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VIA E-FILING

October 27, 2016

Kimberly D. Bose, Secretary
Nathaniel J. Davis, Sr., Deputy Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: PJM Interconnection, L.L.C. ER16-372-002

Dear Ms. Bose:

On October 26, 2016, Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM ("IMM"), submitted an Answer and Motion for Leave to Answer in the above-referenced proceeding. The IMM has subsequently discovered a number of errors in that filing of a non-substantive nature. Please find the corrected pleading attached.

If you have any questions regarding this filing, please contact the undersigned at (610) 271-8053.

Sincerely,

Jeffrey W. Mayes, General Counsel

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

	)	ER16-372-002
PJM Interconnection, L.L.C.	)	
	)	

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 answers to the Market Monitor's protest filed September 16, 2016 ("September 16th Protest"), which were filed by PJM Interconnection, L.L.C. on October 7, 2016 ("PJM"); PJM Power Providers Group on October 3, 2016 ("Power Providers"), Dominion Resources, Inc. on September 30, 2016 ("Dominion"), and Direct Energy Business, LLC on October 3, 2016 ("Direct Energy").[1] [2]

PJM's answer avoids or misstates the core issues raised in this compliance proceeding.[3] The Market Monitor does not propose to change PJM's administrative responsibility with respect to fuel cost policies. The Market Monitor does not propose to approve fuel cost policies.

The core issue in this proceeding is the nature of PJM's administrative review as defined in the PJM OATT. Section 12A of the OATT prohibits PJM from including market

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[1] 18 CFR § 385.213 (2016).

[2] 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").

[3] PJM compliance filing, Docket No. ER16-372-002 (August 16, 2016) ("August 16th Filing").

power in its administrative review criteria. PJM's failure to comply with Section 12A of the OATT is the foundation of the Market Monitor's legal argument in its September 16th Protest, yet PJM never addresses this issue or even cites to these provisions.

The answers to the September 16th Protest make plain that the generators, supported by PJM, seek the Commission's intervention to protect generators from adverse enforcement action by the Commission's Office of Enforcement that may result from the Market Monitor's independent review of inputs to prospective mitigation.[4] The generators and PJM mischaracterize the Market Monitor's review of fuel cost policies. The Market Monitor seeks to correct inaccuracies in the answers and to aid the Commission in resolving the matter in the manner that best supports competitive markets.

The Market Monitor also provides responses to the hourly offers technical issues raised in PJM's answer.

I. ANSWER TO PJM AND THE GENERATION OWNERS

A. The Logic of the Market Monitor's Approach Is Simple.

The Market Monitor requests that the Commission confirm the longstanding status quo on the roles of the Market Monitor and PJM in the development of inputs for market power mitigation.[5] Although PJM asserts that the roles issues have been comprehensively decided consistent with PJM's preferred approach, that is clearly not correct. The Market Monitor seeks an outcome similar to the Commission approved RPM Avoidable Cost Rate review process, which is also supported by Power Providers.[6] This case is an opportunity

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4 *See*, *e.g.*, PJM at 15–16.

5 None of the cases cited by PJM are inconsistent. *See* PJM at 7–10.

6 Power Providers at 5–6.

for the Commission to reiterate the definition of roles that exists in the PJM tariff and is consistent with the Commission's order on the role of market monitors, Order No. 719.[7]

The logic of the Market Monitor's approach to market power mitigation issues in this case is simple.

1. Order No. 719 provides for an MMU role in inputs to prospective mitigation.
2. Order No. 719 (at P 375): "We also determine that the MMU may provide the inputs required by the RTO or ISO to conduct prospective mitigation, including determining reference levels, identifying system constraints, cost calculations and the like. This will enable the RTO or ISO to utilize the considerable expertise and software capabilities developed by their MMUs, and reduce wasteful duplication."
3. Order No. 719 requires a clear definition of RTO and MMU functions.
4. Order No. 719 (at P 378): "We also direct that the tariffs of RTOs and ISOs clearly state which functions are to be performed by MMUs, and which by the RTO or ISO. This separation of functions will serve to eliminate RTO or ISO influence over the MMUs, and remove the concern that MMU assistance in mitigation makes it subordinate to the RTO or ISO."
5. Order No. 719 requires that the tariff structurally separate and state the MMU functions (at P 392): "We … direct RTOs and ISOs to include in their tariffs, and centralize in one section, all of their MMU provisions."
6. Section 12A of the OATT defines the functions and roles of PJM and the Market Monitor. Section E-1 of Attachment M to the OATT further defines the Market Monitor's role. The Market Monitor does market power review. PJM does tariff compliance review.

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[7] *Wholesale Competition in Regions with Organized Markets*, Order No. 719, 125 FERC ¶ 61,071 at P 375 (2008) ("Order No. 719"), *order on reh'g*, Order No. 719-A, 128 FERC ¶ 61,059 at P 128 (2009).

