UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)))	Docket No. ER24-2905-000

COMMENTS OF THE INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to Rule 211 of the Commission's Rules and Regulations[1] Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor ("Market Monitor") for PJM Interconnection, L.L.C. ("PJM"),[2] submits these comments responding to the filing submitted by PJM Interconnection, L.L.C. ("PJM") on August 28, 2024 ("August 28th Filing"). The August 28th Filing proposes revisions to Sections 6.4 and 6.6 of Schedule 1 to the OA to market power mitigation rules concerning the offer schedule selection process for clearing the energy market. The revisions will simplify the implementation of the Next Generation Markets clearing engine ("nGEM").

The Market Monitor supports the August 28th Filing, if two identified flaws are corrected by the Commission. The filing corrects the market power mitigation problem included in PJM's previous attempt to change its schedule selection process, filed March 1, 2024 ("March 1st Filing"), which was appropriately rejected by the Commission on April 30, 2024 ("April 30th Order) in Docket No. ER24-1387.[3] The August 28th Filing will ensure that all

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1 18 CFR § 385.211 (2024).

2 Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT"), the PJM Operating Agreement ("OA") or the PJM Reliability Assurance Agreement ("RAA").

3 *See* 187 FERC ¶ 61,051 (2024) ("April 30th Order").

resources that have market power, as determined by the Three Pivotal Supplier test or due to a reliability need, will receive an energy market commitment on a cost-based offer. The August 28th Filing will also ensure that all resources operate on a parameter limited schedule when subject to a PJM declared emergency or alert, an issue which was a subject of the Commission's Order to Show Cause on June 17, 2021.[4]

The August 28th Filing has two flaws that need to be corrected to ensure proper implementation. The first flaw is in the choice of schedules for units that submit multiple cost-based offers. The second flaw is the proposed implementation date, which has been set to 12/31/9998, almost 8,000 years in the future. The implementation date should be the earliest feasible implementation date and no more than six months. The Commission should accept the August 28th Filing, subject to requiring PJM to correct the two identified flaws.[5]

I. COMMENTS

A. The August 28th Filing Is an Enhancement to Market Power Mitigation in the PJM Energy Market.

The status quo schedule selection process in the day-ahead market uses an optimization method to choose between the price-based offer and cost-based offer(s) of units determined to have market power. The optimization chooses the optimal dispatch point based on each offer schedule and then chooses the offer schedule that results in the lowest calculated production cost. Because the dispatch point may change in the real-time market,

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4 *See* 175 FERC ¶ 61,231 ("Show Cause Order").

5 Conditional acceptance of PJM's filing would be consistent with the principles of NRG Power Mktg., LLC v. FERC, 862 F.3d 108, 116 (2017) ("A utility's consent is relevant when FERC proposes "minor" modifications to the utility's proposal. Western Resources, 9 F.3d at 1579. But when FERC proposes its 'own original notion of a new form of rate,' the utility's consent does not excuse a Section 205 violation. City of Winnfield, 744 F.2d at 875."). The proposed modifications correct flaws in PJM's proposal, but the conditions do not impose "a new form of rate." *See Constellation Mystic Power, LLC*, 172 FERC ¶ 61,043, 61379 (2020) (Allowed condition for a "true-up mechanism" because it "is intended to ensure that the rate proposal is properly implemented.").

market sellers are able to exercise market power under this approach. Market sellers can adjust parameters or the shape of their offer curve in the price-based offer to increase the likelihood that the optimization selects the price-based offer even while maintaining a positive markup over marginal cost in parts of the offer curve. The "markup switch" strategy, explained by the Market Monitor in its March 25th Protest, is the most common strategy exploited by market sellers in the PJM energy market to avoid market power mitigation.[6]

PJM's desire to change the schedule selection process creates an opportunity to ensure that market sellers cannot avoid appropriate market power mitigation. For this reason, the Market Monitor supports the August 28th Filing, unlike the March 1st Filing, if the identified flaws are corrected by the Commission. The August 28th Filing removes the least cost schedule approach from the market power mitigation process and replaces it with a simple rule. If a seller has market power, the offers of that seller's units that are required to raise output for constraint relief will be mitigated to a cost-based offer.

