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

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| **PJM Interconnection, L.L.C.** | ) | **Docket No. EL21-78-000** |
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# ANSWER OF PJM INTERCONNECTION, L.L.C.

Pursuant to Rules 209 and 213 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("Commission"),[1] PJM Interconnection, L.L.C. ("PJM") submits this Answer in response to the Commission's June 17, 2021 Order to Show Cause.[2] In the June 17 Order, the Commission found that PJM's Open Access Transmission Tariff and the Amended and Restated Operating Agreement (collectively, "Tariff") appears to be unjust and unreasonable based on the ability of Market Sellers[3] to avoid being subject to parameter-limited offers.[4] As a result, the Commission directed PJM to either: (1) show cause as to why its Tariff remains just and reasonable or (2) explain what changes to its Tariff it believes would remedy the identified concerns.[5]

As more fully detailed below, PJM agrees that the existing Tariff does not contain a clear process for necessary changes to parameter-limited schedules in real-time. Consequently, PJM is proposing changes to the Tariff to provide specific provisions governing what happens when a

[1] 18 C.F.R. §§ 385.209 and 385.213.

[2] *PJM Interconnection, L.L.C.*, Order to Show Cause, 175 FERC ¶ 61,231 (June 17,2021) ("June 17 Order").

[3] For the purpose of this filing, capitalized terms not defined herein shall have the meaning as contained in the PJM Open Access Transmission Tariff, Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., or the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region.

[4] *Id*. at P 1.

[5] *Id.*

Market Seller is unable to meet its unit-specific parameters in real-time. Notwithstanding the foregoing, and as further explained below, PJM maintains that the existing Tariff provisions requiring PJM to commit and dispatch resources based on a lowest total system production cost offer remains just and reasonable.

# I. ANSWER

## A. The Tariff Provisions Requiring PJM to Commit and Dispatch Resources Based on a Lowest Total System Production Cost Remains Just and Reasonable.

### *1. Overview of Existing Rules on Parameter Limited Schedules and the Determination of Which Offer Schedule PJM Will Commit and Dispatch.*

Generation resources participate in the PJM energy market by submitting offer schedules composed of both financial parameters and operating parameters. Generation resources can submit three types of schedules in the day-ahead and real-time markets: a market-based schedule (non-parameter limited) and two types of schedules used for mitigation: a cost-based schedule and a market-based parameter-limited schedule. Market Sellers of generation resources may submit any values for their operating parameters in the market-based offers (non-parameter limited). For the two mitigation-related schedules, the existing market power mitigation rules include limitations for operating parameters that may be submitted as part of a unit's energy offer.[6] Parameter limits apply to minimum down time, minimum run time, maximum run time, maximum daily starts, maximum weekly starts, maximum run time, start-up time, notification time, and turn down ratio.[7]

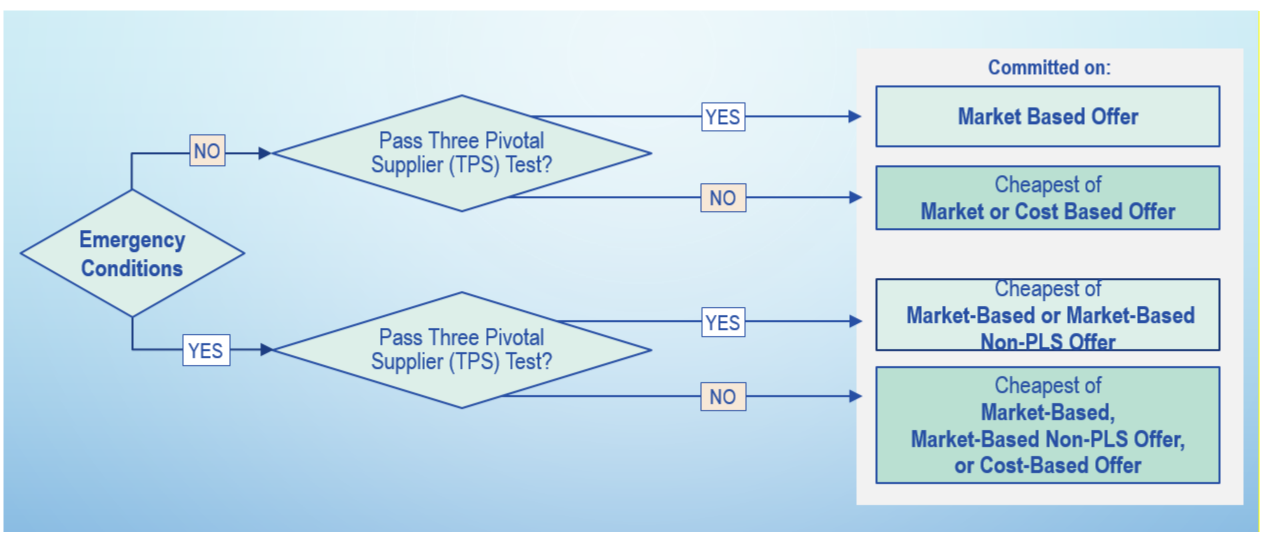
The purpose of the limitations on operating parameters is to address concerns that market power may be exerted through the submission of inflexible operating parameters to increase a

[6] *PJM Interconnection, L.L.C.*, Transmittal Letter at 5, Docket No. ER08-1569-000 (Sept. 25, 2008) ("2008 Filing").

[7] Operating Agreement, Schedule 1, section 6.6(b) and parallel provisions of Tariff, Attachment K-Appendix, section 6.6(b).

unit's operating reserve credits. Operating parameter limits are intended to ensure that Generation Capacity Resources submit parameters at least as flexible as their respective unit-specific parameters. The consideration of parameter limited schedules ("PLS") to cost-based offers for Market Sellers that do not pass the three pivotal supplier test is appropriate to ensure that such Market Sellers do not exert market power through the submission of inflexible operating parameters. In addition, the consideration of parameter limited market-based offers during certain emergency conditions is also appropriate because it guards against the exertion of market power under tight system conditions by limiting the operational parameters that may be offered during an emergency condition.

The figure below illustrates the existing process of when PJM considers market-based offers (non-parameter limited), market-based parameter limited offers, and cost-based offers in ultimately determining which unit to commit and dispatch. This existing approach has been in place since the rules were first implemented in 2008 and was recently affirmed by the Commission in 2020.[8]




[8] *See PJM Interconnection, L.L.C.*, 171 FERC ¶ 61,010 (2020).

