BEFORE THE FEDERAL ENERGY
REGULATORY COMMISSION

PJM Interconnection, L.L.C.) Docket Nos. ER16-372-000

MOTION FOR LEAVE TO ANSWER AND ANSWER OF THE PENNSYLVANIA PUBLIC UTILITY COMMISSION IN SUPPORT OF PROTEST OF THE INDEPENDENT MARKET MONITOR

Pursuant to Rules 212 and 213 of the Commission's Rules of Practice and Procedure, 18 C.F. R. §§ 385.212, 385.213, the Pennsylvania Public Utility Commission (PAPUC) submits its Motion for Leave to Answer and Answer in Support of the Protest filed by the Independent Market Monitor (IMM) to a filing by PJM Interconnection, L.L.C. (PJM) on November 20, 2015 pursuant to Section 206 of the Federal Power Act (FPA), 16 U.S.C.§ 824e, proposing revisions to the PJM Open Access Transmission Tariff (Tariff) and the Amended and Restated Operating Agreement (Operating Agreement).[1]

I. MOTION FOR LEAVE TO ANSWER

The Commission's procedural rules do not provide for answers to comments as a matter of right. However, the Commission regularly allows answers where the answer provides further explanation or otherwise helps ensure a full and complete record. *See*, *e.g.*, *PJM Interconnection, L.L.C.*, 104 FERC ¶ 61,154, at P 14 (2003), on reh'g, 109 FERC ¶ 61,236 (2004); *Williams Energy Mktg. & Trading Co. v. Southern Co. Servs.*,

[1] *Re: PJM Interconnection, L.L.C.*, Docket No. ER16-372 (filed November 20, 2015).

Inc., 104 FERC ¶ 61,141, at P 10 (2003); *Ameren Services Co*., 100 FERC ¶ 61,135, at P 15 (2002), on reh'g, 103 FERC ¶ 61,178.

The PAPUC files this Answer in Support of the Protest filed by the IMM on December 14, 2015 based on concerns raised by the IMM that implementation of PJM's proposed generator offer flexibility (GOF) tariff may, under certain circumstances, lead to the potential for exercise of aggregate market power during periods of tight fuel supply. The PAPUC initially reviewed PJM' s November 20 filing and participated in both PJM presentations and Organization of PJM States, Inc. (OPSI) discussions examining the filing. However, the full implications of the GOF filing did not become clear until a preliminary IMM analysis coupled with IMM's detailed Protest filed December 11, 2015 illustrated the potential for exercise of aggregate market power by Market Sellers during extreme weather events that may result in unanticipated increases in fuel prices.

II. SUMMARY OF PAPUC ANSWER

The PAPUC supports PJM's filing as an imperfect attempt to respond to FERC's directive in its Order on Complaint in the Duke Energy Corporation (Duke) proceeding issued June 9, 2015 that directed PJM to propose tariff changes that allow market participants to submit Day-Ahead offers that vary by hour and to update their offers in Real-Time.[2] The PAPUC further supports the revised tariff provisions that allow Market

[2] *See Duke Energy Corporation et al v. PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,206 (2015) at 38 ("Initial Order").

Sellers to timely update their offers when weather conditions or other factors result in fuel cost increases that cannot be anticipated. PJM's proposal is also responsive to similar mechanisms in place in the tariffs of other regional transmission organizations and independent system operators. However, the PAPUC, as the agency responsible for balancing the interests of generation suppliers, electric distribution companies and retail customers throughout the Commonwealth, is concerned that PJM's proposal, if approved as submitted, may have the unintended consequence of increasing the aggregate market power of Market Sellers during periods of tight fuel supply. Accordingly, the PAPUC supports the limited and reasonable proposed changes suggested by the IMM as detailed later in this Answer.

III. PJM'S PROPOSAL

A. Introduction and Procedural Background

PJM's filing is submitted pursuant to FPA Section 206 of the FPA, 16 U.S.C. § 824e, and a July 10, 2015 PJM Report that PJM submitted in this proceeding.[3] PJM indicates that its filing is also responsive to a prior Commission Order rejecting a May 5, 2014 Complaint of Duke related to recovery of certain gas costs incurred during the polar vortex event of 2013-2014. In that Order, the Commission initiated a proceeding under Section 206 of the FPA and required PJM "either to (1) report whether it will propose tariff changes that (a) allow market participants to submit Day-Ahead offers that vary by