The August 28th Filing also removes the least cost schedule approach from the market power mitigation process for offer parameters and replaces it with a simple rule. A PJM declaration of a Hot or Cold Weather Alert or more severe emergency condition triggers a market wide parameter mitigation process. Under the least cost schedule approach, market sellers have been able to avoid effective market power mitigation by including a positive markup in the parameter limited offer's schedule.[7] The PJM system needs its fleet to be available and flexible to the maximum extent possible during extreme conditions. The

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6 *See* Protest of the Independent Market Monitor for PJM, Corrected (March 26, 2024), Docket No. ER24-1387 ("March 25th Protest").

7 *See* Comments of the Independent Market Monitor for PJM, Docket No. EL21-78-000 (October 15, 2021).

August 28th Filing will ensure this occurs, thereby correcting the implementation of parameter mitigation under the Capacity Performance market design.[8]

B. The Proposed Schedule Selection Process in the Case of Multiple Cost-Based Offers Is Flawed.

In the March 1st Filing, PJM proposed to use a formula based on the cost of operating a unit at its economic minimum output level to choose among offer schedules. The intended implementation for the day-ahead market would have evaluated only the number of hours included in the unit's minimum run time, but not by using the expected operating hours of the day. Instead, it would have only evaluated the hourly offers with the highest cost. In other words, it would have only evaluated the hours when the unit was least likely to operate.[9] [10]

Despite the fact that the Commission explicitly rejected this approach in the April 30th Order, the August 28th Filing relies on this same dispatch cost formula for cases where units that fail the TPS test have multiple cost based offers. This situation can occur, for example, for dual fuel units that submit hourly offers on multiple fuels on cold weather days.

The August 28th Filing does not refute the Market Monitor's point that the formula will, under identified historical circumstances that have occurred in PJM, choose the incorrect offer schedule, from a least cost offer perspective. The August 28th Filing (at 18-19) argues that the situation where a dual fuel unit with multiple cost-based offers with alternating economic fuel types is so rare as to not be a concern. The August 28th Filing (at 18) states that only 10 percent of units use multiple cost-based offers. Ten percent of units is not trivial, especially on a high load day when all generation is needed. These are exactly the types of days when the situation of alternating economic fuel types is most likely to occur. The dates

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8 *See* Protest of the Independent Market Monitor for PJM, Docket No. ER20-995-000 (February 25, 2020).

9 *See* March 25th Protest at 6–7.

10 *See* Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM, Docket No. ER24-1387-000 (April 23, 2024) at 3–5.

during the last four winters when dual fuel units in PJM experienced a more economic gas offer during part of the operating day (e.g. hours 1 to 10) and a more economic oil offer during the remaining part of the operating day (e.g. hours 11 to 24) were the following:

- February 13, 2021, February 19, 2021
- December 23, 2022, December 28, 2022
- February 3, 2023, February 4, 2023
- January 13, 2024, January 17, 2024.

These days bookend winter storms and Cold Weather Alert days. While these situations may be infrequent, they occur on critical days when PJM and its generators need the market to run smoothly. In fact, PJM has redesigned its entire capacity market to address such days because they are so critical. For generators to receive unit commitments on the fuel that they know to be uneconomic will cause unnecessary difficulties.

PJM appears to recognize that under the August 28th Filing, PJM's proposed market process would result in an uneconomic and illogical outcome in the situation identified by the Market Monitor. The August 28th Filing argues that the Market Monitor's proposal could result in the same outcome as the August 28th Filing if a market seller submitted an uneconomic cost-based offer. There are rules governing market seller offer behavior to address such a situation. That is not a reason to create a PJM market rule that will select the uneconomic offer. Market sellers trust and should continue to be able to trust that PJM's market processes will provide economic outcomes.

Under the August 28th Filing, the only way a generator can avoid commitment on the uneconomic fuel type by the proposed dispatch cost formula is to make one of the fuel types unavailable to the market during the time of day when it is uneconomic. The problem with this solution is that it would remove the information that the less economic fuel is available. Fuel availability information is valuable to the PJM operators for reliability reasons, so this is not a desirable solution. Using the Market Monitor's solution to correct this flaw allows the market seller to indicate the intended fuel for operation without removing the availability of the other fuel type.