Importantly, Operating Agreement, Schedule 1, section 6.4.1 and the parallel provisions of Tariff, Attachment K-Appendix, section 6.4.1 describe how PJM ultimately determines which of the applicable schedule(s) is used to commit generation resources. More specifically, this section explains that PJM commits generation resources having market power in the Day-ahead Energy Market using the "market-based offer or cost-based offer which results in the lowest overall system production cost," and commits generation resources having market power in the real-time market using the "market-based or cost-based schedule that results in the lowest dispatch cost," assuming that the generation resources are operating at their minimum economic output level.[9] The goal of picking an offer schedule that results in the lowest total system production cost is to meet expected loads at the lowest cost to consumers.

*2. There Is No Evidence In the Record That Demonstrates Actual Market Power Has Been Exercised Under the Existing Tariff Provisions.*

In the June 17 Order, the Commission explains that because the Tariff requires PJM to commit and dispatch resources based on their lowest cost schedule, Market Sellers can strategically offer higher markups on their market-based parameter-limited offer to ensure that PJM chooses the market-based offer, without parameter limits, and thus avoid mitigation.[10] The Commission then concludes that "[t]his undermines the purpose of parameter-limited offers, which is to ensure sellers are not able to exercise market power through the use of inflexible operating parameters."[11] The order, however, is void of any evidence that market power has in fact been exercised by Market Sellers under the existing rules.

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[9] Section 6.4.1(a).

[10] June 17 Order at P 16.

[11] *Id.*

PJM respectfully disagrees with the Commission's preliminary finding and urges the Commission to reconsider its conclusion. As a threshold matter, it is well settled that "an administrative order cannot be upheld unless the grounds upon which the agency acted in exercising its powers were those upon which its action can be sustained."[12] In other words, merely "[p]rofessing that an order ameliorates a real . . . problem but then citing no evidence demonstrating that there is in fact a[] . . . problem is not reasoned decisionmaking."[13] In addition, for the Commission's decision to be sustained, the potential threat of market power cannot simply be a "theoretical danger, *but a real one*."[14]

Here, there is no record evidence that the existing Tariff provisions requiring PJM to commit an offer based on the lowest total system production cost has resulted in the actual exercise of market power. As a result, there is no basis to find that the existing Tariff rules are unjust and unreasonable. The Commission's June 17 Order to Show Cause does not show any evidence of the actual exercise of market power under the existing rules. The mere fact that PJM may commit an offer that is less flexible than the unit-specific operating parameters associated with a market-based parameter limited offer or a cost based offer is simply not an indication that the existing rules allow for the exercise of market power. In fact, as further explained below, there are numerous legitimate reasons why Market Sellers may need to structure their unit offers in a manner that results in a market-based (non-PLS) schedule being cheaper than the cost-based or market-based parameter limited schedule. Simply put, the fact that a Market Seller may have a market-

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[12] *S.E.C. v. Chenery Corp.*, 318 U.S. 80, 95, 63 S. Ct. 454, 87 L. Ed. 626 (1943); *see also La. Pub. Serv. Comm'n v. F.E.R.C.*, 184 F.3d 892, 898 (D.C.Cir.1999); *Consol. Edison Co. of N.Y. v. F.E.R.C.*, 823 F.2d 630, 641 (D.C.Cir.1987).

[13] *Nat'l Fuel Gas Supply Corp. v. F.E.R.C.*, 468 F.3d 831, 840 (D.C. Cir. 2006).

[14] *Id.*

based (non-PLS) offer that is less expensive than a cost-based offer is not evidence that Market Sellers are able to exercise market power under the existing rules.

*3. The Existing Approach of Dispatching and Committing Generation Capacity Resources Based on Lowest Overall System Production Cost Remains Just and Reasonable.*

As demonstrated by the examples below, PJM's sophisticated commitment software is designed to commit resources based on the schedule that results in the lowest total system production cost. This approach is intentionally designed to maximize the social benefits of competitive markets by serving expected loads at the least cost. The schedule that results in lowest total system production cost depends on combination of many factors such as the level of output needed from a unit's schedule, incremental offer up to needed output level, Start-Up Cost, No-load Costs and other operating parameters submitted in a schedule – all of which are considered by PJM when considers various offer schedules in committing units.

To illustrate the existing approach, the following examples demonstrate how some of the factors described above affect the cheapest schedule selection. For the following two simplified examples, assume two units with the applicable market-based and cost-based offer schedules as follows:[15]

| | | Incremental Offer ($/MWh) | | EcoMax (MW) | EcoMin (MW) |
|---|---|---|---|---|---|
| | | Market-Based (Non-PLS) | Cost Based | | |
| Unit 1 | Single Segment | $30 | $30 | 100 | 0 |
| Unit 2 | Segment 1<br>Segment 2 | 40MW@$40<br>60MW@$60 | 40MW@$35<br>60MW@$100 | 100 | 5 |

[15] The examples and scenarios presented are simplified examples. Three pivotal supplier test is constraint specific but in order to simplify the example and to demonstrate how offers and parameters impact the cheapest schedule selection, no transmission constraint is included in the provided example and it is also assumed that Market Seller for Unit 2 fails the three pivotal supplier test.

In the first scenario, if the expected load is 120MWs, PJM would clear 100MWs of Unit 1 at $30/MWh and the remaining 20MWs from Unit 2 at $35/MWh since the cost-offer is cheaper than the market-based (non-PLS) offer of $40/MWh and Unit 2 failed the three pivotal supplier test. This results in committing both units based on the total system production cost of $3,700, compared with $3,800 had PJM committed Unit 2 on its market-based (non-PLS offer).