[3] *See* Report of PJM Interconnection, L.L.C., Docket No. EL15-73-000 (July 10, 2015) ("July 10 Report").

hour and to update their offers in Real-Time, including during emergency situations; and (b) make any associated modifications to its market power mitigation rules. Further, such report must include a proposed timeline from PJM explaining how it will implement such changes by November 1, 2015, or as soon as practicable thereafter; or explain why such changes are not necessary."[4] PJM states that its filing is intended to address the Commission's directives to allow generators to better reflect actual costs in their offers within the Operating Day while also ensuring that appropriate changes to PJM's market power mitigation rules are made. PJM states that the revisions to its Tariff and the Operating Agreement effectuate PJM's proposal to allow Market Sellers to submit Day-Ahead offers that vary by hour and to allow Market Sellers to update their offers in Real-Time on an hourly basis (referred to collectively herein as "hourly offers") under certain circumstances.[5]

B. PJM's Current Practice For Evaluating Generator Offers

Critical to an understanding of PJM's proposal is the significance of cost-based offers and market-based offers. Cost-based offers are based on short-run marginal costs of an applicable generation resource and such costs are calculated by the Market-Seller of the generation resource in accordance with PJM's Cost Development Guidelines (CDL) contained in PJM Manual 15. Cost-based offers are used in place of market-based offers when market power mitigation screens are triggered.[6]

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[4] Initial Order at 39.
[5] PJM Interconnection at 2.
[6] *Id*. at 4-5.

Market-based offers are submitted by a Market-Seller based on its assessment of costs, operating risks, market forces or other factors that may contribute to its expectation of market conditions and may be higher or lower than its cost-based offer. Market-based and cost-based offers need not be related. When a Market-Seller submits cost-based and market-based offers for its resources, such resources are subject to offer capping (or mitigation) to the lower of the cost-based offer or market-based offer if the Market-Seller fails the test imposed by PJM for local market power, the three pivotal supplier test (TPS).[7] Market-based offers cannot exceed the overall energy offer caps specified in PJM's Operating Agreement for different types of services, such as the $1,000/MWh offer cap for energy. The primary reason for the offer cap is to limit market-based offers and the potential exercise of local market power by Market Sellers.[8]

PJM notes that, under current tariff provisions, resources that are committed (or scheduled by the PJM Office of Interconnection) in the Day-Ahead Energy Market cannot change their offers during the rebidding period, while resources that were not committed in the Day-Ahead Energy Market may change offers during the rebidding period.[9]

[7] Cost based offers are also used if resources are committed for reliability reasons (black start and reactive support) or if resources are committed in advance of the day-ahead market for conservative operations.
[8] *Id.* at 5-6.
[9] After the close of the rebidding period, no further changes may be made to offers submitted by a Market Seller. Offers submitted into the Day-Ahead Energy Market and during the rebidding period consists of three parts: a startup offer, a no load offer and an incremental energy offer. Each component of this offer may be either cost-based or market-based. Any offer accepted during the Day-Ahead Energy Market or the rebidding period is carried forward into the Real-Time Energy Market and fixed for every hour of the Operating Day. These rules were recently revised in the Gas Unit Commitment Coordination (GUCC) process. If a resource is not committed in the Day-Ahead market or the Reliability Assessment Commitment (RAC) run, it may choose to be committed on cost-based offers only in the Real-Time

C. Summary Of PJM's Tariff Filing

PJM's tariff proposal consists of the following elements: (1) allow Market Sellers to submit market-based and cost-based offers for resources into the Day-Ahead Energy Market that vary by price and quantity on an hourly basis; (2) allow Market Sellers to update such offers after the close of the Day-Ahead Energy Market, up to 60 minutes before the clock hour during the Operating Day in which the resource is scheduled to operate under certain conditions; and (3) prevent Market Sellers from submitting market-based offers that are higher than their market-based offers in effect at the time of commitment. PJM summarizes its proposal (for its Energy and some Ancillary Services Markets) as follows in Figure 1: [10]

Figure 1

Market	Current Offer Flexibility	Proposed Offer Flexibility
Energy	Daily	Hourly
Economic Load Response	Daily	Hourly
Synchronized Reserves	Daily	Hourly
Non-Synchronized Reserves	Daily	Daily
Regulation	Daily	Hourly
Day-Ahead Scheduling Reserves	Daily	Daily

market, and make a different cost-based offer available for use up to three hours prior to the operating hour.

[10] *Id.* at 9.