The August 28th Filing (at 18) states that having the market seller indicate which cost-based offer to use would allow sellers to exercise market power. This assertion is inaccurate. PJM appears to be stating that, in general, generators could provide inaccurate information to PJM. There is nothing about the Market Monitor's proposed correction to the flaw in the August 28th filing that would allow the exercise of market power. The PJM Market Rules and Commission rules protect against market manipulation by dual fuel units offering the wrong fuel type. Schedule 2 of the Operating Agreement includes a statement requiring the market seller to use the "marginal fuel experienced" by the unit.[11] The Commission has made strong statements about dual fuel units indicating the correct fuel type to the market.[12]

The flaw in the August 28th Filing is undisputed. The Commission rejected use of the dispatch cost formula for schedule selection in the April 30th Order. The August 28th Filing should be approved conditional on PJM removing the flaw of using the dispatch cost formula to select among multiple cost-based offers. Instead of the dispatch cost formula, the market seller should simply designate which cost-based offer represents the most economic operation for the operating day. Correcting the flaw does not create "a new form of rate;" it ensures the proper implementation of the rate proposal.[13] The Market Monitor provides as an attachment a modified version of the August 28th Filing's Operating Agreement changes with corrections for this flaw.

C. The Implementation Date Should Be the Earliest Feasible Date.

The August 28th Filing represents an improvement to the market power mitigation process by correcting existing issues that allow market sellers to exercise market power in the PJM energy market. The proposed implementation date of December 31, 9998, is not an implementation date at all. The August 28th Filing conditions implementation on the timeline

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11 *See* OA Schedule 2 (Components of Cost) at § 1.3(d).

12 *See* 158 FERC ¶ 61,133 at P 79.

13 *See infra* footnote 5.

of the nGEM project. The August 28th Filing does not make clear what conditions need to be met for implementation. The August 28th filing explains (at 19–20) that the purpose of the revisions is to facilitate multiconfiguration based modeling, which includes combined cycle modeling. PJM has not even brought the tariff changes for the combined cycle model to stakeholders or the Commission for approval. Even if the project stays on track, which it has not to date, there is no assurance that the Commission or even the PJM stakeholders will approve the changes necessary to implement it.[14]

The nGEM project itself does not require that PJM include combined cycle modeling. The Commission should require PJM to implement the August 28th Filing as soon as feasible, regardless of the status of multiconfiguration based modeling as part of the nGEM project and regardless of the status of the nGEM project more generally. Approval of the August 28th Filing should be conditioned on setting a real implementation date that is achievable and not contingent on future tariff changes that PJM has yet to file. Including this condition appropriately ensures the earliest implementation of needed changes, but it does not change the proposal.

II. CONCLUSION

The Market Monitor respectfully requests that the Commission afford due consideration to this pleading as the Commission resolves the issues raised in this proceeding.

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14 *See*, for example, "Next Generation Markets Update," PJM Presentation to the Market Implementation Committee (July 12, 2023) at 8–9, https://www.pjm.com/-/media/committees-groups/committees/mic/2023/20230712/20230712-item-06---july-2023-ngem-update.ashx, and "Next Generation Markets Update," PJM Presentation to the Market Implementation Committee (June 5, 2024) at 5, https://www2.pjm.com/-/media/committees-groups/committees/mic/2024/20240605/20240605-item-06----ngem-update---june-2024.ashx. The presentations show that they timeline has repeatedly been delayed.

Respectfully submitted,

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Dated: September 18, 2024

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 Eagleville, Pennsylvania,
this 18th day of September, 2024.