## Scenario 1

| | *Assumption: Load = 120 MW* | | | |
|---|---|---|---|---|
| | **Committed on Schedule** | **Cleared MW** | **Failed TPS test?** | **Production Cost** |
| **Unit 1** | Price Based | 100 | No | $ 3,000.00 |
| **Unit 2** | Price Based | 20 | Yes | $ 800.00 |
| **Total System Production Cost =** $3,000 + $800 = $3,800 | | | | |

| | **Committed on Schedule** | **Cleared MW** | **Failed TPS test?** | **Production Cost** |
|---|---|---|---|---|
| **Unit 1** | Price Based | 100 | No | $ 3,000.00 |
| **Unit 2** | Cost Based | 20 | Yes | $ 700.00 |
| **Total System Production Cost:** $3,000 + $700 = $3,700 | | | | |

Cost-based offer for unit 2 results in the lowest overall system production cost

Conversely, in Scenario 2 below, where the expected load is 150MWs, overall societal benefit is maximized by committing 100 MWs from Unit 1 at $30/MWh and the remaining 50MWs from Unit 2 based on the market-based (non-PLS) schedule. This is because under Unit 2's cost-based offer, only 40 MWs could be obtained at the $35/MWh price while the remaining 10MWs would be at $100/MWh. This would result in Unit 2's overall production cost being equal to $2,400. By contrast, committing Unit 2 under its market-based (non-PLS) schedule would result in Unit 2's production cost equal to $2,200. This is so because even though the first segment of Unit 2's market-based schedule is more expensive at $40/MWh (compared with the cost-based offer of $35/MWh), the second segment is much less expensive ($60/MWh) than the second segment for the cost-based schedule ($100/MWh). As a result, under today's existing rules, even though the Market Seller of Unit 2 may have failed the Three Pivotal Supplier Test, PJM will commit this unit under its market-based (non-PLS) offer since it results in the overall total system production cost of $5,200 compared with $5,400 using the cost-based offer.

## Scenario 2

| | | | | |
|---|---|---|---|---|
| | ***Assumption:*** *Load = 150 MW* | | | |
| | **Committed on Schedule** | **Cleared MW** | **Failed TPS test?** | **Production Cost** |
| **Unit 1** | Price Based | 100 | No | $ 3,000.00 |
| **Unit 2** | Price Based | 50 | Yes | $ 2,200.00 |
| | **Total System Production Cost =** $3,000 + $2,200 = $5,200 | | | |

| | **Committed on Schedule** | **Cleared MW** | **Failed TPS test?** | **Production Cost** |
|---|---|---|---|---|
| **Unit 1** | Price Based | 100 | No | $ 3,000.00 |
| **Unit 2** | Cost Based | 50 | Yes | $ 2,400.00 |
| | **Total System Production Cost:** $3,000 + $2,400 = $5,400 | | | |

Price-based offer for unit 2 results in the lowest overall system production cost

Should the Commission require changes to the existing approach, PJM would no longer be able to commit the least expensive resources if only cost based offers may be considered when a Market Seller fails the Three Pivotal Supplier Test or only parameter limited market-based offers when there is a Hot/Cold Weather or Max Generation Alert because PJM would no longer be able to consider the less expensive market-based non-parameter limited schedules in such instances.[16]

In making unit commitments based on lowest total system production cost, PJM's existing commitment software also accounts for how many hours the system will need a particular unit. More particularly, using a similar example as the ones described above, assume that the expected load for hours ending 1-17 and 20-24 is 90MWs while the expected load for hours ending 18-19

[16] Such an outcome would be a departure of the Commission's prior precedent of allowing PJM to commit resources in a least-cost manner. *See* PJM Interconnection, L.L.C., 139 FERC ¶ 61057 (2012).

is 120MWs. Further assume that Unit 2 has a minimum run time of 24 hours based on its market-based (non-PLS) schedule and 2 hour minimum run time on its cost-based schedule.

| | | Incremental Offer ($/MWh) | | | |
|---|---|---|---|---|---|
| | | Price Based | Cost Based | EcoMax (MW) | EcoMin (MW) |
| Unit 1 | Single Segment | $30 | $30 | 100 | 0 |
| Unit 2* | Single Segment | $60 | $70 | 100 | 5 |

*Note: Minimum run time of 24 hours on price-based schedule and 2 hours on cost-based schedule.

| Assumption: | HE 1 – HE17 \| HE 20 – HE 24<br>*Load = 90 MW* | HE 18 – HE 19<br>*Load = 120 MW* |
|---|---|---|

Under this scenario, Unit 2's market-based (non-PLS) schedule would not result in the lowest overall system production cost because that schedule contains a minimum run time of 24 hours. As a result, even though Unit 2 would otherwise not be needed from hours ending 1-17 and 20-24, PJM would have to dispatch that unit at its economic minimum of 5MWs for those hours to obtain the 20MWs needed for hours ending 18-19. The table below shows the total system production cost if PJM were to commit Unit 2 on its market-based (non-PLS) schedule:

## Price-Based Schedule

| | | Cleared MW | | | |
|---|---|---|---|---|---|
| | Committed on Schedule | HE 1 – HE 17 \| HE 20 – HE 24 | HE 18 – HE 19 | Failed TPS test? | Production Cost |
| Unit 1 | Price Based | 85 | 100 | No | $ 62,100 |
| Unit 2 | Price Based | 5 | 20 | Yes | $ 9,000 |

**Total System Production Cost:** $62,100 +$ 9,000 = $71,100

In comparison, under the same set of assumptions, the total system production cost is less using Unit 2's cost-based schedule because the minimum run time is for two hours even though the market-based (non-PLS) offer price is lower. Because Unit 2 would not be committed from hours ending 1-17 and 20-24, 20MWs of Unit two would be committed for two hours ending 18-19 at $70/MWh.

### Cost-Based Schedule

| | Committed on Schedule | Cleared MW: HE 1 – HE 17 \| HE 20 – HE 24 | Cleared MW: HE 18 – HE 19 | Failed TPS test? | Production Cost |
|---|---|---|---|---|---|
| **Unit 1** | Price Based | 90 | 100 | No | $ 65,400 |
| **Unit 2** | Cost Based | 0 | 20 | Yes | $ 2,800 |

**Total System Production Cost:** $65,400 + $2,800 = $68,200

Accordingly, by committing Unit 2 on its cost-based schedule, the total system production cost is $68,200 compared with its market-based (non-PLS) offer, which would have resulted in a total system production cost of $71,100. In other words, under the existing Tariff provisions and the existing implementation, PJM already would dispatch Unit 2 to maximize social welfare even though the market-based (non-PLS) offer price may be cheaper because the overall system production cost is minimized with the cost-based offer.