PJM provides detail on how Market Sellers can change cost-based and market-based offers in Figure 2:[11]

Figure 2

Applicable Timeframe	Cost-based Offers	Market-Based Offers
For Day-ahead Energy Market	Hourly differentiated	Hourly differentiated
After Day-ahead Energy Market	Hourly differentiated; can increase or decrease during committed and uncommitted hours.	Hourly differentiated; can increase or decrease during uncommitted hours; can only decrease during committed hours

PJM's proposal may be summarized as follows:

- Market Sellers may vary their offers hourly when submitting offers into the Day-Ahead energy market. Market Sellers will be able to precisely account for predicted changes in market conditions and costs that may be experienced within the following Operating Day. The ability to update offers after the close of the Day-Ahead energy market provides Market Sellers with the ability to account for unexpected changes that occur closer to the Operating Day.

- PJM attempts to address concerns over the exercise of market power by prohibiting Market Sellers from increasing their market-based offers for the applicable clock hour relative to any market-based offer in effect at the time the resource was committed. PJM claims that, to not impose this limitation, would allow the Market Seller to leverage knowledge of Real-Time market conditions and increase the offer price in Real-Time thus extracting additional profit from the market without pricing the resource out of the market.[12]

- Under PJM's proposal, if a Market Seller's resource is not committed, the Market Seller may submit updated market-based offers at levels higher than what it previously submitted but such offers will be subject to the Three-Pivotal Supplier (TPS) Test when a transmission constraint creates a smaller market and such offers may be mitigated to a lower cost offer.

[11] *Id.* at 9-10.

[12] PJM is concerned that, if the resource is marginal in Real-Time and sets the Real-Time LMP, it would raise the clearing price for the entire market. If the resource's offer is not marginal, it may still have the impact of elevating the clearing price for the entire market when megawatts from the resource with an increased offer need to be replaced by different resources on the system.

- PJM's proposal allows Market Sellers of committed resources to increase cost-based offers as long as such updates are consistent with the Cost Development Guidelines. Market Sellers may decrease their market-based and cost-based offers for hours for which resources were previously committed because such behavior does not present the potential for exercise of market power.

- PJM contends that its proposal for hourly offers allows more flexibility and is consistent with procedures in effect in other RTOs.[13]

- The scope of PJM's proposal encompasses four major tariff revisions:

  (i) Market Sellers may submit offers for energy, ancillary services and/or load reductions prior to the applicable Operating Day and such offers may vary hourly;[14]

  (ii) Marker Sellers may submit updates to previously submitted offers any time after the close of the Day-Ahead energy market for a clock-hour for which the Market Seller makes its resource available to the PJM Office of Interconnection for an Operating Day up to 60 minutes before the applicable clock hour during the Operating Day;[15]

  (iii) PJM proposes changes to how the Market Seller's resources will be offer-capped pursuant to the TPS Test;[16]

  (iv) PJM proposes other miscellaneous changes to reactive power compensation, lost opportunity credit and Operating Reserve payment provisions.[17]

[13] PJM Interconnection at 10-13.
[14] Changes are proposed to Operating Schedule 1, Section 1.10.1A, 1.10.9B
[15] *Id.*
[16] Proposed revisions to Operating Agreement, Schedule 1, Section 6.4.1
[17] Proposed revisions to Operating Agreement, Schedule 1, Section 1.3; Sections 3.2.3.

IV. ANSWER

A. The PAPUC Agrees With The IMM That PJM's Proposal May Create Additional Opportunities For The Exercise Of Aggregate Market Power By Market Sellers

While the PAPUC appreciates PJM's attempt to address the Commission's direction in response to the Duke Complaint, the filing, as submitted, should not be approved without modification. The IMM raises valid concerns about the potential for exercise of aggregate market power should PJM's tariff revisions be adopted as proposed.[18] Under the PJM proposal, PJM would permit units to have different Day-Ahead offers by hour for any reason. PJM's proposal would also permit the markup on fuel to change hourly in setting a market-based price.[19]

PJM currently has rules governing local market power. When a transmission constraint creates a smaller market, PJM utilizes the TPS test to determine whether there is structural market power. Units owned by any owner that fail the TPS test are capped at the lower of cost or market-based offers.

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[18] *See* Protest of the Independent Market Monitor in ER16-372 (filed December 14, 2015).

