

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

PJM Interconnection, L.L.C.	)	Docket Nos. EL15-73-000 &
	)	ER16-372-000
	)	
	)	

**ANSWER AND MOTION FOR LEAVE TO ANSWER  
OF THE INDEPENDENT MARKET MONITOR FOR PJM**

Pursuant to Rule 213 of the Commission’s Rules and Regulations, Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM (“Market Monitor”), submits this answer to the answer submitted by PJM Interconnection, L.L.C. (“PJM”) on January 8, 2016.<sup>1 2</sup>

This proceeding concerns PJM’s compliance filing submitted November 20, 2015 (“November 20<sup>th</sup> Proposal”), in response to the Commission’s directive that PJM file “tariff changes that (a) allow market participants to submit day-ahead offers that vary by 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.”<sup>3</sup> The Market Monitor explained in its protest (“IMM Protest”) that it opposed the November 20<sup>th</sup> Proposal because it is likely to create significant aggregate and local market power and market manipulation opportunities and that it adds substantial and unnecessary complexity to the

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<sup>1</sup> 18 CFR § 385.213 (2015).

<sup>2</sup> Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff (“OATT”) or the PJM Operating Agreement (“OA”).

<sup>3</sup> *PJM Interconnection, L.L.C., et al.*, 151 FERC ¶ 61,206, ordering para. (D) (June 9, 2015) (“June 9<sup>th</sup> Order”).

tariff rules and leaves critical elements of the rules addressing market power and uplift payments vague and incomplete.<sup>4</sup> The Market Monitor proposed an alternative approach that satisfies the directive in the June 9<sup>th</sup> Order and protects the markets (“IMM Proposal”).

PJM’s responses to the IMM Protest do not alleviate the concerns raised. The answers do not substantively address the identified implications of the November 20<sup>th</sup> Proposal and create confusion about the merits of the IMM Proposal. The Market Monitor submits this answer to clarify the record and to encourage a result consistent with competitive markets.

## I. ANSWER

### **A. The IMM Proposal Is the Only Proposal that Complies with the June 9<sup>th</sup> Order and Can Be Relied Upon to Ensure Just and Reasonable Rates in PJM Markets.**

PJM asserts (at 5) that “the IMM’s alternative proposal goes beyond addressing rules needed to efficiently and prudently implement hourly offers in PJM, and instead proposes sweeping reforms to PJM’s existing market rules, particularly related to market power mitigation.” The IMM Proposal does exactly what the Commission’s directive intended: it allows for offer flexibility to account for real-time changes in fuel costs, and it does so without exposing the markets to the potential exercise of market power. It is the November 20<sup>th</sup> Proposal that overreaches. PJM could have adopted a measured proposal but instead chose to propose radical changes to the market rules. The November 20<sup>th</sup> Proposal fails to protect the markets; if it is not rejected it will create a new mechanism for the unmitigated exercise of market power.

The Commission is not limited to considering the November 20<sup>th</sup> Proposal in this proceeding. Because the November 20<sup>th</sup> Proposal is filed in order to comply with the directive in the June 9<sup>th</sup> Order, PJM does not have authorization from its Members to take

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<sup>4</sup> Protest of the Independent Market Monitor for PJM, Docket Nos. EL15-73-000 & ER16-372-000 (December 14, 2015) at 1.

actions exceeding or conflicting with what is necessary to achieve compliance.<sup>5</sup> Consequently, no aspect of PJM's November 20<sup>th</sup> Proposal comes under section 205 of the Federal Power Act and receives the deference accorded to public utility filings. PJM must meet the burden to show that the November 20<sup>th</sup> Proposal is just and reasonable. PJM has not met that burden. Because this is a compliance filing, PJM must show that every element of the November 20<sup>th</sup> Proposal falls within the scope of compliance.<sup>6,7</sup> PJM has not met that burden. As the IMM Protest explains (at 9–30), the November 20<sup>th</sup> Proposal includes elements that exceed the scope of the directive and elements that ignore the Commission's direction that protections against the exercise of market power be preserved.<sup>8</sup> The November 20<sup>th</sup> Proposal is deficient. The IMM Proposal is the only approach that complies with the scope of the Commission's directive and the only approach that can be relied upon to ensure just and reasonable rates in the PJM markets.

The Commission has determined that the existing rules may be unjust and unreasonable and PJM declined to defend them.<sup>9</sup> Even if PJM had filed a minimally acceptable proposal, the Commission is not bound, as it would be in a Section 205 proceeding, to accept an inferior proposal from PJM over better alternatives. Under the circumstances of this compliance proceeding, the Commission has an opportunity to approve the best approach based solely on merit.

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<sup>5</sup> PJM Operating Agreement §§ 8.4, 18.6.

<sup>6</sup> See 16 U.S.C. § 824d; see also, e.g., *New York Independent System Operator, Inc.*, 117 FERC ¶61,266 at P 22 (2006) (“[T]he Commission rejects the claim that it shifted the burden of proof to EPIC when it found that “EPIC has not made a convincing case” that NYISO's compliance filings were inadequate... The burden of proof in this proceeding was on NYISO.”).

<sup>7</sup> See, e.g., *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331 (2006).

<sup>8</sup> June 9<sup>th</sup> Order at ordering paragraph (D).

<sup>9</sup> June 9<sup>th</sup> Order at P 69; PJM at 3.

## **B. The IMM Proposal is Fully Consistent with the PJM Market Design.**

PJM both asserts that implementation of its own approach to hourly offers will be “one of the most in depth and complicated technical undertakings in PJM’s recent history,” (Keech at 3) and that the IMM Proposal would “significantly change existing aspects of PJM’s current market rules” (PJM at 4).

Implementation of hourly offers will change the PJM markets significantly whether it is PJM’s approach or the Market Monitor’s approach. The goal should be to make the fewest changes possible to the fundamentals of PJM markets while permitting hourly offer changes. PJM’s approach fails that test.

PJM goes further when it asserts (at 2) that the Market Monitor “introduces an entirely new market design.” Such hyperbole is ironic given that PJM’s approach is inconsistent with fundamental PJM market design principles and would represent a significant break with the established approach to market power mitigation. Despite PJM’s disclaimers, the November 20<sup>th</sup> Proposal would dramatically increase the ability of generation owners to exercise market power.

The IMM Proposal is a limited approach to implementing the changes required by the June 9<sup>th</sup> Order fully consistent with PJM’s current rules governing offers and PJM’s current market power mitigation rules.

### **1. Red Herrings**

PJM repeatedly states (at 2) that the IMM Proposal is not in place in any other market in the nation. PJM asserts that the central feature of the IMM Proposal, limiting offer increases to cost increases, is not currently present in any aspect of PJM’s market design. PJM overlooks its recently approved filing to increase the energy market offer cap from

\$1,000 per MWh to \$2,000 per MWh, which is explicitly limited to increases in verified fuel costs and explicitly linked to fuel costs, exactly the same concept proposed in this matter.<sup>10</sup>

PJM repeatedly states that numerous PJM stakeholders support PJM, including those with load interests, citing the vertically integrated Dominion as a stakeholder with a significant load interest.

PJM asserts (at 5) that the IMM Proposal cannot be easily implemented and (at 6) that implementing the IMM Proposal would be far more complicated than the November 20<sup>th</sup> Proposal. But PJM does not and cannot support this claim. PJM further asserts (at 5–6) that only its approach will permit implementation prior to the winter of 2016/2017 and that the Commission must act by February 3, or perhaps March 3 in order to achieve this goal. PJM does not state the exact date on which implementation would have to occur in 2016. The only basis for this brinksmanship is PJM’s reports of its conversations with its software vendor. No mention is made of what it would take to implement the IMM Proposal or whether the vendor could expedite the process if required by FERC’s timing. As the Market Monitor describes in detail, PJM’s claim that the IMM Proposal is more complex and therefore harder to implement compared to PJM’s is incorrect.

Even if it were correct, the alleged speed of implementing the significantly flawed November 20<sup>th</sup> Proposal is hardly a legitimate basis for approval. The goal is to get the rules right, meaning in compliance with the Commission’s order and with well functioning competitive markets, and then to implement the rules as quickly as practicable.