To further illustrate that the existing approach results in the lowest total system production cost, take the following example that modifies only the market-based (non-PLS) offer from $60/MWh to $40/MWh for Unit 2.

| | | Incremental Offer ($/MWh): Price Based | Incremental Offer ($/MWh): Cost Based | EcoMax (MW) | EcoMin (MW) |
|---|---|---|---|---|---|
| **Unit 1** | Single Segment | $30 | $30 | 100 | 0 |
| **Unit 2*** | Single Segment | $40 | $70 | 100 | 5 |

*Note: Minimum run time of 24 hours on price-based schedule and 2 hours on cost-based schedule.

| | | |
|---|---|---|
| ***Assumption:*** | HE 1 – HE17 \| HE 20 – HE 24<br>*Load = 90 MW* | HE 18 – HE 19<br>*Load = 120 MW* |

Under this modified example, with all other assumptions being the same, Unit 2's market-based (non-PLS) schedule would result in the lowest overall system production cost even though that schedule contains a minimum run time of 24 hours. This is because when Unit 2's market-based offer is reduced to $40/MWh, it would be committed for 5 MWs at $40/MWh from HE 1 – HE 17 and HE 20 – HE 24 (at a cost of $4,400) and 20 MWs at $40/MWh for HE 18 – HE 19 (at a cost of $1,600). This results in an overall production cost for committing Unit 2 equal to $6,000.

| | Committed on Schedule | Cleared MW: HE 1 – HE 17 \| HE 20 – HE 24 | Cleared MW: HE 18 – HE 19 | Failed TPS test? | Production Cost |
|---|---|---|---|---|---|
| Unit 1 | Price Based | 85 | 100 | No | $ 62,100 |
| Unit 2 | Price Based | 5 | 20 | Yes | $ 6,000 |

**Total System Production Cost:** $62,100 +$ 6,000 = $68,100

By contrast, if PJM committed Unit 2 on its cost-based schedule, while it would only be committed from HE 18- HE 19, it would cost $2,800 to commit this resource because the incremental offer under the cost-based schedule is $70/MWh. This results in a total system production cost of $68,200. Thus, in this example, the total system production cost resulting from committing Unit 2 on its market-based (non-PLS) schedule ($68,100) would be cheaper than if Unit 2 were committed on its cost-based offer ($68,200). Clearly, committing Unit 2 under the cost-based offer under this scenario would result in consumers paying a higher cost for to meet the same level of reliability.

## Cost-Based Schedule

| | Committed on Schedule | Cleared MW: HE 1 – HE 17 \| HE 20 – HE 24 | Cleared MW: HE 18 – HE 19 | Failed TPS test? | Production Cost |
|---|---|---|---|---|---|
| Unit 1 | Price Based | 90 | 100 | No | $ 65,400 |
| Unit 2 | Cost Based | 0 | 20 | Yes | $ 2,800 |

**Total System Production Cost:** $65,400 + $2,800 = $68,200

These examples demonstrate that the existing approach remains just and reasonable because PJM takes into account the parameter limitations of the various offer schedules in calculating the lowest total system production cost. This sophisticated approach in the existing approach of committing resources based on lowest total production cost is aimed at serving expected loads at least cost to consumers. Potential changes to this long-standing approach would be preclude PJM from always committing units based on the cheapest offer.

*3. Market Sellers Reasonably May Offer Market-Based (Non-PLS) Schedules that are Less Expensive Than Cost-Based or Market-Based Parameter Limited Schedules.*

The existing Tariff provisions allow for robust competition in the energy market by allowing Market Sellers to submit a variety of financial offers and associated parameter limits. Rather than a tool designed for Market Sellers to game the energy markets and exercise market power, the existing rules merely allow Market Sellers to better reflect a unit's costs based on different operating parameters. To that end, it is certainly legitimate and rational for Market Sellers to submit market-based (non-PLS) offers that are cheaper than their cost-based or market based parameter limited schedules. That is because there is a higher risk for Market Sellers to be subject to potential deviation charges if the unit does not meet the specified operating parameters.[17] Thus, less flexible operating parameters for PJM would provide the Market Seller with more latitude to ensure that no deviation charges are incurred.

In addition to the potential of deviation charges, offer schedules that contain more flexible operating parameters for PJM generally cause more wear and tear on the resources than offers that contain less flexible operating parameters. For instance, an operating parameter with a higher minimum run time or smaller maximum weekly start or maximum daily start would not subject a

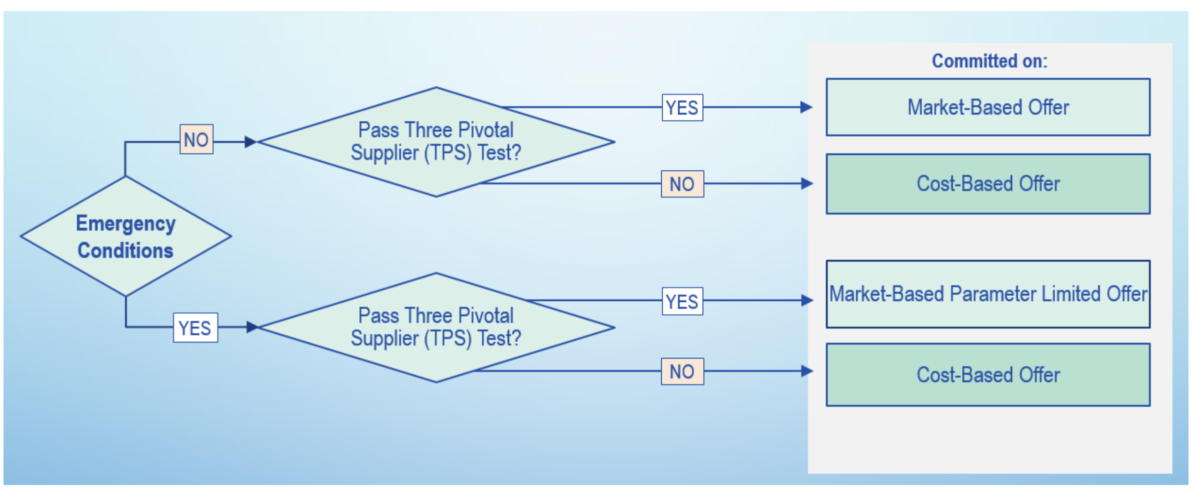
[17] *See* Tariff, Attachment K-Appendix, section 3.2.3 and parallel provisions of Operating Agreement, Schedule 2, section 3.2.3.

unit to the potential of having to cycle the resource as frequently as a parameter with a shorter hour minimum run time or greater maximum weekly start or maximum daily start. When a unit has to turn on and off more often, there is significantly more wear and tear on the system because short run times do not allow for the lubrication to be fully established on the moving parts of the unit (such as combustion turbine or steam turbine rotors). Furthermore, short run times impact other major components of a unit (such as turbine shells) because it may not reach optimal operating temperatures, which can also cause more wear and tear from smaller clearances than present during normal operation. This is precisely why many natural gas-fired turbine manufacturers include a start premium in their respective service contracts to account for the additional wear and tear from starting a unit. Additionally, many units have emission limitations and constant cycling of the units make it more likely for such units to violate their emissions permits.