[19] Offers in the energy market consist of two basic elements: short run marginal costs and markup. Short-run marginal costs include the cost of fuel, emissions and a small amount of variable operating and maintenance expense. Markup exists when units offer at more than the short-run marginal cost. All units in the PJM energy market may make both a cost- based and a market- based offer. The cost-based offer includes only short run marginal cost while the market based offer may include markup without limit. PJM dispatches units on their market-based offer unless the units are subject to offer capping to mitigate market power in which case the units are dispatched on the lower of their market based or cost based offers. The current rules permit units to use a single cost-based offer for the day and a single market-based offer for the day. Units may have multiple cost-based schedules, but only one of them may be active while units may have two-market-based schedules, one of which must be market-based parameter limited schedule (PLS) for use by PJM during a Maximum Generation Emergency. Units are required to submit offers prior to the close of the Day-Ahead market. If the units are committed in the Day-Ahead market, the offers may not be changed. If the units are not committed in the Day-Ahead market, the offers may be changed during the rebid period following the close of the Day-Ahead market.

The IMM's Protest points out that PJM's proposal is a major modification to how market power mitigation is applied resulting from hourly offers. Currently, there is no tariff provision to modify an offer that a unit is committed on unless the unit is de-committed and committed again. The local market power mitigation rules cannot prevent the exercise of aggregate market power. Aggregate market power exists when a generation owner or a group of two or three generation owners can increase the market price above the competitive level. Aggregate market power exists when the overall energy market is tight with high demand relative to available supply such as recent hot weather events in September 2014 and the polar vortex event of the 2013/2014 winter and February 2015. The IMM has also raised concerns about aggregate market power in the most recent Quarterly State of the Market Report as follows:

> Aggregate market power exists when generation owners have the ability to raise market prices above competitive levels in the absence of transmission constraints, for example when demand is very high and market conditions are tight. A direct and effective substitute for the current market power mitigation rule limiting units to one offer per day would be to limit any hourly offer changes during the day to changes in the cost of fuel. The failure to maintain limits on aggregate market power will lead to the exercise of market power and the associated negative impacts on the competitiveness of PJM markets. The overall energy market results support the conclusion that energy prices in PJM are set, generally, by marginal units offering at, or close to, their short run marginal costs, although this was not always the case during the high demand hours in February 2015 and January 2014. This is evidence of generally competitive behavior, although the behavior of some participants during the high demand periods in 2014 and 2015 raises concerns about economic withholding.[20]

[20] 2015Quarterly State of the Market Report of PJM, January - September, 2015: Section 1, page 1. http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2015/2015q3-som-pjm.pdf.

The IMM highlights in his Protest, just as he noted above, that some Market Sellers did take advantage of tight market conditions to exercise aggregate market power where the current market lacks the TPS market power mitigation mechanism protections.[21]

The PAPUC shares the IMM's concerns that PJM does not currently have a comparable rule to address aggregate market power. As explained by the IMM, under PJM's proposal, a Market Seller could increase the markup from $10 per MWh to $500 per MWh in the middle of an Operating Day without any actual change in costs to operate the unit. If the unit owner increased the markup in order to increase market prices and the unit's output was needed to meet demand, the Market Seller could exercise aggregate market power and would set the price at a level greater than the competitive level. PJM's proposed tariff revisions make such anti-competitive behavior much easier and less risky for Market Sellers.

PJM even acknowledges these valid concerns regarding the exercise of market power in intra-day markets by existing units committed in the Day-Ahead market. As noted by PJM, "the Market Seller could then leverage knowledge of Real-Time market conditions and increase its offer price for a given resource in Real-Time to a level that aims to extract additional profit from the market without pricing the resource out of the market."[22] PJM therefore proposes to prohibit Market Sellers with previously committed resources from increasing their market-based offers relative to any market-based offer in

[21] IMM Protest at 6-7.
[22] PJM Interconnection at 11.

effect at the time their resource was committed. PJM fails to explain why resources *not committed* in the Day-Ahead market cannot similarly extract additional profit from the intra-day market.

PJM's proposed tariff modifications, if left unchanged, will further enhance incentives for Market Sellers to exercise aggregate market power in energy markets by removing the existing discipline in current Day-Ahead bidding. Currently, if generators bid too high in the Day-Ahead market, they might not be scheduled for the entire Operating Day. With intraday bidding, generators can raise their markup during periods of tight supply to test their ability to raise prices in the aggregate market, knowing full well that if they bid too high, they can lower their bid in later hours of the intra-day market and be selected for later periods of the Operating Day.