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<sup>10</sup> See recently revised OA Schedule 1 § 1.10.1A(d), which requires that offers: “[s]hall not exceed an energy offer price of \$1,000/megawatt-hour for all generation resources, except (1) when a Market Seller’s cost-based offer is above \$1,000/megawatt-hour and less than or equal to \$2,000/megawatt-hour, then its market-based offer must be less than or equal to the cost-based offer; and (2) when a Market Seller’s cost-based offer is greater than \$2,000/megawatt-hour, then its market-based offer must be less than or equal to \$2,000/megawatt-hour,” *PJM Interconnection, L.L.C.*, 153 FERC ¶ 61,289 at PP 11. 55 (2015) (“[T]he potential for high natural gas prices remains a risk, especially during the upcoming winter, and PJM’s filing addresses this potential risk while protecting consumers by requiring that costs above the price cap be verified.”).

PJM's repeated assertions that the Commission should ignore the Market Monitor's points in this proceeding and that the Market Monitor should raise the issues separately in new, yet to be established stakeholder processes are an inappropriate attempt to avoid the real issues in this matter. PJM organized a purely informational stakeholder process on hourly offer flexibility, in which the Market Monitor engaged and in which the Market Monitor raised these issues. PJM's filing was not bound by that stakeholder process or future processes, and neither is the Market Monitor's filing. The Market Monitor's filing is fully responsive to the Commission's Order.

## **2. The IMM Proposal is Within the Scope of the Current Proceeding.**

PJM defends the excessive scope of the changes it proposes arguing (at 16) that "[f]uel cost changes are simply mentioned as an example for allowing changes to hourly offers." The problem defined by the Commission entirely concerns fuel costs and nothing else. There has been no assertion that any other element of offers changes on an hourly basis or is volatile enough to require hourly changes. The Commission did not indicate that it expected PJM to allow hourly changes to markup, which the November 20<sup>th</sup> Proposal would allow. A markup by definition is discretionary and does not require showing changes in costs. Markup is not within the scope of the concerns identified in the June 9<sup>th</sup> Order. There is no justification for allowing hourly changes in markup, and allowing such changes invites the exercise of market power.

PJM asserts that the direction in the June 9<sup>th</sup> Order to "allow market participants to submit day-ahead offers that vary by hour and to update their offers in real time and . . . make any associated modifications to its market power mitigation rules," necessarily means a direction to change the rules for market-based offers because "there would be no reason

to review market power mitigation rules if only cost-based offers were able to be updated in real-time.”<sup>11</sup>

PJM misses the point. The current rule limiting units to one offer per day is a market power mitigation measure. Elimination of this strong market power mitigation rule requires a review in order to ensure that market power mitigation measures are not weakened. Limiting hourly offer increases to increases in fuel costs is a market power mitigation measure that retains the results of the prior rule while permitting hourly changes in offers to reflect changes in market conditions. The IMM Proposal results from the prescribed review of market power mitigation rules exactly as the Commission requires.

If, as PJM asserts (at 18), limiting changes in hourly offers to changes in cost is “counter to the very concept of market-based offers,” then PJM cannot explain why it did not propose to permit hourly changes in markup in 1997, when market rules were proposed, or at any point in the almost 17 years of PJM market operation.

The effect of the current rule limiting units to one offer per day is clearly to limit the exercise of market power. That PJM may have failed to explain the purpose for the rule when it was filed is interesting but irrelevant. The rule does limit the exercise of market power in PJM markets, has served this purpose for nearly 17 years, yet PJM proposes to remove it without providing any alternative protection.

The IMM Proposal does allow changes to market-based offers to reflect changes in fuel costs. The IMM Proposal allows hourly offers in day ahead and hourly updates in real time to both cost-based and market-based offers justified by changes in costs, but prevents the exercise of market power by not allowing changes in markup.

PJM argues that the Commission has rejected the same arguments from the Market Monitor in a prior order approving a temporary increase to the \$1,000 system offer cap.<sup>12</sup>

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<sup>11</sup> PJM at 17, citing June 9<sup>th</sup> Order at P 73.

<sup>12</sup> See *PJM Interconnection, L.L.C.*, 150 FERC ¶ 61,020 (2015).

PJM's reliance on that order is misplaced. PJM cites specifically to the Commission's rejection of the IMM Proposal to limit applicability to natural gas as opposed to other fuel types.<sup>13</sup> The IMM Proposal in this case applies to all fuels, not just natural gas. Accordingly, the IMM Proposal is consistent with Commission precedent.

The proper scope of this proceeding is how to ensure that hourly changes in fuel costs are reflected in offers and in market prices to ensure the competitive functioning of the market. The November 20<sup>th</sup> Proposal' permitting hourly changes in markups, with inadequate band-aids to address market power, is out of scope. More importantly the November 20<sup>th</sup> Proposal would create the unmitigated ability to exercise market power which is inconsistent with a competitive market design. The November 20<sup>th</sup> Proposal should be rejected.

### **3. The IMM Proposal Results in Just and Reasonable Rates.**

Contrary to PJM's argument (at 18), the IMM Proposal results in just and reasonable rates. It is the November 20<sup>th</sup> Proposal that lacks clarity in its proposed rules and it is the November 20<sup>th</sup> Proposal that would weaken protections against the exercise of both aggregate and local market power and the resultant non-competitive outcomes, and consequently result in unjust and unreasonable rates.<sup>14</sup>

### **4. The IMM Proposal Maintains Incentives for Competitive Behavior**

PJM's assertion (Keech affidavit at 8) that limitations on markup and requiring the same MW points in both cost-based and market-based offers would significantly infringe

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<sup>13</sup> See *id.* at P 39 (“[W]e find reasonable and consistent with Commission precedent the proposal to allow any cost-based offer up to \$1,800/MWh to be eligible to set the LMP, regardless of resource fuel type. While the Commission recognizes that natural gas is the fuel most likely to cause LMPs to exceed \$1,000/MWh, we find that restricting the proposal to natural gas costs alone would be unduly preferential to those sellers whose electricity is from natural gas-fired generation. The aim of PJM's proposal is to allow generators – *regardless of fuel type* – to recover their marginal costs if they exceed the existing \$1,000/MWh offer cap” [emphasis added].).

<sup>14</sup> See IMM Protest at 17.

on a market seller's ability to competitively transact in PJM's markets, and degrade the market efficiency of PJM's markets, is unsupported, illogical and incorrect.<sup>15</sup> A simple rule to ensure that same MW points are used in the cost-based and market-based offers simplifies the comparison between market-based and cost-based offers, makes the outcome of that comparison consistent throughout the output of a resource and prevents gaming designed to exercise market power. There is no competition enhancing reason that a generator needs the ability to have different MW points on the cost and price-based offer curves. There is no good reason whatsoever that a generator needs the ability to have different MW points on the cost and price-based offer curves. The IMM Proposal maintains the incentives for competitive behavior while ensuring that generators cannot exercise market power by avoiding mitigation using strategically constructed offers or operating parameters.

#### **5. Comparison to Other ISOs/RTOs Is Irrelevant.**

Experience with restructured electricity markets since their inception, especially as it relates to the exercise of market power, has demonstrated that explicit market rules are needed to prevent bad outcomes. The directive in the June 9<sup>th</sup> Order does not require PJM's market design to be identical to the design of other ISO/RTOs. Each ISO/RTO has an energy/capacity/ancillary services market design that has evolved to address loopholes and align incentives to result in competitive market outcomes.

In this case, the Commission pointed to a very specific provision in the PJM market related to hourly offer flexibility and found that it may be unjust and unreasonable. The

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<sup>15</sup> In other ISOs and RTOs that use reference price-based market power mitigation, the Market Monitoring Units calculate reference prices for generation resources using the same MW points as specified in the market sellers' offers to permit consistent comparisons of the market-based offers against the reference prices. *See* ISO New England Market Rule 1 Appendix A Section III.A.7.2.1 Order of Reference Level Calculation ("The Internal Market Monitor will calculate a Reference Level for each offer block of a Supply Offer...")

rule for fixed daily offers is not unjust and unreasonable because it is different from other ISOs/RTOs. It is unjust and unreasonable because it does not allow generators to accurately reflect the marginal cost of producing energy on an hourly basis and does not permit the PJM market price to reflect hourly changes in input costs.

The IMM Proposal is internally consistent, addresses all the issues identified by the Commission and no more, and does so in a logical manner.