In short, there are a myriad number of legitimate reasons for a Market Seller to submit a non-parameter limited market-based offer that is less expensive than the cost-based or market based parameter limited schedules for the same unit. Consequently, the mere existence of a cheaper non-parameter limited market-based offer than the cost-based or market based parameter limited offer is not evidence of gaming or the potential exercise of market power. As a result, the Commission should reverse its preliminary finding that the existing Tariff rules requiring PJM to commit and dispatch resources based on the lowest total system production cost appears to be unjust and unreasonable. The existing Tariff provisions maximize social welfare by committing resources on the lowest overall system production cost so any changes to this approach will result in an outcome that would likely be detrimental for consumers.

*4. In the Event the Commission Finds the Existing Rules Are Unjust and Unreasonable Despite the Reasons Provided Above, PJM Could Exclude Consideration of Non-Parameter Limited Market-Based Schedules in Solving for Dispatch Commitments.*

In the event the Commission disagrees with the above and continues to believe that the existing Tariff provisions requiring PJM to dispatch resources based on the lowest total system production cost are unjust and unreasonable, the Commission could require PJM to exclude consideration of market-based (non-PLS) offers in solving for dispatch commitments on a temporary basis. Under this approach, when a Market Seller fails the Three Pivotal Supplier Test or when PJM declares a Hot Weather Alert, Cold Weather Alert, or Max Generation event, PJM would only consider the applicable cost-based offer or market-based parameter limited offer. More particularly, a resource would always and only be committed on its cost offer whenever the Market Seller of such resource fails the Three Pivotal Supplier Test. Similarly, a resource would always and only be committed on its market-based parameter limited schedule if the Market Seller passes the Three Pivotal Supplier Test but PJM declares a Hot Weather Alert, Cold Weather Alert, or Max Generation event. Such an approach would effectively ensure that unit-specific parameter limits are always followed when a Market Seller fails the Three Pivotal Supplier Test or when PJM declares a Hot Weather Alert, Cold Weather Alert, or Max Generation event. More particularly, the following figure shows how PJM would commit units under this alternative approach:



As noted above, however, this approach would no longer allow PJM to commit the least expensive resources since only the cost based offer may be considered when a Market Seller fails the Three Pivotal Supplier Test or parameter limited market based offer may be considered when there is a Hot/Cold Weather or Max Generation Alert because PJM would no longer be able to consider potentially other less expensive offer schedules in such instances. Clearly, this approach would diminish the benefits of a competitive market since PJM would no longer be committing resources based on the lowest cost offer. Such an outcome is would not be ideal and may ultimately increase costs to consumers.

As a result, PJM submits that such an alternative approach should only be utilized while PJM and its stakeholders consider longer-term alternative approaches to address this admittedly complicated issue. One such durable option may be a potential simplification of offer structures. However, additional stakeholder consideration is needed to fully consider the ramifications of such an approach. Therefore, PJM intends to further discuss and explore a more comprehensive and durable solution with its stakeholders should the Commission direct PJM to replace the existing rules with this approach.

### B. PJM Agrees That The Tariff Should Contain More Explicit Rules for Market Sellers to Notify PJM When a Resource is Unable to Meet its Unit-Specific Parameters in Real Time.

PJM agrees that more explicit rules should be added to the Tariff to specify rules for Market Sellers to notify PJM when a resource is unable to meet its unit-specific parameters in real time. The existing unit-specific exception process ("parameter-limited exception") that is outlined in the Tariff was not designed to allow Market Sellers to notify PJM of unanticipated real time operational limitations that may be applicable to a resource after the close of the Day Ahead Market. More specifically, prior to the close of the Day-Ahead Energy Market, temporary exceptions are submitted for up to 30 days for short term equipment, gas pipeline, and other physical issues. Period exceptions are for issues that last longer than 30 days, but less than one year. Finally, Persistent exceptions are for issues that last longer than one year.[18]

None of the existing exception options detailed in the existing Tariff provide Market Sellers with the ability to communicate operational restraints on a resource to PJM in real time that may necessitate inclusion of a parameter that is less flexible than the unit-specific parameter. To address this gap, PJM recently attempted to incorporate the use of Real Time Values into the Tariff.[19] However, the Commission rejected that filing based on concerns that the use of Real Time Values to override unit-specific parameters did not adequately guard against the potential exercise of market power.[20] In the Commission's June 17 Order to Show Cause issued in this proceeding, the Commission also expressed concern that "the PJM Tariff appears to be unjust and unreasonable because it fails to contain provisions governing what happens if a seller is unable to meet its unit-specific parameters in real time."[21]

In light of the Commission's order rejecting PJM's proposed Real Time Values filing, along with this instant Order to Show Cause, PJM submitted an informational filing of interim steps that have already been taken to address the concerns expressed in the recent Commission orders.[22] Specifically, as an interim measure, PJM informed Market Sellers and the Commission that:

[18] Tariff, Attachment K-Appendix, section 6.6 and parallel provisions of Operating Agreement, Schedule 1, section 6.6.

[19] *PJM Interconnection, L.L.C.*, Proposal to Incorporate Real Time Values into the Tariff, Docket No. ER21-1591-000 (Apr. 1, 2021).

[20] *PJM Interconnection, L.L.C.*, 175 FERC ¶ 61,171 (May 28, 2021) ("May 28 Order").

[21] June 17 Order at P 17.

[22] *PJM Interconnection, L.L.C.*, Informational Filing regarding Interim Steps to Comply with the Commission's Recent Orders on the Use of Real Time Values, Docket No. EL21-78-000 (Jul. 23, 2021).