B. The PAPUC Recommends Adoption Of PJM's Tariff With The Modifications Recommended By The IMM

FERC noted the importance of bid flexibility so that generators can reflect changes in costs in Real-Time bids in its Order in *Duke Energy*:[23]

> Further, our review of the record established through the Commission's recent technical conferences on price formation in organized energy and ancillary services markets demonstrates the importance of supply offer flexibility in Day-Ahead and Real-Time energy markets. <u>In light of the potential for significant changes in costs between the time for submitting offers in the day-ahead market and real-time operation, ensuring market participants greater flexibility to structure and modify their offers in such markets will allow resources in PJM to better reflect their actual costs in their offers. Such flexibility will also support proper price formation and efficient real-time dispatch.</u> Moreover, as commenters and panelists

[23] Initial Order at 35-36.

> from the price-formation proceeding have noted, the ability to submit day-ahead offers that vary by hour and to update offers in real-time is especially critical in markets with demands for more flexible and responsive generation resources. (Citations omitted) (Emphasis added).

However, neither the IMM nor the PAPUC interpret FERC's language as necessitating tariff changes to bidding activity not related to costs. These issues could be addressed in either a later FERC proceeding or another PJM stakeholder proceeding.

The IMM, in his Protest, has proposed some minor modifications to the PJM proposal that would eliminate aggregate market power concerns. The PAPUC supports adoption of these recommendations as follows:

- The IMM proposal would permit units to have different offers by hour in the Day-Ahead market and in the Real-Time market only if those offers are based on differences in the cost of fuel. Gas costs do not change hourly; gas costs change with nomination periods. An approved fuel cost policy is critical to enforcing this rule. The fuel cost policy would be required to include an algorithmic, verifiable and consistent approach to calculating the cost of gas to ensure that offer changes are driven by changes in cost rather than attempts to exercise market power.

- The IMM proposal would permit units to have different Day-Ahead offers by hour if based on different fuel costs by hour. The IMM proposal would permit units to have different Real-Time offers by hour, if based on different fuel costs by hour. This means that both the cost-based and the market-based offers could change, but only by the change in fuel costs. The offers would shift in parallel. The markup could not change.[24]

- The IMM proposal would allow certain operating parameters for resources to vary hourly to reflect changes in physical conditions that may vary hourly. Changes in operating parameters that reflect resource characteristics that do not typically change hourly would not be permitted to change.[25]

[24] IMM Protest at 33.
[25] *Id.*

- The IMM proposal would prevent generators from utilizing different economic minimum MW levels, different minimum run times and notification times on cost-based and market-based offers to avoid mitigation. The IMM proposal would require cost-based and market-based offers for the same fuel to have the same MW levels, a constant markup over the entire duration of the offer, matching cost-based and market-based offers and the same offer parameters for both cost and market-based offers.[26]

- The IMM has proposed several modifications to treatment of cost components and operating parameters for Real-Time updates that parallel his recommendations for Day-Ahead Offers.[27]

- The IMM proposes continued reliance on current market uplift rules such that Market Sellers cleared and produced MWh in the Day-Ahead Energy Market are not compensated more or less than the offer used to commit the resource.[28]

In short, the IMM's suggested modifications to PJM's proposal will eliminate a serious aggregate market power issue that could undermine confidence in the function of the energy markets and lead to unintended price volatility in the retail markets.

Beyond the IMM's suggestions, the PAPUC proposes another means of addressing market power concerns during period of tight supply. The PAPUC proposes that the TPS test should be applied when a generation company increases their bids during all hours of intra-day bidding or alternatively, require such intraday bids to be at or below cost-based bids. The PAPUC contends that either of these alternatives (or the IMM's proposal) would provide adequate flexibility for Market Sellers to adjust their bids to reflect changing short-run marginal costs while protecting load interests from

[26] *Id.* at 34.
[27] *Id.* at 35-36.
[28] *Id.* at 37.

potential Day-Ahead excess markup (and consequent higher uplift costs) during periods of tight supply.

V. CONCLUSION

For all the foregoing reasons, the Pennsylvania Public Utility Commission respectfully requests that its Answer in this proceeding be considered by FERC in its deliberations on PJM's Tariff filing at this docket.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I am on this date serving a copy of the foregoing document upon each person designated on the official service list compiled by the Federal Energy Regulatory Commission in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure.

Dated at Harrisburg, PA this 23rd day of December 2015.

Respectfully submitted,

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