**6. The IMM Proposal Is Less Complex than PJM's and Includes No Greater Technical Hurdles.**

The IMM Proposal is less complex than the November 20<sup>th</sup> Proposal and the IMM Proposal retains fundamental market principles that the November 20<sup>th</sup> Proposal jettisons. PJM's assertions regarding the technical hurdles and complexity in implementation of the IMM Proposal (at 6, 19) are incorrect. The assertions of complexity from PJM are also surprising both given the complexity of PJM's markets and given PJM's statement that "complexity alone does not make rules unjust and unreasonable."<sup>16</sup>

As Adam Keech points out (Keech at 3), the software updates to the market clearing engines (IT SCED, RT SCED and day-ahead market tools) will handle hourly offers, whether the rules adopted are from the November 20<sup>th</sup> Proposal or the IMM Proposal. These engines use inputs from generators, load, the transmission system, and virtual bids and offers to produce the market results. Similarly, the Dispatch Management Tool (DMT) and the Market Operator Interfaces (MOI) will also handle hourly offers and offer updates submitted by generators whether the rules adopted are from the November 20<sup>th</sup> Proposal or the IMM Proposal. Hourly offers from generators and other market participants are identical regardless of whether they comply with the Market Monitor's proposed rules limiting markups and parameters or with the November 20<sup>th</sup> Proposal.

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<sup>16</sup> See PJM at 26.

The offer rules proposed by the Market Monitor actually simplify the settlements calculations performed by the Market Settlements Calculation System (MSCS) compared to PJM's proposed rules. This is because the IMM Proposal allows continuity in uplift calculations without making inconsistent determinations of which offer is lower or higher between a Committed Offer and a Final Offer. The November 20<sup>th</sup> Proposal uses the higher of the Committed Offer and the Final Offer in some uplift calculations and the lower of the Committed Offer and the Final Offer in others. PJM apparently makes this recommendation in order to reduce uplift payments. But uplift rules must be consistent with the goal of uplift payments which is to ensure that resources are not required to operate for PJM at a loss and to ensure that incentives are not skewed. The IMM Proposal (at 37) is to use the Committed Offer which meets the goal of uplift payments and retains the incentives to reflect actual costs in hourly offers.

PJM's assertion (Keech at 6) that under the IMM Proposal, allowing multiple market-based offers would, while not technically complex, impact all of the systems that produce or consume offer data, incorrectly describes the IMM Proposal and is therefore irrelevant.

A resource would only have multiple market-based offers if it is a dual fuel unit, which is only a subset of generation resources in PJM. Even in the case of a dual fuel unit, the resource will pick the fuel on which it is available to generate energy, which ensures that the applicable offers (cost-based and market-based) for that fuel will apply at any given time. The IMM Proposal explicitly addresses the way dual fuel resources now have the ability to avoid market power mitigation by making cost-based offers available on the more expensive fuel.

The IMM Proposal does not require multiple offers. Unit owners have the responsibility to make the least cost fuel available in both price-based and cost-based offers. If a resource misrepresents the availability of a cheaper fuel, it is subject to ex-post review by the market monitor.

Both the November 20<sup>th</sup> Proposal and the IMM Proposal will require an update to eMKT (or Markets Gateway), the customer facing web based user interface, to handle hourly offers in the day-ahead market and offer updates in real time.

PJM's assertions (Keech at 7) about the difficulty of implementing the IMM Proposal appear to be based entirely on the unfounded and incorrect assumption that the PJM eMKT tool would be used as an ex ante screen for offers that do not comply with the proposed rules. The current market rules related to acceptable offers do not require ex ante screening. It is part of the Market Monitor's function to check offers for compliance with the rules on an ex post basis. PJM systems do not include an ex ante offer review now and would not include an ex ante review under the IMM Proposal.<sup>17</sup> As a result, PJM's assertions about additional complexity and requiring additional design, development and testing time are incorrect.

PJM's claim (Keech at 8) that the IMM Proposal would lead to different offer capping decisions hourly in the day-ahead market are also unfounded and unsupported. If the rules on generator offers as proposed by the Market Monitor are adopted, there is no possibility that the cheaper offer determination will change from hour to hour or at different output (MW) levels in a resource's offer in the day-ahead market. If a resource fails the TPS test for any hour of its commitment in the day-ahead market, it should be mitigated to the lower of the cost-based or market-based offer based on the total cost of commitment, as PJM claims it currently does.<sup>18</sup>

In contrast, the November 20<sup>th</sup> Proposal allows resources to avoid mitigation by arbitrarily making the determination of the cheaper offer difficult using variable markup and operating parameters. The Market Monitor's proposed rules will make this

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<sup>17</sup> If the Commission decides that an ex ante review is appropriate, it would apply equally to the November 20<sup>th</sup> Proposal and the IMM Proposal.

<sup>18</sup> See PJM at 31.

determination easy and consistent irrespective of the level of the offers in any given hour and the output of the resource in any given hour. The IMM Proposal will ensure that resources whose owners fail the TPS test are offer capped consistently and resources whose owners pass the TPS test are not offer capped.

PJM's assertion that the IMM Proposal is difficult to implement technically compared to the November 20<sup>th</sup> Proposal is incorrect.

### **C. Aggregate Market Power Is a Real Concern.**

PJM states (at 10) that "PJM only acknowledged the potential exercise of aggregate market power in its Compliance Filing [footnote deleted] and has not independently observed any behavior from Market Participants suggesting that aggregate market power has actually been exerted in PJM." PJM does not assert that PJM looked for evidence of aggregate market power and could not find it. Regardless of why PJM did not independently observe any behavior from market participants exercising market power, the Market Monitor has repeatedly brought forward concerns in the PJM stakeholder process and presented evidence in the State of the Market Reports.<sup>19</sup>

Even if aggregate market power had never been exercised, it is clear that PJM's proposal to permit units to change markups by hour will provide a convenient mechanism to exercise market power in the future. It would be logical to recognize and address that possible outcome of the November 20<sup>th</sup> Proposal. It would be illogical to explicitly fail to recognize this potential outcome.

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<sup>19</sup> As reported in the *PJM Interconnection State of the Market Report 1999*, P 7-8, which can be accessed at [http://www.monitoringanalytics.com/reports/PJM\\_State\\_of\\_the\\_Market/1999/state-of-the-market-report-1999.pdf](http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/1999/state-of-the-market-report-1999.pdf), as well as in all subsequent State of the Market Reports for PJM. State of the Market Reports for PJM can be accessed at [http://www.monitoringanalytics.com/reports/PJM\\_State\\_of\\_the\\_Market/2015.shtml](http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2015.shtml). See also 2014 *Quarterly State of the Market Report for PJM: January through March*, Section 3 (Energy Market) at 131 and 2014 *State of the Market Report for PJM, Volume II Section 3 (Energy Market)* at 136.

**1. The Daily Offer Rule Does Limit the Exercise of Market Power and the New Market Design Must Include an Effective Substitute.**

PJM argues (at 7) that there is no evidence to support the Market Monitor’s assertion that the daily offer rule was designed to limit the potential exercise of aggregate market power. PJM’s argument is a red herring intended to distract the discussion from the well understood, actual impact of the rule and should be rejected. It is well understood by market participants and by the Market Monitor that daily offers provide a strong incentive for competitive behavior. The Market Monitor has been clear on the importance of the rule for many years, including this point in standard market monitoring presentations. The IMM Protest explained how the daily offer rule provides an incentive for competitive offers from resources.<sup>20</sup> If a unit can change its offer hourly, the unit has the ability to increase its markup and its offer over marginal cost when demand is high and it has market power and thus the ability to exercise market power by increasing the market price above the competitive level. If the unit has to make a single offer for the day, it has a strong incentive to make a competitive offer to ensure that it will run. PJM offers no arguments to counter the logical economic rationale described by the Market Monitor.

**2. The Controls Proposed by PJM Are Not Sufficient.**

PJM asserts (at 8) that there are specific controls to address aggregate market power in the November 20<sup>th</sup> Proposal: (i) the aggregate offer cap (PJM at 8–9); (ii) shortage pricing reserve penalty factors during reserve shortage conditions (PJM at 12); (iii) competitive market dynamics during tight conditions but without reserve shortage (PJM at 12–13); (iv) the proposal to not allow committed resources to offer a higher market-based offer for the applicable hours (PJM at 10–11); and (v) the Commission’s market-based rate authority program (PJM at 9).

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<sup>20</sup> See IMM Protest at 6.

While the Market Monitor agrees that the aggregate offer cap places an extreme upper bound to limit the exercise of aggregate market power, the ability to make any offer limited only by the \$1,000 per MWh cap does not meaningfully address market power.<sup>21</sup> For units with marginal costs of \$100 per MWh, this approach would permit a markup of \$900 per MWh; for units with marginal costs of \$200 per MWh, this approach would permit a markup of \$800 per MWh... This approach and these outcomes are not consistent with any rational definition of competition or competitive outcomes.