7. Section 12A of the OATT states: "The Office of the Interconnection does not make determinations about market power, including, but not limited to, whether the level or value of inputs or a decision not to offer a committed resource involves the potential exercise of market power. Acceptance or rejection of an offer or bid by the Office of the Interconnection does not include an evaluation of whether such offer or bid represents a potential exercise of market power."
8. Fuel cost policies are an input to prospective mitigation. Fuel cost policies are rules that define acceptable offer levels in the energy market. PJM's role is to review fuel cost policies for tariff compliance and not market power or the level of offers. The Market Monitor's role is to review fuel cost policies for market power, including the level of offers that result from fuel cost policies.
9. PJM approves fuel cost policies for tariff compliance. This approval is a prerequisite to generators' ability to submit cost-based offers. PJM's approval does not create any presumption or safe harbor of any kind with respect to market power.
10. The Market Monitor reviews fuel cost policies and cost-based offers for market power. The Market Monitor does not approve fuel cost policies or accept offers. If the Market Monitor reaches agreement with a generator, it will not refer the generator to the Office of Enforcement if it follows the fuel cost policy. If the Market Monitor cannot reach agreement with a generator on a fuel cost policy, the Market Monitor may refer the fuel cost policy to FERC and the Market Monitor may find an offer to be inaccurate and the Market Monitor may refer the matter to FERC.
11. Consistent with Section 12A and Order No. 719, only compliance criteria are or should be included in Schedule 2 of the Operating Agreement. Market Sellers must meet compliance criteria to submit offers. All market power criteria are or should be included in Attachment M of the OATT. Offers that constitute exercises of market power are referable tariff violations or subject to tariff defined penalties.

B. The Market Monitor's Process.

This flow chart illustrates the Market Monitor's proposed roles of Market Participants, PJM and the Market Monitor:

Comparison of Participant/PJM/IMM Roles

	Participant	PJM	IMM
EX ANTE REVIEW	• Participate in review process with IMM. • Provide adequate supporting documentation. • Provide timely advance commitment on offer level or calculation, either in agreement with the IMM or in a unilateral commitment. • Comply with market rules, as determined by PJM, or FERC.	• Review offers for participants' compliance with tariff, including: o administrative requirements for offers, o participation in review process with IMM, o provision of adequate information to IMM and PJM, and o offer at committed level, if applicable. • *Does not* determine whether offer levels are competitive, take position in IMM review process on whether offer level is competitive or reject offers as	• Participate in review process. • Review supporting documentation. • Develop and communicate position of whether information provided is adequate. • Develop and communicate position on whether offer level or calculation is competitive. • Review compliance with tariff of both participant and PJM. • *Does not* interpret or implement tariff, except Market Monitoring Plan.
EX ANTE FERC ACTION	• May seek FERC rulings on market power or compliance.	• PJM compliance determination stands, unless overruled by FERC.	• May seek FERC rulings on market power or compliance.
MARKET CLEARING	• Determine offer level and submit, taking responsibility for market impacts of offers.	• Accept compliant offers/Reject non-compliant offers. • Implement mitigation.	• *Does not* accept/reject offers.
EX POST REVIEW	• Respond to information requests from the IMM for verification of the offer level.	• Implement penalties for inaccurate offers.	• Monitor the level of offers. • Request information for the verification of the level of offers. • Inform PJM and FERC of inaccurate offer levels.

C. PJM's Standard Would Create a Safe Harbor for Market Power Abuse.

1. PJM's Standard is Not Algorithmic.

By its own admission, PJM's standard for review would not require that a fuel cost policy be algorithmic. It states that:

> Thus, while the IMM's standard is for the most part similar to PJM's standard, it is the blanket imposition of the "algorithmic" criteria under all circumstances that makes the IMM's proposed standard unjust and unreasonable.[8]

Algorithmic is not a high standard. It is a basic standard. Algorithmic may sound complex but is straightforward. Algorithmic means a step by step procedure for solving a problem or accomplishing a defined end. Any fuel cost policy that does not include the steps required to reach the defined fuel cost is not useful for cost-based offer monitoring. It cannot be an acceptable fuel cost policy from a market power perspective.

PJM goes on to state (at 13):

> There may be instances, especially during illiquid conditions in the gas market, in which a Market Seller may not be able to algorithmically price its fuel…

PJM provides no explanation for why it believes this to be the case. A Market Seller can define an algorithm for calculating the market value of fuel under illiquid market conditions using the factors that it believes impact prices in the natural gas market. Many Market Sellers have provided the Market Monitor with fuel cost policies with algorithmic processes for calculating fuel costs under these conditions with systematic triggers for categorizing what they believe to be illiquid market conditions. In many cases, the algorithm is a simple volume weighted average of independent third party quotes for gas. For Market Sellers that do not use third party gas marketers, or if third party quotes are not

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[8] PJM at 12.

available, the Market Sellers explain their algorithmic methods for calculating the cost of gas and the reasons why such methods are appropriate.

Dominion, PJM Power Providers, Direct Energy, PJM, and the PJM Utilities Coalition all criticize the Market Monitor's algorithmic standard for fuel cost policies as unreasonable. The parties agree that fuel cost policies should be verifiable and systematic but fail to recognize that a fuel cost policy is neither verifiable nor systematic if it is not also algorithmic. If the fuel cost policy does not follow a set of defined logical steps using specific information, neither the Market Monitor nor PJM can verify after the fact that the Market Seller followed its systematically defined policy. PJM's standard of review is not verifiable or systematic because it is not algorithmic.