1. exceptions to parameter limits sought for an Operating Day at any time before the close of the Day-ahead Energy Market for that Operating Day may be obtained solely through the temporary exception procedure specified in Operating Agreement, Schedule 1, section 6.6(i);
2. when the Generation Owner first becomes aware, after the close of the Day-ahead Energy Market, of a physical unit limitation or constraint outside management control that will render the unit incapable of satisfying previously established parameter limits, the Generation Owner must promptly notify PJM through Markets Gateway of the constraint and its impact on Operating Day plant capabilities via Real Time Values; and
3. no later than three business days after the Generation Owner's notification of a physical unit limitation or constraint outside of management control, the Generation Owner must provide documentation (including, to the extent then available, all evidence and documentation specified in NERC Reliability Standard TOP-001-5 (Transmission Operations), Measure M3) supporting the claimed constraint and how it justified the specific departure from previously established parameter limits.

These interim limitations on the use of Real Time Values were intended to address the concerns expressed by the Commission in the Order to Show Cause and the May 28 Order. In effect, since August 1, 2021, the submission of Real Time Values were limited to only physical and actual unit limitations that may have occurred during the real-time market. PJM believes these interim limitations sufficiently address the Commission's concern that Market Sellers could submit Real Time Values to "inappropriately increas[e] their Notification Time on parameter limited schedules"[23] since economic reasons for operating a unit, such as not staffing a unit at all times to require increased Notification Time, are no longer acceptable reasons to override unit-specific parameters.[24]

Thus, in light of the Commission's Order to Show Cause, PJM acted in good faith and implemented the aforementioned interim approach since August 1, 2021. The interim approach is appropriate given that PJM continues to require real time unit information to reliably operate the grid and Market Sellers must still have a mechanism to notify PJM of physical parameter limitations in real time. Indeed, the exiting provisions of Tariff, Attachment K-Appendix, section 6.6(i), and the parallel provisions of Operating Agreement, Schedule 1, section 6.6(i), which provide general rules related to parameter limited schedules and state that "the provisions of this section 6.6 . . . do not affect or change in any way a Generation Owner's obligation under NERC Reliability Standards to notify the Office of the Interconnection of its actual or expected actual physical operating conditions during the Operating Day." The current use of Real Time Values provides the mechanism for Market Sellers to meet the aforementioned NERC notification obligations without the need for immediate Tariff changes, while also addressing the Commission's stated concerns in its recent orders.

Notwithstanding the foregoing, given that the interim implementation for Real Time Values contains essentially the same requirements and standards necessary for Market Sellers to obtain a temporary exception as detailed in Tariff, Attachment K-Appendix, section 6.6(i), and the parallel provisions of Operating Agreement, Schedule 1, section 6.6(i), PJM proposes to sunset

[23] May 28 Order at P 31.

[24] Given that PJM agrees the existing Tariff provisions need to be updated to more explicitly accommodate deviations to operating parameters in real time and proposes Tariff revisions below that would prohibit the extension of notification times due to staffing, there is no need to further brief the questions posed by the Commission on this issue. See June 17 Order at P 19.

the use of Real Time Values and allow Market Sellers to submit temporary exceptions during the real time market under the existing Tariff procedures. This approach is consistent with the Independent Market Monitor for PJM's ("Market Monitor") position that "[t]he temporary exception process balances the need to require flexible parameters with the ability to reflect changes to the capability of a unit due to unforeseen issues."[25] Thus, through this filing, PJM is essentially proposing to adopt the Market Monitor's previously suggested approach of expanding the existing temporary exception procedures so that Market Sellers are not limited to submitting the exceptions at least one Business Day before the operating day.

PJM could not have previously implemented the proposed approach as an interim approach absent a Tariff change given the express language in the existing temporary exception process that requires Market Sellers to submit such an exception "at least one Business Day prior to the commencement of the exception."[26] Since physical unit limitations that develop after the close of the Day-Ahead Energy Market would not be anticipated at least one Business Day prior to the commencement of a temporary exception, the existing Tariff needs to be revised to allow Market Sellers to submit a temporary exception at any time. Thus, as the Market Monitor previously suggested, "the simple solution is to remove that requirement, and permit real-time submissions for temporary exceptions. This would let resources communicate to PJM their changed operational capability without delay, while maintaining the tariff requirements and standard for review that protect against withholding."[27]

[25] Protest of the Independent Market Monitor for PJM, Docket No. ER21-1591-000, at 7 (Apr. 22, 2021).

[26] Tariff, Attachment K-Appendix, section 6.6(i), and the parallel provisions of Operating Agreement, Schedule 1, section 6.6(i).

[27] Protest of the Independent Market Monitor for PJM, Docket No. ER21-1591-000, at 9 (Apr. 22, 2021).

Besides removing the temporal restrictions for when temporary exceptions may be submitted, PJM is also proposing to strengthen the rules that govern temporary exceptions to ensure that any physical limitation that prompted the need for a temporary exception actually exists for the entire duration of the exception period. To effectuate this additional restriction, PJM proposes modifications to the same Tariff section so that Market Sellers are required to provide supporting documentation to substantiate the termination date of the temporary exception and also provide updates on the physical limitation during the period of the temporary exception. This will ensure Market Sellers notify PJM of an early termination of a temporary exception in the event the physical unit limitation is remedied earlier than expected when the temporary exception was first submitted.

Finally, PJM proposes minor clarifications to the existing temporary exception provision to correct an existing typographical error that temporary exceptions may be submitted only for "physical *and* actual constraints" rather than "physical *or* actual constraints." In addition, PJM proposes to clarify, consistent with the existing practice, that the temporary exception may only be requested one time for the same constraint per occurrence. In other words, constraints that periodically repeat, such as seasonal environmental emission restrictions should not be submitted as temporary exceptions, but rather as periodic exceptions.

To effectuate the aforementioned revisions, PJM proposes the following edits to Tariff, Attachment K-Appendix, section 6.6(i), and the parallel provisions of Operating Agreement, Schedule 1, section 6.6(i), as shown in blackline below:[28]

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[28] Consistent with the Commission's directive in the Order to Show Cause, PJM is including, as Exhibit 1, proposed tariff provisions to Tariff, Attachment K-Appendix, section 6.6(i), and the parallel provisions of Operating Agreement, Schedule 1, section 6.6(i) as part of this filing to allow the submission of temporary exceptions in real time. *See* June 17 Order at n.36.