The shortage pricing reserve penalty factors are similar constructs that place extreme upper bounds on the value of reserves and thus, energy prices when the system is short of reserves. Scarcity pricing is intended to result in high prices during periods of scarcity in order to eliminate the need to rely on market power for high prices during scarcity. Contrary to PJM, this is another reason to limit the ability to exercise market power clearly and explicitly.

PJM's claim that when sellers have aggregate market power, competitive forces are the solution, is logically impossible. When there is aggregate market power, competitive forces cannot solve the problem. That is the point. When there is aggregate market power, sellers have the ability to set the market price above the competitive level because competitive forces are not adequate.

PJM states that during tight market conditions, without shortage, "competitive market dynamics will influence the behaviors of Market Sellers so that they will not increase their offers ..." (PJM at 12). PJM states further: "Thus, competition will dissuade Market Sellers that potentially have the ability to exert aggregate Market Power from submitting non-competitive offers because if a Market Seller submits such an offer, it will be at a greater risk of not being dispatched by PJM." PJM is missing the fundamental fact that the existence of aggregate market power means that there are no competitive options.

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<sup>21</sup> See IMM Protest at 6.

When there is aggregate market power, sellers have the ability to set the market price above the competitive level because PJM has no competitive offers to dispatch. PJM appears to want to assume competition where there is none.

The November 20<sup>th</sup> Proposal does not allow committed resources to increase hourly markups for the committed hours. This is a positive step to address aggregate market power, but it is not enough. This rule does not prevent resources from offering high hourly markups for high demand hours and low markups for other hours when offers are submitted in the day-ahead market. The units would then not have to further increase hourly markups in order to exercise market power if the units were committed with the high markups. If the units were not committed as a result of the high markups, the November 20<sup>th</sup> Proposal does not impose any limits on increasing hourly markups in order to exercise market power. The November 20<sup>th</sup> Proposal lets generators tailor their offers to exercise market power more selectively during high demand periods while eliminating the risk of not being committed during low demand periods.

The Commission's orders conferring market-based rate authority are not a substitute for strong and effective market power mitigation rules in PJM's tariff. The Commission's grants of market-based rates to companies in PJM rely on the market power mitigation rules in the PJM tariff.

Applicants for market-based rates authorization rely on participation in an RTO, its transparent markets, and its mitigation rules, to avoid having to make a full horizontal market power analysis if they fail the indicative screens.<sup>22</sup> The Commission has even considered waiving the requirement for RTO participants to submit indicative screens.<sup>23</sup>

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<sup>22</sup> See, e.g., *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 697, FERC Stats. & Regs. ¶ 31,252 (2007), *clarified*, 121 FERC ¶ 61,260 (2007), *order on reh'g and clarification*, Order No. 697-A, FERC Stats. & Regs. ¶ 31,268 at P 11, *clarified*, 124 FERC ¶ 61,055, *order on reh'g and clarification*, Order No. 697-B, FERC Stats. & Regs. ¶ 31,285 (2008), *order on reh'g and clarification*, Order No. 697-C, FERC Stats. & Regs. ¶ 31,291 (2009), *order on*

For example, when a major independent power producer recently failed the indicative screens in PJM, the Commission did not require a full horizontal market power analysis, explaining:

The Commission stated in Order No. 697 that with respect to market concentration within regional transmission organization (RTO) or independent system operator (ISO) markets, it will consider any Commission-approved market monitoring and mitigation regime already in place within the RTO/ISO that provides for mitigation of the market.[footnote omitted] In Order No. 697-A, the Commission adopted a rebuttable presumption that existing Commission-approved RTO/ISO market monitoring and mitigation is sufficient to address market power concerns.<sup>1</sup> We find that the PJM market monitoring and mitigation are sufficient to address market power concerns in the PJM market. [footnote omitted].<sup>24</sup>

PJM's reliance on the Commission's market-based rates review is circular. The Commission's grant of market-based rate authority is based on the market power mitigation rules in place in PJM. Therefore, market-based rate authority cannot logically be the basis for weakening market power mitigation rules in PJM.

### 3. The Evidence on Aggregate Market Power

PJM claims (at 6, 7) that "the IMM's concerns and arguments related to aggregate market power...are entirely speculative and not supported by empirical evidence." As the Market Monitor explains, PJM's claims demonstrate an unwillingness to accept the

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*reh'g and clarification*, Order No. 697-D, FERC Stats. & Regs. ¶ 31,305 (2010), *order on clarification*, 131 FERC ¶ 61,021, *reh'g denied*, 134 FERC ¶ 61,046 (2010), *reh'g denied*, 143 FERC ¶ 61,126 (2013).

<sup>23</sup> See 18 CFR Part 35 *Refinements to Policies and Procedures for Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, 153 FERC ¶ 61,065 at PP 27–28 (2015).

<sup>24</sup> *NRG Power Marketing, LLC, et al.*, 150 FERC ¶ 61,011 at P 9 (2015).

presence and the exercise of aggregate market power despite the evidence presented by the Market Monitor in the State of the Market Reports.<sup>25</sup>

The Market Monitor has stated and presented evidence in the State of the Market Reports that certain coal fired power plants whose costs did not change with the extreme weather conditions experienced in the winters of 2014 and 2015 engaged in economic withholding by increasing markups in anticipation of high demand days on which they were likely to be dispatched.

Figure 1 shows the distribution of the coal unit offer price index in January 2014. The offer price index is the ratio of a unit's offer at its economic minimum on the specified day to its offer at its economic minimum on January 1, 2014. For example, if a unit offered its economic minimum output at \$50 per MWh on January 1, and offered its economic minimum output at \$100 per MWh on January 7, the unit's offer price index for January 7 is calculated as 2.0. For example, on January 8, 2014, which was a very high demand day following a very high demand day on January 7, 2014, among committed coal units, 10 percent had increased their offers to 2.3 times the offer level on January 1, 2014 and five percent had increased their offers to 3.0 times the offer level on January 1, 2014. Higher values occur on days of very high demand. Variation in fuel costs does not explain the increase in coal unit offers. This behavior is consistent with the attempted exercise of aggregate market power.

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<sup>25</sup> See 2014 State of the Market Report for PJM, Volume II Section 3 (Energy Market) at 135-136.