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Attachment

6.4 Offer Price Caps.

6.4.1 Applicability.

(a) If, at any time, it is determined by the Office of the Interconnection in accordance with Sections 1.10.8 or 6.1 of this Schedule that any generation resource may be dispatched out of economic merit order to maintain system reliability as a result of limits on transmission capability, the offer prices for energy from such resource shall be capped as specified below. For such generation resources committed in the Day-ahead Energy Market and Real-time Energy Market, if the Office of the Interconnection is able to do so, such offer prices shall be capped for the entire commitment period and committed at a cost-based offer. When there is more than one cost-based offer available for a resource, the Office of the Interconnection will dispatch the resource based on the cost-based offer ~~that results in the lowest dispatch cost in accordance with 6.4.1(g)~~designated by the Market Seller. For such generation resources committed in the Real-time Energy Market such offer prices shall be capped at a cost-based offer until the earlier of: (i) the resource is released from its commitment by the Office of the Interconnection; (ii) the end of the Operating Day; or (iii) the start of the generation resource's next pre-existing commitment.

The offer on which a resource is committed shall initially be determined at the time of the commitment. If any of the resource's Incremental Energy Offer, No-load Cost or Start-Up Cost are updated for any portion of the offer capped hours subsequent to commitment, the Office of the Interconnection will redetermine the level of the offer cap using the updated offer values. The Office of the Interconnection will dispatch the resource on the applicable market-based offer or cost-based offer in accordance with Tariff, Attachment K-Appendix, sections 6.6(b) and 6.6(a), respectively. When there is more than one cost-based offer available for a resource, the Office of the Interconnection will dispatch the resource based on the cost-based offer ~~which results in the lowest dispatch cost as determined in accordance with section 6.4.1(g)~~ designated by the Market Seller.

Resources that are self-scheduled to run in either the Day-ahead Energy Market or in the Real-time Energy Market are subject to the provisions of this section 6.4. The offer on which a resource is dispatched shall be used to determine any Locational Marginal Price affected by the offer price of such resource and as further limited as described in Tariff, Attachment K-Appendix, section 2.4 and Tariff, Attachment K-Appendix, section 2.4A.

In accordance with section 6.4.1(h), a generation resource that is offer capped in the Real-time Energy Market but released from its commitment by the Office of the Interconnection will be subject to the three pivotal supplier test and further offer capping, as applicable, if the resource is committed for a period later in the same Operating Day.

(b) The energy offer price by any generation resource requested to be dispatched in accordance with Section 6.3 of this Schedule shall be capped at the levels specified in Section 6.4.2 of this Schedule. If the Office of the Interconnection is able to do so, such offer prices shall be capped only during each hour when the affected resource is so scheduled, and otherwise shall be capped for the entire Operating Day. Energy offer prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(c) Generation resources subject to an offer price cap shall be paid for energy at the applicable Locational Marginal Price.

(d) [Reserved for Future Use]

(e) Offer price caps under section 6.4 of this Schedule shall be suspended for a generation resource with respect to transmission limit(s) for any period in which a generation resource is committed by the Office of the Interconnection for the Operating Day or any period for which the generation resource has been self-scheduled where (1) there are not three or fewer generation suppliers available for redispatch under subsection (a) that are jointly pivotal with respect to such transmission limit(s), and (2) the Market Seller of the generation resource, when combined with the two largest other generation suppliers, is not pivotal ("three pivotal supplier test"). In the event the Office of the Interconnection system is unable to perform the three pivotal supplier test for a Market Seller, generation resources of that Market Seller that are dispatched to control transmission constraints will be dispatched on the resource's cost-based offer. If more than one cost-based offer is submitted for a resource, the Office of the Interconnection shall utilize the cost-based offer ~~which results in the lowest dispatch cost as determined in accordance with section 6.4.1(g)~~ designated by the Market Seller.

(f) For the purposes of conducting the three pivotal supplier test in subsection (e), the following applies:

(i) All megawatts of available incremental supply, including available self-scheduled supply for which the power distribution factor ("dfax") has an absolute value equal to or greater than the dfax used by the Office of the Interconnection's system operators when evaluating the impact of generation with respect to the constraint ("effective megawatts") will be included in the available supply analysis at costs equal to the cost-based offers of the available incremental supply adjusted for dfax ("effective costs"). The Office of the Interconnection will post on the PJM website the dfax value used by operators with respect to a constraint when it varies from three percent.