(i) Temporary Exceptions. A temporary exception shall be deemed accepted without prior review by the Market Monitoring Unit or the Office of the Interconnection upon submission by the Market Seller of the generating unit of written notification to the Market Monitoring Unit and the Office of the Interconnection, ~~at least one Business Day prior to the commencement of the exception,~~ and shall automatically commence and terminate on the dates specified in such notification, which must be for a period of time lasting 30 days or less, unless the termination date is extended pending a request for a period exception or shortened due to a change in the physical conditions of the unit such that the temporary exception is no longer required. Such Market Seller shall provide to the Market Monitoring Unit and the Office of the Interconnection within three days following the commencement of the temporary exception its documentation explaining in detail the reasons for the temporary exception, and shall also respond to additional requests for information from the Market Monitoring Unit and the Office of the Interconnection within three Business Days after such request. Failure to provide a timely response to such request for additional information shall cause the temporary exception to terminate the following day. The Market Seller shall notify the Office of the Interconnection and the Market Monitoring Unit in writing of any updates to the physical condition of the unit and shall notify the Office of the Interconnection and the Market Monitoring Unit in writing of an early termination of a temporary exception due to changed physical conditions by no later than one Business Day prior to the early termination date. A Market Seller shall provide supporting documentation demonstrating the actual termination date of the physical and actual parameter limitation that prompted the need for the temporary exception to the Office of the Interconnection and the Market Monitoring Unit within one Business Day of the termination of such condition. A temporary exception may only be requested one-time for the same physical ~~or~~ and actual constraint per occurrence since an operational constraint that may ~~occur~~ periodically exist more than once should be the subject of a period exception request rather than multiple temporary exception requests.

## II. ADMISSIONS AND DENIALS

Pursuant to Rule 213(c)(2) of the Commission's Rules,[29] except as stated in this Answer, PJM admits to no facts in the form and manner specified in the June 17 Order to Show Cause.

[29] 18 C.F.R. § 385.213(c)(2).

Any fact or allegation in the June 17 Order to Show Cause that is not explicitly admitted in this Answer is denied.

## III. NOTICES AND COMMUNICATIONS

All correspondence and other communications regarding this proceeding should be directed to:


| | |
|---|---|
| Craig Glazer<br>Vice President–Federal Government Policy<br>PJM Interconnection, L.L.C.<br>1200 G Street, N.W., Suite 600<br>Washington, D.C. 20005<br>(202) 423-4743 (phone)<br>(202) 393-7741 (fax)<br>*Craig.Glazer@pjm.com* | Chenchao Lu<br>Assistant General Counsel<br>PJM Interconnection, L.L.C.<br>2750 Monroe Blvd.<br>Audubon, PA 19403<br>(610) 666-2255 (phone)<br>(610) 666-8211 (fax)<br>Chenchao.Lu@pjm.com |


## IV. DOCUMENTS ENCLOSED

PJM encloses the following in support of this filing:

1. This transmittal letter; and
2. Exhibit 1: Proposed redline language to address real time values in Operating Agreement, Schedule 1, section 6.6 and Tariff, Attachment K-Appendix, section 6.6.

## V. CONCLUSION

For the reasons provided herein, the Commission should reverse its preliminary finding that the existing Tariff rules requiring PJM to commit and dispatch resources based on the lowest total system production cost appears to be unjust and unreasonable. Separately, the Commission should direct PJM to modify the Tariff rules to allow the submission of temporary exceptions both before and after the real time market as proposed herein.

Respectfully submitted,


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*On behalf of*
*PJM Interconnection, L.L.C.*

# Exhibit 1

**Operating Agreement, Schedule 1, section 6.6**
**Tariff, Attachment K-Appendix, section 6.6**

**Section 6.6 Minimum Generator Operating Parameters – Parameter Limited Schedules.**

**. . .**

(i) If a generating unit is or will become unable to achieve the default or unit-specific values determined by the Office of the Interconnection due to actual operating constraints affecting the unit, the Capacity Market Seller of that unit may submit a written request for an exception to the application of those values. Exceptions to the parameter limited schedule default or unit-specific values shall be categorized as either a one-time temporary exception, lasting 30 days or less; a period exception, lasting at least 31 days and no more than one year; or a persistent exception, lasting for at least one year.

> (i) Temporary Exceptions. A temporary exception shall be deemed accepted without prior review by the Market Monitoring Unit or the Office of the Interconnection upon submission by the Market Seller of the generating unit of written notification to the Market Monitoring Unit and the Office of the Interconnection~~, at least one Business Day prior to the commencement of the exception~~, and shall automatically commence and terminate on the dates specified in such notification, which must be for a period of time lasting 30 days or less, unless the termination date is extended pending a request for a period exception or shortened due to a change in the physical conditions of the unit such that the temporary exception is no longer required. Such Market Seller shall provide to the Market Monitoring Unit and the Office of the Interconnection within three days following the commencement of the temporary exception its documentation explaining in detail the reasons for the temporary exception, and shall also respond to additional requests for information from the Market Monitoring Unit and the Office of the Interconnection within three Business Days after such request. Failure to provide a timely response to such request for additional information shall cause the temporary exception to terminate the following day. The Market Seller shall notify the Office of the Interconnection and the Market Monitoring Unit in writing of any updates to the physical condition of the unit and shall notify the Office of the Interconnection and the Market Monitoring Unit in writing of an early termination of a temporary exception due to changed physical conditions by no later than one Business Day prior to the early termination date. A Market Seller shall provide supporting documentation demonstrating the actual termination date of the physical and actual parameter limitation that prompted the need for the temporary exception to the Office of the Interconnection and the Market Monitoring Unit within one Business Day of the termination of such condition. A temporary exception may only be requested one-time for the same physical ~~or~~ and actual constraint per occurrence since an operational constraint that may ~~occur~~ periodically exist more than once should be the subject of a period exception request rather than multiple temporary exception requests.

In addition, if a Market Seller is unaware of the need for a period exception prior to the February 28 deadline for submitting such requests, the Market Seller may utilize the temporary exception process and seek to modify that exception pursuant to the process described below.