**Figure 1 Distribution of Offer Prices, Coal Units: January 2014**

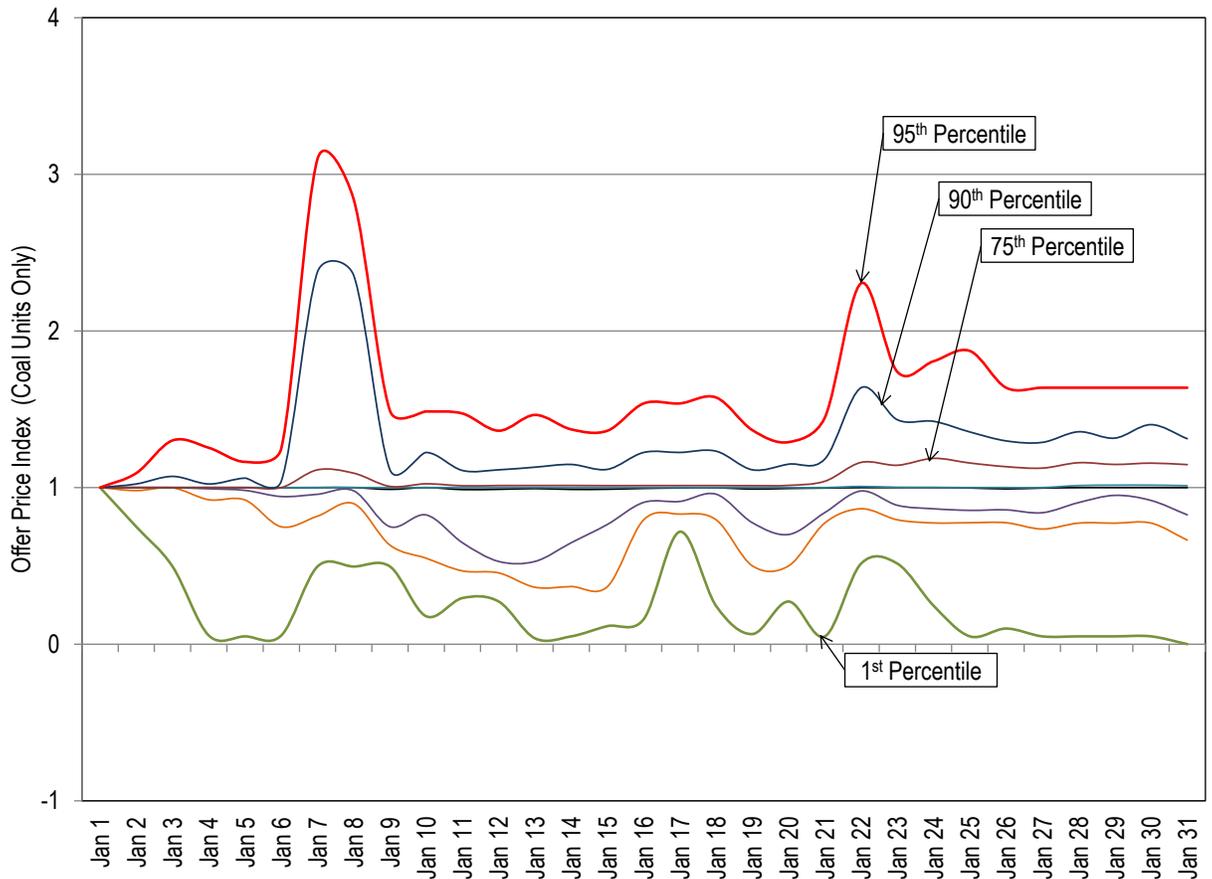
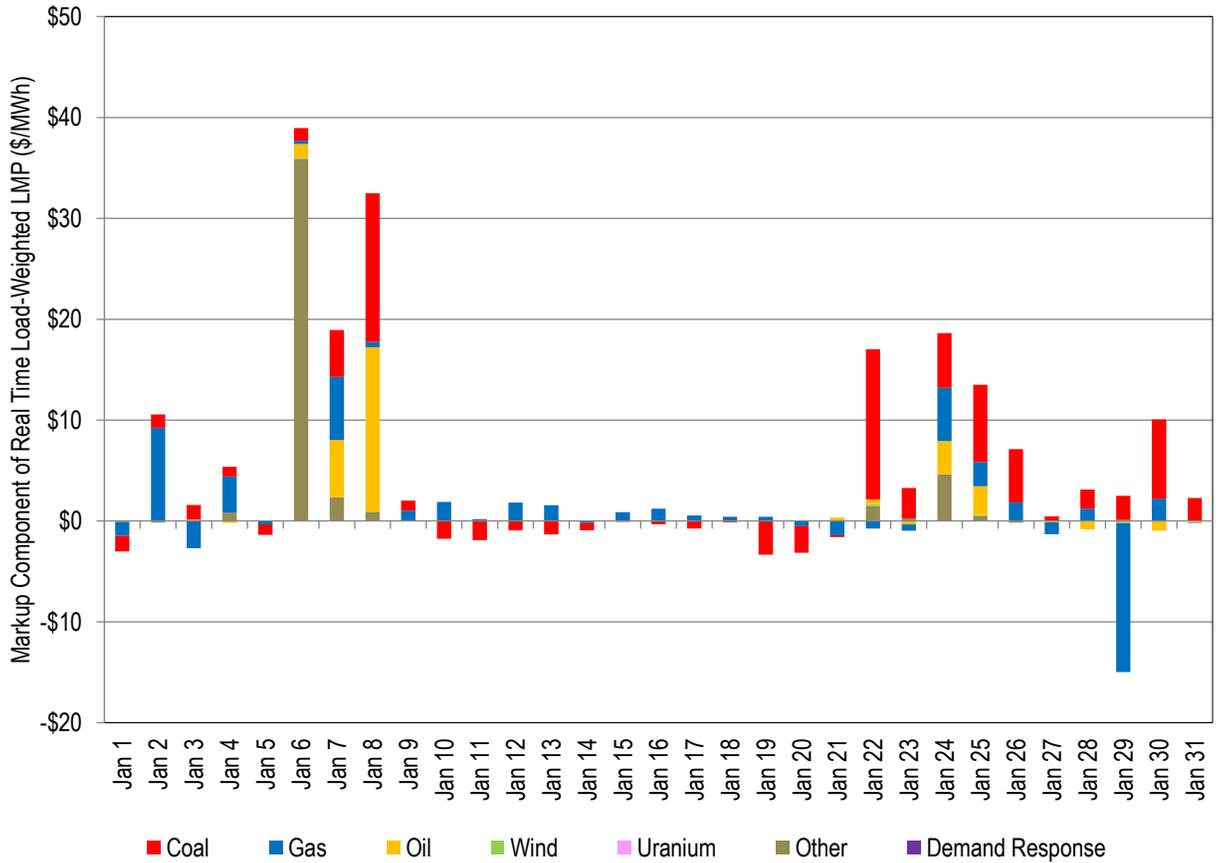


Figure 2 shows the markup component of PJM average daily real-time load-weighted LMP by fuel type in January 2014. On many of the high demand days, coal units accounted for a substantial proportion of the markup component of PJM LMP. For example, on January 8, markup resulted in a \$46 per MWh addition or 32 percent of the day's load-weighted LMP, of which coal units' markup accounted for \$31 per MWh or 21.8 percent of the day's load-weighted LMP.

**Figure 2 Daily Markup Contribution to the Real-time Load-weighted LMP by Fuel Type: January 2014**



The evidence presented is not new. This specific information was published in the 2014 Quarterly State of the Market Report in May 2014, and subsequently in the 2014 State of the Market Report for PJM in March 2015.<sup>26</sup> The Market Monitor has raised these concerns since 1999. PJM’s claims that the Market Monitor’s concerns are speculative and not supported by empirical evidence are incorrect. It is important to note that this behavior was with the daily fixed offer rule in place, with the aggregate offer cap at \$1,000/MWh, and shortage pricing in place. With the hourly offer rules, it will be easier to offer

<sup>26</sup> See 2014 Quarterly State of the Market Report for PJM: January through March, Section 3 (Energy Market) at 131-134; 2014 State of the Market Report for PJM, Volume II Section 3 (Energy Market) at 135-136.

competitively during low demand periods during an operating day and offer non-competitively during periods of high demand during the same day. None of PJM's proposals address this issue.

#### **D. PJM Confuses TPS Test Mechanics with Mitigation Mechanism.**

PJM's response (at 13) misstates how the local market power mitigation process actually works. In both the Day-Ahead and Real-Time Energy Markets, the process of local market power mitigation consists of two stages: testing for market power (TPS test) and application of market power mitigation for resources that fail the test. The TPS test only calculates a numerical score for each market seller that indicates whether the market seller passed or failed a structural market power test based on the inputs provided (generator offers and transmission facility limits). The TPS test is not the market power mitigation. It is the second step that is the actual mitigation action.

The problems with local market power mitigation that the IMM Protest points out are in the second step. The Market Monitor does not propose to change the way the TPS test is calculated. Contrary to PJM's assertion that "the IMM does not describe in any detail how the November 20<sup>th</sup> Proposal will weaken the TPS Test," the Market Monitor presented detailed examples of how resources that fail the TPS test can avoid mitigation as a result of hourly offers (the second step) by carefully constructing offers that circumvent the mitigation action. The IMM Proposal addresses the second step of local market power mitigation, i.e., mitigating the resources whose owners failed the TPS test for local market power. The IMM Proposal ensures that resources cannot strategically use varying markup and operating parameters to avoid mitigation with hourly offers after the resource owners have been deemed to have local market power by the TPS test.

PJM claims (at 19):

"Furthermore, if PJM were to require a constant markup across a resource's entire offer curve, it would remove the ability for Market Sellers to offer a zero or negative markup on one portion of their offer curve, but a higher markup on another portion of it. This practice may be used by a Market Seller today to minimize its

commitment cost in order to maximize the chance of being committed in the Day-ahead Energy Market. This practice lowers the overall costs of the Market Seller's offer, thus limiting uplift costs that Market Participants may otherwise pay, and allows the Market Seller to accept some of the risk of its commitment costs."

The behavior that PJM describes is exactly the kind of behavior that lets generators avoid market power mitigation by appearing to be cheaper at the economic minimum level in order to maximize the chance of being committed, but offering positive markup at higher output levels after being committed on the market-based offer. Contrary to PJM's assertion that it allows market sellers to accept the risk of its commitment costs, it allows market sellers to safely exercise market power without facing the risk of not being committed even after the market seller fails the TPS test for local market power. If a market seller wants to maximize the chance of being committed while also maximizing profits, the optimal behavior is to make a competitive offer, an offer at the short run marginal cost of producing energy. PJM's example is consistent with generators' exercise of market power, and generators' ability to avoid market power mitigation. It is unclear why PJM believes that this is competitive behavior or why it is an acceptable circumvention of the consequences of failing the TPS test.