(ii) The three pivotal supplier test will include in the definition of the relevant market incremental supply up to and including all such supply available at an effective cost equal to 150% of the cost-based clearing price calculated using effective costs and effective megawatts and the need for megawatts to solve the constraint.

(iii) Offer price caps will apply on a generation supplier basis (i.e. not a generating unit by generating unit basis) and only the generation suppliers that fail the three pivotal supplier test with respect to any hour in the relevant period will have their units that are dispatched with respect to the constraint offer capped. A generation supplier for the purposes of this section includes corporate affiliates. Supply controlled by a generation supplier or its affiliates by contract with unaffiliated third parties or otherwise will be included as supply of that generation supplier; supply owned by a generation supplier but controlled by an unaffiliated third party by contract or otherwise will be included as supply of that third party.

A generation supplier's units, including self-scheduled units, are offer capped if, when combined with the two largest other generation suppliers, the generation supplier is pivotal.

(iv) In the Day-ahead Energy Market, the Office of the Interconnection shall include price sensitive demand, Increment Offers and Decrement Bids as demand or supply, as applicable, in the relevant market.

~~(g) When more than one cost-based offer is available for a resource in the Real-time Energy Market and Day-ahead Energy Market, the schedule on which offer capped resources will be placed shall be determined using dispatch cost, where dispatch cost is calculated pursuant to the following formulas:~~

~~Dispatch cost for the applicable hour = ((Incremental Energy Offer @ Economic Minimum for the hour [$/MWh] * Economic Minimum for the hour [MW]) + No-load Cost for the hour [$/H])~~

~~(i) For resources committed in the Real-time Energy Market at the time of commitment or committed in the Day-ahead Energy Market, the resource is committed on the offer with the lowest Total Dispatch cost, as further detailed in the PJM Manuals,~~

~~where:~~

~~Total Dispatch cost = Sum of hourly dispatch cost over a resource's minimum run time [$] + Start-Up Cost [$]~~

~~(ii) For resources operating in real-time pursuant to a day-ahead or real-time commitment, and whose offers are updated after commitment, the resource is dispatched on the offer with the lowest dispatch cost for the each of the updated hours.~~

~~(iii) However, once the resource is dispatched on a cost-based offer, it will remain on a cost-based offer regardless of the determination of the cheapest schedule.~~

(h) A generation resource that was committed in the Day-ahead Energy Market or Real-time Energy Market, is operating in real time, and may be dispatched out of economic merit order to maintain system reliability as a result of limits on transmission capability, will be offer price capped, subject to the outcome of a three pivotal supplier test, for each hour the resource operates beyond its committed hours or Minimum Run Time, whichever is greater, or in the case of resources self-scheduled in the Real-time Energy Market, for each hour the resource operates beyond its first hour of operation, in accordance with the following provisions.

(i) If the resource is operating on a cost-based offer, it will remain on a cost-based offer regardless of the results of the three pivotal supplier test.

(ii) If the resource is operating on a market-based offer and the Market Seller fails the three pivotal supplier test then the resource will be dispatched on the cost-based offer representing the offer cap as determined by section 6.4.2. If more than one cost-based offer is submitted then the Office of the Interconnection shall utilize the cost-based offer ~~whichever results in the lowest dispatch cost as determined under section 6.4.1(g)~~ designated by the Market Seller.

(iii) If the Market Seller passes the three pivotal supplier test and the resource is currently operating on a market-based offer then the resource will remain on that offer, unless the Market Seller elects to not have its market-based offer considered for dispatch and to have only the cost-based offer that represents the offer cap level as determined under section 6.4.2 considered for dispatch in which case the resource will be dispatched on its cost-based offer for the remainder of the Operating Day.

(i) If the Office of the Interconnection declares a Market Suspension, in accordance with Operating Agreement, Schedule 1, section 1.11.6 and section 2.5.2, and such Market Suspension is greater than twenty-four (24) consecutive hours, the Office of the Interconnection shall use only cost-based offers for all resources for all market clearing and compensation, regardless of whether a Market Seller fails the three pivotal supplier test.