frequency both in PJM and throughout the Eastern Interconnection

experience nor expertise on matters related to electric reliability. As such, the Commission should not give any weight to the Market Monitor’s unfounded reliability assertions.

²⁸ *PJM Interconnection, L.L.C.*, Protest of Independent Market Monitor, Docket No. ER22-1200-000, at 15 (March 25, 2022).

²⁹ *Id.*

is wholly arbitrary and capricious, and a far departure from the Commission's Section 205 standard of review.

IV. CONCLUSION

Based on the foregoing, PJM requests that the Commission grant rehearing of the August 15 Order pertaining to the rejection of IRD. While improvements to IRD may be considered in the future, the Commission should not let the perfect be the enemy of the good and accept IRD as proposed.

Respectfully submitted,

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Dated: September 14, 2022

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Audubon, PA, this 14th day of September, 2022.

/s/ Chenchao Lu

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