PJM's position that the proper way to address the "shortcomings of the TPS test" is to have another stakeholder process outside of this proceeding is not consistent with the directive in the June 9<sup>th</sup> Order.<sup>27</sup> Holding aside the fact that the issues raised by the Market Monitor are with mitigation actions, and not the TPS test calculation itself, the Commission explicitly ordered PJM to make any associated modifications to the market power mitigation rules. PJM's attempt to avoid addressing the issues with the market power mitigation rules should be rejected.

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<sup>27</sup> See PJM at 15.

## **1. PJM's Description of Day-Ahead TPS Implementation Clearly Shows Its Shortcomings.**

In response to the Market Monitor's comments about the lack of clarity on how resource offers will be selected and mitigation will be applied in the Day-Ahead Energy Market, PJM states that it is not proposing to change the formulation of the TPS test and thus no further clarifications are needed.<sup>28</sup> It is impossible for the Commission to evaluate the impact of hourly offers on the application of the TPS test in the day-ahead market without that clarification. PJM's response, or lack of response, reinforces the concerns raised in the IMM Protest and provides proof of how the November 20<sup>th</sup> Proposal leads to unjust and unreasonable rates.<sup>29</sup> The Market Monitor provided specific scenarios and examples of how resources can use varying markups and operating parameters to appear to be more economic on the price-based schedule than on the cost-based schedule and consequently avoid mitigation. The Market Monitor does not propose to change the formulation of the TPS test. The Market Monitor showed how resources that fail the TPS test can still exercise market power by avoiding the mitigation actions and proposed rules to ensure that resources that do fail the TPS test cannot avoid the mitigation actions.

PJM argues (at 30) that there is no additional clarification needed regarding offer capping resources in the Day-Ahead Energy Market under the November 20<sup>th</sup> Proposal because the current rules describe the current process and this practice will be carried forward. The current rules do not describe the process of offer capping resources in the Day-Ahead Energy Market; what PJM refers to as current rules are PJM's internal practices but PJM does not describe these practices or provide a document defining these practices. It is not reasonable for PJM to fail to describe and document its rules in detail given the substantial impact these rules have on the markets.

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<sup>28</sup> See PJM at 30-31.

<sup>29</sup> See IMM Protest at 20 -21.

PJM's response that "resources are scheduled on a single offer that is determined on the basis of the resource's overall operating cost for the entire commitment period, and consequently this practice will be carried forward under PJM's proposal" is a cause for concern. Even if that approach were adequate when only one offer per day was permitted, it is not adequate in a regime where hourly offers vary. A clear explanation by PJM is required. For example, in a scenario where a resource is needed to relieve a constraint, and the resource owner fails the TPS test for market power for that particular constraint, the PJM tariff specifies that the resource be offer capped.<sup>30</sup> If the resource offers a positive markup during certain hours and a negative markup during other hours in the day ahead market (as is allowed under the November 20<sup>th</sup> Proposal), using PJM's current practice, the price schedule might have the lower overall operating cost for the entire commitment period and the resource will be committed on the price schedule. During this commitment, for the hours when the resource has a positive markup, the November 20<sup>th</sup> Proposal allows the resource to set prices above the competitive level and to exercise local market power.

PJM's refusal to address local market power that arises due to hourly offers in the Day-Ahead Energy Market in the November 20<sup>th</sup> Proposal is not consistent with the directive in the June 9<sup>th</sup> order. The IMM Proposal, which provides for a constant markup and use of price-based PLS schedules for mitigation when the markup is negative, ensures that when a resource owner fails the TPS test, the schedule with lower overall operating cost will also ensure that prices remain competitive (and thus, local market power mitigated) throughout the commitment period. The IMM Proposal addresses local market power mitigation consistent with the Commission's direction to make any associated modifications to its market power mitigation rules.

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<sup>30</sup> See OATT Attachment K Appendix Sec 6.4 Offer Price Caps

### **E. Parameters Do Affect Rates Significantly.**

PJM's assertion (at 23) that "Contrary to the IMM's and others' assertions, updating offer parameters do not significantly affect Market Participants' rates, terms and conditions" is incorrect. A market seller of a generation resource offers operating parameters as part of the energy market offer, and any subsequent change to these parameters has a direct and significant impact on rates since these are used to dispatch, commit or decommit resources. In the IMM Protest, the Market Monitor presented detailed examples showing how generation resources can exercise market power by extracting uplift payments using operating parameters.<sup>31</sup> PJM's assertion that using parameters to exercise market power and increase uplift payments do not significantly affect rates is contradicted by the actual uplift experience of PJM, especially during recent winters, and by the intense interest of PJM stakeholders as reflected in the extensive discussions in the PJM stakeholder process on these topics.

As seen in the Capacity Performance proceeding, and the subsequent requests for clarification and rehearing, operating parameters are a major input to how generation resources are committed, dispatched and made whole in the PJM energy and ancillary services markets. PJM recently filed a request for action by the Commission describing its concerns about the effect of operating parameters on energy market behavior by generation resources under the Capacity Performance construct.<sup>32</sup> In fact, as of the date of this filing, there are six different topics related to operating parameters that are being evaluated in the PJM stakeholder process, two of them in special sessions.<sup>33</sup> If PJM and its stakeholders

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<sup>31</sup> See IMM Protest at 20.

<sup>32</sup> See PJM, Informational Filing and Alternative Request for Action concerning PJM's Capacity Performance Proposal, Docket Nos. ER15-623-000, et al., and EL15-29-000, et al (December 22, 2015).

<sup>33</sup> See PJM, "Stakeholder venues addressing operating parameters," presented at the Special Session of the Markets Implementation Committee - Operating Parameter Definitions (January 19, 2016),

believed that operating parameters do not significantly affect rates, there would not be as much time and effort spent to address the issues associated with them in FERC proceedings as well as in the PJM stakeholder process.

Operating parameters affect prices and energy uplift payments. High energy uplift payments in the 2013, 2014 and 2015 winters were primarily caused by resources with high energy offers running continuously because of their operating parameters.<sup>34</sup> PJM has also recognized inflexible resources as part of the cause of high energy uplift payments.<sup>35 36</sup>

PJM's attempt to avoid Commission review of rules on operating parameter updates should be rejected as inconsistent with the Commission direction to make any associated modifications to its market power mitigation rules.

#### **F. Other Incorrect or Flawed Arguments in the November 20<sup>th</sup> Proposal**

PJM cited (at 25) additional arguments made by the Market Monitor that PJM argues should be rejected. These issues cover several aspects of the November 20<sup>th</sup> Proposal but they are related mainly to Committed Offer, Final Offer, and energy uplift.

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which can be accessed at: <<http://www.pjm.com/~media/committees-groups/committees/mic/20160119-special/20160119-item-02-unit-parameters-values-stakeholder-venues.ashx>>.

<sup>34</sup> See 2013 *State of the Market Report for PJM*, Section 4 (Energy Uplift); 2014 *State of the Market Report for PJM*, Section 4 (Energy Uplift).

<sup>35</sup> See PJM, "Example Analysis Into High BOR Rate Days," (slide 23) presented at the Energy Market Uplift Senior Task Force (August 20, 2013), which can be accessed at <<http://www.pjm.com/~media/committees-groups/task-forces/emustf/20130820/20130820-example-bor-analysis.ashx>>.

<sup>36</sup> See PJM, "Review of High Balancing and Operating Reserve (BOR)," (slide 4) presented at the Energy Market Uplift Senior Task Force (September 17, 2013), which can be accessed at <<http://www.pjm.com/~media/committees-groups/task-forces/emustf/20130917/20130917-item-02d-high-bor-review.ashx>>.

## 1. Energy Uplift Payments Complexity

PJM argues (at 25) that energy uplift payments complexity alone does not make rules unjust and unreasonable. The Market Monitor's concern is not the complexity of the rules as they were written but rather the issues that may arise during the proposed rules' actual implementation primarily due to the ambiguity of the proposed rules. The implementation of PJM's current energy uplift rules is routinely defined only in PJM Manuals that do not need the Commission's approval and are, in addition, subject to PJM's interpretation. It is important that the rules be as clear and explicit as possible in order to prevent Manual or unwritten interpretations of the proposed rules from being unjust and unreasonable. The proposed rules require clarification.

PJM argues (at 26) that their proposed uplift rules provide appropriate market power mitigation measures. The market power mitigation provision of the November 20<sup>th</sup> Proposal is that PJM will always use the lower of the Committed Offer and the Final Offer when paying Operating Reserve credits. This proposal addresses only a very limited set of market power issues. It is certainly not a comprehensive market power mitigation strategy. It does not address direct impacts on competitive prices.