*Modification of Temporary Exceptions*. If, prior to the scheduled termination date the Market Seller determines that the temporary exception must persist for more than 30 days and the Market Seller wants to extend the period for which the exception applies, or if a Market Seller is unaware of the need for a period or persistent exception prior to the February 28 deadline for submitting such requests and the Market Seller has submitted a temporary exception request, it must submit to the Market Monitoring Unit and the Office of the Interconnection a written request to modify the temporary exception to become a period exception or a persistent exception, and provide detailed documentation explaining the reasons for the requested modification of the temporary exception. Market Sellers shall supply for each generating unit the required historical unit operating data in support of the period or persistent exception request, and if the exception requested is based on new physical operating limits for the unit for which some or all historical operating data is unavailable, the Market Seller may also submit technical information about the physical operational limits of the unit to support the requested parameters. Such Market Seller shall respond to additional requests for information from the Market Monitoring Unit and the Office of the Interconnection within three Business Days after such request. Such request shall be reviewed by the Market Monitoring Unit and must be evaluated by the Office of the Interconnection using the same standard utilized to evaluate period exception and persistent exception requests. Per Tariff, Attachment M-Appendix, section II.B, the Market Monitoring Unit shall evaluate the modification request and provide its determination of whether the request raises market power concerns, and, if so, any modifications that would alleviate those concerns, to the Market Seller, with a copy to Office of the Interconnection, by no later than 15 Business Days from the date of the modification request. The Office of the Interconnection shall provide its determination whether the request complies with the Tariff and Manuals by no later than 20 Business Days from the date of the modification request. A temporary exception shall be extended and shall not terminate until the date on which the Office of the Interconnection issues its determination of the modification request.

(ii) *Period Exceptions and Persistent Exceptions*. Market Sellers must submit period exception and persistent exception requests to the Market Monitoring Unit and the Office of the Interconnection by no later than the February 28 immediately preceding the twelve month period from June 1 to May 31 during which the exception is requested to commence. Market Sellers shall supply for each generating unit the required historical unit operating data in support of the period exception or persistent exception request, and if the exception requested is based on new physical operational limits for the unit for which some or all historical operating data is unavailable, the generating unit may also submit technical information about the physical operational limits for exceptions of the unit to support the requested parameters. The Market Monitoring Unit shall evaluate such request in accordance with the process set forth in Tariff, Attachment M-Appendix, section II.B. A Market Seller (i) must submit a parameter limited schedule value consistent with an agreement with the Market Monitoring Unit under such process or (ii) if it has not agreed with the Market Monitoring Unit on the parameter limited schedule value, may submit its own value to the Office of the Interconnection and to the Market Monitoring Unit, by no later than April 8. Each exception request must indicate the expected duration of the requested exception including the termination date thereof. The proposed parameter limited schedule value submitted by the Market Seller is subject to approval of the Office of the Interconnection pursuant to the requirements of the Tariff and the PJM Manuals. The Office of the Interconnection may engage the services of a consultant with technical expertise to evaluate the exception request. After it has completed its evaluation of the exception request, the Office of the Interconnection shall notify the Market Seller in writing, with a copy to the Market Monitoring Unit, whether the exception request is approved or denied, by no later than April 15. The effective date of the exception, if approved by the Office of the Interconnection, shall be no earlier than June 1 of the applicable Delivery Year. The Office of the Interconnection's determination for an exception shall continue for the period requested and, if requested, for such longer period as the Office of the Interconnection may determine is supported by the data. The Market Seller shall provide written notification to the Market Monitoring Unit and the Office of the Interconnection of a material change to the facts relied upon by the Market Monitoring Unit and/or the Office of the Interconnection in their evaluations of the Market Seller's request for a period or persistent exception.

The Market Monitoring Unit shall provide written notification to the Office of the Interconnection and the Market Seller of any change to its determination regarding the exception request, based on the material change in facts, by no later than 15 Business Days after receipt of such notice. The Office of the Interconnection shall notify the Market Seller in writing, with a copy to the Market Monitoring Unit, of any change to its determination regarding the exception request, based on the material change in facts, by no later than 20 Business Days after receipt of the Market Seller's notice. If the Office of the Interconnection determines that the exception no longer complies with the Tariff or Manuals, the following parameter values shall apply to all megawatts of the generating unit offered into the PJM energy markets:

(1) for generating units for which no megawatts of the unit are commited as Capacity Performance Resources the default values specified in the Parameter Limited Schedule Matrix shall apply for the 2016/2017 through 2017/2018 Delivery years,

(2) for generating units for which any megawatts of the unit are committed as a Base Capacity Resource and no megawatts are committed as a Capacity Performance Resource, and for which no adjusted unit-specific values have been approved by PJM, the Base Capacity Resource unit-specific values determined by PJM shall apply for the 2018/2019 and 2019/2020 Delivery Years,

(3) for generating units for which any megawatts of the unit are committed as a Capacity Performance Resource, but for which no adjusted unit-specific values have been approved by PJM, the Capacity Performance Resource unit-specific values determined by PJM shall apply for the 2016/2017 Delivery Year and subsequent Delivery Years,

(4) for generating units for which any megawatts of the unit are committed as a Base Capacity Resource and no megawatts are committed as a Capacity Performance Resource, and for which adjusted unit-specific values have been approved by PJM, the Base Capacity Resource adjusted unit-specific values shall apply for the 2018/2019 and 2019/2020 Delivery Years, and

(5) for generating units for which any megawatts of the unit are committed as a Capacity Performance Resource and for which adjusted unit-specific values have been approved by PJM, the Capacity Performance Resource adjusted unit-specific values shall apply for the 2016/2017 Delivery Year and subsequent Delivery Years.

(i) Notwithstanding the foregoing, the provisions of this section 6.6 shall only pertain to the Offer Data a Market Seller must submit to the Office of the Interconnection for its offers into the Day-ahead Energy Market, rebidding period that occurs after the clearing of the Dayahead Energy Market and Real-time Energy Market, and do not affect or change in any way a Generation Owner's obligation under NERC Reliability Standards to notify the Office of the Interconnection of its actual or expected actual physical operating conditions during the Operating Day.

(k) Notwithstanding anything contrary herein, the unit-specific parameters, adjusted unitspecific parameters or exception to parameter limited schedule values determined by the Office of the Interconnection for a generating unit shall be applicable to that generating unit regardless whether there is a change in the owner, operator or Market Seller of the unit because the parameter limited schedule values for the unit are determined based on the physical limitations of the unit, which should not change merely based on a change in owners, operator or Market Seller. Because parameter limited schedule values attach to the generating unit and are not owned by a Market Seller of the unit, when there are multiple owners or Market Sellers for a generating unit, all owners and Market Sellers shall be bound by the unit-specific parameters, adjusted unit-specific parameters or exception to parameter limited schedule values determined by the Office of the Interconnection for the unit.

(l) The provisions of this section 6.6 only apply to Generation Capacity Resources, and not to Energy Resources.

**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 15th day of September 2021.

*/s/ Chenchao Lu*