As one example, the November 20<sup>th</sup> Proposal does not contain rules that prevent increasing Operating Reserve credits by using markups differentiated by hour in the Day-Ahead Energy Market.

As another example, PJM has proposed to use the lower of the Committed Offer and the Final Offer in the Operating Reserve credits calculation but has not clarified how it will determine the lower of these two offers when no load and startup costs differ between them.

It is also impossible to determine if PJM's uplift related market power mitigation measures are enough to achieve even their limited objective because PJM has not explained how PJM would treat changes to operating parameters and how those updates will be used in the calculation of energy uplift payments. Operating parameters, like offers, can be used

to exercise market power. For example, an increase in a resource's minimum run time may increase the Operating Reserve credits paid to a resource if the resource is still considered to be committed by PJM.

## **2. Markup Limitations**

PJM argues (at 26) that the November 20<sup>th</sup> Proposal has sufficient limitations on markups because once a resource is committed it will not be able to increase its price-based offer and because resources cannot increase offers above the energy offer cap. PJM argues (at 26) that these are significant limitations on when and how resource owners can update their markups under the November 20<sup>th</sup> Proposal.

PJM apparently considers it a significant limitation on the exercise of market power to permit uncommitted resources to increase their markups by up to \$1,000 per MWh over their cost-based offers. This is clearly not a significant limitation because as pointed out in the IMM Protest (at 8) it allows resource owners to exercise market power. PJM's definition of sufficient limitations would permit the exercise of market power. That is not a sufficient limitation. PJM's approach would be a radical change to the definition of market power in PJM and would permit the exercise of market power.

PJM claims (at 18) that the IMM Proposal to restrict markup over cost-based offers to a single value throughout a resource's offer curve and for every hour of the operating day "is counter to the very concept of market-based offers because it does not allow Market Sellers to formulate an offer that reflects changing market conditions and perceived risks that may be present throughout the Operating Day."

PJM is missing the entire point that allowing hourly offers is to reflect in offers changes in fuel costs, i.e. changing market conditions, which directly reduces risk to generators and allows generators to reflect the remaining uncertainty associated with expected fuel costs in offers. PJM is also missing the point that competitive offers are at short run marginal costs. That is how competitive generators actually behave in the PJM market. Vague assertions about increasing markup to reflect market conditions and

perceived risk are only that. PJM has offered no rationale or basis for such increased markup. In fact, markup is a direct measure of market power. As made clear in the IMM Protest, having a single markup for the day permits all the market advantages of hourly offers while retaining the essential market power mitigation function of the one offer per day rule. The rationale for hourly offers is that fuel costs change hourly and not that markup needs to change hourly.

In the IMM Proposal, market sellers have the ability to lower both the cost-based and market-based offers in real time to avoid gas balancing charges. Actual unit marginal costs plus ten percent are an upper bound on a resource's cost-based offer but do not restrict generators from offering below that upper bound. For example, many coal-fired units do not include the ten percent adder in cost-based or price-based offers. The IMM Proposal provides incentives to resources to offer competitively, while allowing them to lower their offers (both cost and price simultaneously) to avoid gas balancing charges, and results in accurate price formation. PJM's arguments against the IMM Proposal are unsupported.

PJM claims (at 21) that the IMM Proposal of a constant markup throughout an operating day is not compatible with PJM's cost-based offer rules. PJM's example demonstrates the benefits of the IMM Proposal. PJM points to resources that submit a cost-based offer at less than their actual costs plus ten percent, stating that "the actual markup over their estimated cost that is represented in their market-based offer would not actually be constant." PJM presents a scenario which could not occur under the IMM Proposal. In PJM's scenario, a resource with a limit on the cost-based offer of \$55/MWh initially submits a cost-based offer at \$40/MWh and a market-based offer at \$60/MWh, a markup of \$20/MWh. PJM assumes, contrary to the IMM Proposal, that the market seller can, at its discretion, subsequently increase the cost-based offer to \$55/MWh. Under the IMM Proposal, a market seller cannot increase a resource's offer if the costs do not change. The proposed rule is to prevent the kind of manipulation that PJM describes. Since the market seller cannot increase its offers (cost-based and market-based) without a change in the

underlying costs, it has an incentive to submit cost-based offers that accurately reflect its short run marginal cost, and not make cost-based offers at less than cost.

### **3. Offer Capping Self-Scheduled Resources**

PJM acknowledged (at 27) the validity of the Market Monitor's concern with treatment of self-scheduled resources but argues that the current rules exclude self-scheduled resources from being offer capped. This is incorrect. PJM's Operating Agreement, Schedule 1 Section 6.4.1 (b) states:

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 below. 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. The energy offer prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

PJM's Operating Agreement, Schedule 1 Section 6.3 describes the rules regarding the dispatch of resources for local reliability. The current rules enable PJM to offer cap any resource dispatched (not necessarily committed by PJM) to provide relief to a transmission constraint. There are currently no provisions in PJM's governing documents that prevent the mitigation of self-scheduled resources whose owners fail the test for local market power.

Self-scheduled units have been able to circumvent the PJM market power mitigation rules. Self-scheduled resources with a dispatchable range have been exempt from application of the market power mitigation rules. When a resource self schedules, it is online even though it is not committed by PJM. Some self-scheduled resources offer a dispatchable range that lets PJM dispatch the resource up and down between the resource's economic maximum MW and economic minimum MW. If the self-scheduled resource provides the incremental MWh in an interval, its offer can set a price for that interval. Under PJM's current practice, if the self-scheduled resource contributes incremental MW to relieve a transmission constraint, and the owner of the self-scheduled resource fails the TPS

test for local market power, the resource is not offer capped and the resource's price-based offer sets price.

In the November 20<sup>th</sup> filing, PJM included tariff changes to formalize this inappropriate implementation of the local market power mitigation mechanism as it applies to self-scheduled resources. PJM's proposal was to not offer cap such self-scheduled resources. As an alternative, PJM would prevent such self-scheduled resources with a dispatchable range from setting price.

PJM's approach is not consistent with good price formation. Prices should be set by the cost of the incremental MWh produced. If the incremental MWh comes from a self-scheduled resource with a dispatchable range, it should be allowed to set a price. Correspondingly, if the owner of the self-scheduled resource fails the TPS test for local market power, market power mitigation rules should apply. PJM's proposed solution and its alternate both interfere with accurate price formation, would allow the exercise of local market power and should be rejected.

#### **4. Committed Offer Definition**

PJM argues (at 28) that the term Committed Offer is clearly defined. The term is not adequately defined in PJM's proposed tariff. PJM's proposed definition does not address at least two scenarios that occur on a regular basis.

For example, the definition of the Committed Offer is not clear for a resource that clears the Day-Ahead Energy Market and receives further and different instructions in real time. Combustion turbines may clear the Day-Ahead Energy Market but PJM dispatchers may give them further and different instructions in real time. It is not clear which offer will be the Committed Offer between the offer on which the resource cleared the Day-Ahead Energy Market or the latest updated offer prior to PJM's real time instruction.

PJM argues that self-scheduled resources cannot have a Committed Offer. But self-scheduled resources do provide an offer to PJM for incremental MWh over the self-

scheduled output. This offer is used by PJM to dispatch self-scheduled resources between their economic minimum and economic maximum.

All resources in PJM, except some non-dispatchable intermittent resources, have a Committed Offer. The difference between a self-scheduled resource and a pool-scheduled resource is that the Committed Offer is determined by the resource owner instead of PJM. Currently, the Committed Offer of a self-scheduled resource is the price-based offer.

### **5. Final Offer Definition**

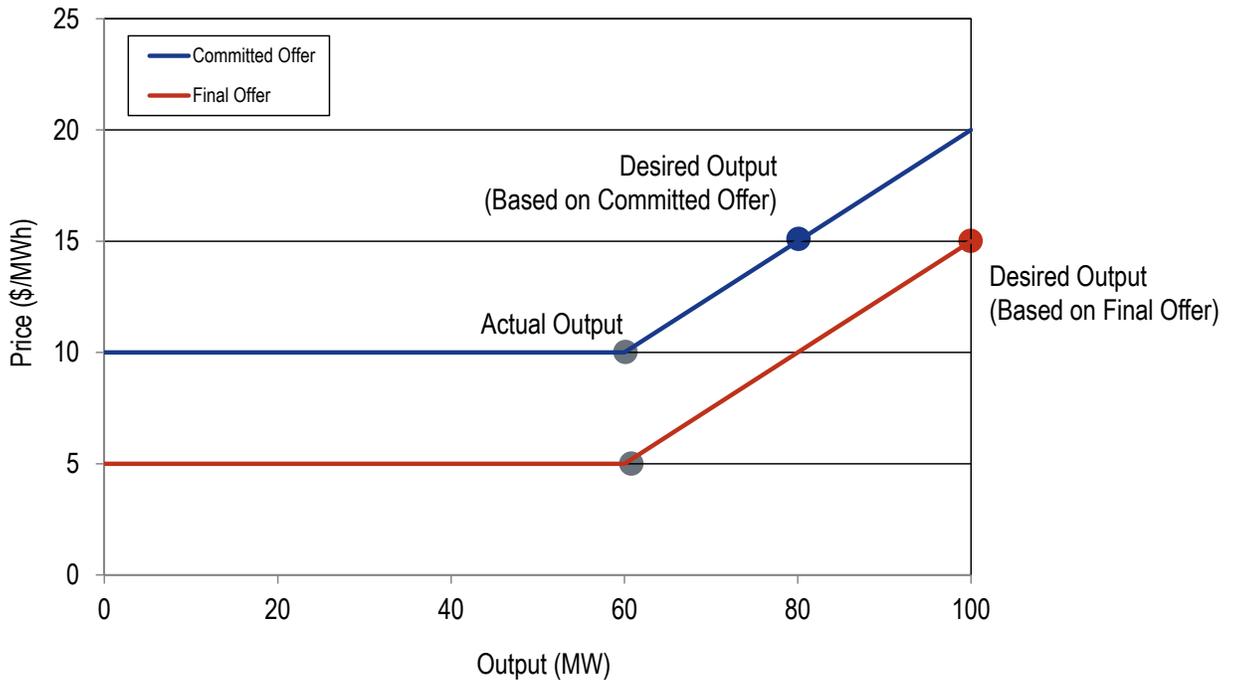
PJM argues (at 29) that there is not additional clarification needed for the term Final Offer because the Market Monitor's proposed clarification is inconsistent with the November 20<sup>th</sup> Proposal. The Market Monitor proposed clarifying this term because under PJM's approach it is possible for a resource owner that has failed the TPS test to have its lower offer be its cost-based offer for one hour and its price-based offer for another hour. If PJM does not address this issue, it will enable resource owners to exercise local market power because it may use its price-based offer when mitigated. The Final Offer of a resource that fails the TPS test should be the lower of its cost and price-based offer for all committed intervals. If a resource is offer capped, PJM should ensure that the resource is always running on the lower of the price and cost-based offers. PJM needs to make that clarification.

### **6. LOC Deviation Definition**

PJM argues (at 29) that resource owners' LOC payments are either the same or reduced if they elect to decrease the offer of a resource that is being backed down by PJM. The Market Monitor agrees with PJM, the Market Monitor incorrectly assumed (IMM Protest at 23) that PJM would keep the resource's offer the same. The clarification provided by PJM raises another issue. Under the November 20<sup>th</sup> Proposal a committed resource that decreases its offer will be undercompensated for LOC because PJM will offset a negative LOC calculation with a positive LOC calculation. A negative LOC means that the resource does not have an opportunity cost. This issue can be explained graphically.

Figure 3 shows two offers from the same resource, the Committed Offer (blue curve) and the Final Offer (red curve), which is the offer used to dispatch the resource. When the LMP is \$15 per MWh, the resource will be expected to run at 80 MW using the Committed Offer and at 100 MW using the Final Offer. Under the new hourly offer rules, this resource will be dispatch at 100 MW. If the resource is backed down for reliability by PJM it becomes eligible for LOC compensation. If the resource is backed down to 60 MW, the LOC calculation proposed by PJM will compensate the resource zero LOC payment. This outcome is possible because PJM will use a combination of the resource's Committed Offer and Final Offer in the LOC calculation. Under the November 20<sup>th</sup> Proposal the LOC Deviation will be equal to 40 MW (100 MW desired output and 60 MW actual output) times the difference between the LMP (\$15 per MWh) and the average incremental rate between operating at 100 MW and operating at 60 MW, which is \$15 per MWh. If the resource elects not to update its offer, it will receive an LOC compensation of \$50, equal to 20 MW LOC Deviation (80 MW desired output and 60 MW actual output) times the difference between the LMP (\$15 per MWh) and the average incremental rate between operating at 80 MW and operating at 60 MW, which is \$12.50 per MWh.

**Figure 3 LOC Calculation Example.**



In the IMM Protest (at 37), the Market Monitor recommended that “the uplift rules be developed so as to ensure that generators’ cleared MWh in the Day-Ahead Energy Market are not compensated above or below the offer used in the Day-Ahead Energy Market and that generators’ MWh that are produced above what cleared in the Day-Ahead Energy Market are not compensated above or below the offer used to commit the resource.” PJM’s approach to calculate LOC Deviation based on the Final Offer does not meet this recommendation. Instead, it provides an incentive to resources that are backed down by PJM to not update their offers and it provides an incentive to resources that have lowered their offers to not back down at PJM’s request.

**G. Other Issues Not Addressed by PJM**

In its response, the Market Monitor raised several concerns that PJM did not address in its answer. PJM was silent in the following issues.

First, § 1.3.33E, Total Operating Reserve Offer: PJM did not provide clarification regarding the implementation of the “lesser of the Committed Offer curve or the Final

Offer” in the determination of the Total Operating Reserve Offer as described in the IMM Protest (at 24).

Second, § 1.10.1A(d). Second Paragraph i). PJM did not provide clarification regarding hourly differentiated minimum run times and minimum down times as described in the IMM Protest (at 25).

Third, § 1.10.1A(d) Second Paragraph vi). PJM did not provide clarification regarding offer availability changes through the operating day as described in the IMM Protest (at 26).

Fourth, § 1.10.1A(d) Second Paragraph vii). PJM did not provide clarification regarding the prices at which resource owners are willing to sell energy and the prices guaranteed by the resource owner as described in the IMM Protest (at 26).

Fifth, § 1.10.1A(e). PJM did not explain the necessity for allowing hourly offers in the Regulation Market as described in the IMM Protest (at 27).

Sixth, § 1.10.1A(j). PJM did not explain the necessity for allowing hourly offers in the Synchronized Reserve Market as described in the IMM Protest (at 27).

Seventh, § 1.10.9B(a). PJM did not provide clarification regarding what constitutes a committed hour for resources that did not clear the Day-Ahead Energy Market and were committed in real time as described in the IMM Protest (at 27).

Eighth, § 1.10.9B(c). PJM did not provide clarification regarding the application of the \$5 per MWh threshold between a new cost-based energy offer and an available cost-based energy offer as described in the IMM Protest (at 28).

Ninth, § 6.4.1(f)(v). PJM did not provide clarification regarding the resources that are subject to further instructions in real time regardless of clearing the Day-Ahead Energy Market as described in the IMM Protest (at 29).

Tenth, PJM failed to address several tariff section raised in the IMM Protest (at 30) that need to be updated in order to make the implementation of hourly offers possible without subjective interpretations.

## II. MOTION FOR LEAVE TO ANSWER

The Commission's Rules of Practice and Procedure, 18 CFR § 385.213(a)(2), do not permit answers to answers or protests unless otherwise ordered by the decisional authority. The Commission has made exceptions, however, where an answer clarifies the issues or assists in creating a complete record.<sup>37</sup> In this answer, the Market Monitor provides the Commission with information useful to the Commission's decision-making process and which provides a more complete record. Accordingly, the Market Monitor respectfully requests that this answer be permitted.

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<sup>37</sup> See, e.g., *PJM Interconnection, L.L.C.*, 119 FERC ¶61,318 at P 36 (2007) (accepted answer to answer that "provided information that assisted ... decision-making process"); *California Independent System Operator Corporation*, 110 FERC ¶ 61,007 (2005) (answer to answer permitted to assist Commission in decision-making process); *New Power Company v. PJM Interconnection, L.L.C.*, 98 FERC ¶ 61,208 (2002) (answer accepted to provide new factual and legal material to assist the Commission in decision-making process); *N.Y. Independent System Operator, Inc.*, 121 FERC ¶61,112 at P 4 (2007) (answer to protest accepted because it provided information that assisted the Commission in its decision-making process).

### III. CONCLUSION

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

Respectfully submitted,



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Dated: January 27, 2016

## 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 27<sup>th</sup> day of January, 2016.



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