2. PJM's Standard is Not Verifiable.

PJM states (at 11):

> Like the IMM's proposal, PJM's proposed standard requires Market Sellers' Fuel Cost Policies to be verifiable, meaning they "must provide a fuel price that can be calculated by the [IMM] after the fact with the same data available to the [Market Seller] at the time the decision was made and documentation for that data from a public or a private source.

PJM's statement is not supported in its filed tariff changes. Proposed Schedule 2(f) asks for descriptions of cost development practices, but it does not set a standard for the level of detail. It does not require that the data is sufficient to replicate the fuel cost used to calculate the cost-based offer. Verifiability of the correct calculation requires the use of a defined logic, an algorithm.

For example, a fuel cost policy may state that, under liquid natural gas market conditions, the Market Seller's gas trader considers the prices of the executed trades on the Intercontinental Exchange ("ICE") for the Transco Zone 6 Non-New York and Texas Eastern Zone M-3 market areas, recent trends in next day and intraday gas market prices for those market areas, and the forecasted temperature. Using those factors, the trader uses judgment based on extensive expertise and experience to determine a natural gas price for the next day. Applicable transportation charges would be added based on specified pipeline tariff rates.

This example policy provides the description required by proposed Schedule 2(f)(i) and sets forth applicable indices as required by Schedule 2(f)(ii). It does not provide sufficient information for validation of a cost-based offer, because it allows unbounded discretionary judgment in cost development. The trader bases judgments on experience. Market experiences can be quantified and measured with historic data in defining an algorithm that bounds fuel cost development. This example is typical of many first draft fuel cost policies provided to the Market Monitor. Under PJM's proposed tariff language, a fuel cost policy containing discretionary trader's judgment in the development of a fuel cost would be approved; under the Market Monitor's standard it would not.

An algorithmic, verifiable, and systematic version of the same policy would state that, when the volume of executed trades on ICE for the Transco Zone 6 Non-New York and Texas Eastern Zone M-3 market area exceeds 20,000 dekatherms by 10:00 AM Eastern Prevailing Time, the gas trader estimates the replacement natural gas price to be the lesser of the sum of the weighted average price of the executed trades and the applicable tariff transportation charges for each zone. If the volume of trades on ICE does not reach 20,000 dekatherms for either zone, the trader uses the midpoint of the highest bid price and the lowest offer price available on ICE. If no trades have been executed, the trader uses the forecast temperature adjusted previous day Platts Gas Daily posted price, where the temperature adjustment is defined based on a historical price and temperature analysis provided in an appendix to the fuel cost policy.

PJM claims (at 14):

> PJM's proposed standard also requires the Market Seller to thoroughly document its practices so that PJM and the IMM can verify that such practices were followed and that cost-based offers accurately reflect the Market Sellers' incurred, or reasonably forecasted, fuel costs.

If the approach is not algorithmic, this cannot be done. Experience with this process under the historically loose standards that PJM intends to codify in the tariff, led the Market Monitor to this conclusion.[9]

A number of currently approved and nearly complete natural gas fuel cost policies now resemble the second example due to Market Seller cooperation with the Market Monitor. The Market Monitor defines none of the parameters, except upon request. Through consultations, the Market Monitor learns each Market Seller's individual situation and helps to craft an algorithmic, verifiable, and systematic description of the Market Seller's cost development practice.

3. PJM's Standard is Not Systematic.

PJM states (at 11):

> PJM's proposed standard for approving Fuel Cost Policies also requires Fuel Cost Policies to be systemic, meaning the Fuel Cost Policy must "document a standardized method or methods for calculating fuel costs including objective triggers for each method." However, when such standardized methods cannot be utilized, PJM allows the Market Seller to explain how it procures fuel.

PJM's proposed standard does not require a systematic policy. Nothing in PJM's proposed Schedule 2 provides that the policy must "document a standardized method or methods for calculating fuel costs including objective triggers for each method," or any equivalent language. Allowing exceptions to the methods, which are not required to be standardized methods, further contradicts the assertion that the policies are systematic.

By focusing on fuel procurement and not market prices, PJM creates a significant problem in its fuel cost policy approval process. An explanation from the Market Seller of "how it procures fuel" will frequently have no bearing on how it calculates the market

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9 *See* Protest of the Independent Market Monitor for PJM, Docket No. ER16-372 (September 16, 2016) at 6–7.

replacement value of fuel. It is not sufficient for validating fuel cost development. Not all gas fired units procure gas day ahead. In fact, peakers in locations subject to gas system constraints are reluctant to procure gas prior to receiving a unit commitment from PJM if such strategy may result in gas balancing charges. By focusing on procurement, PJM would entirely miss the fuel cost development method for units that have not procured fuel prior to developing a cost-based offer. This would allow gas fired units to exercise market power via economic withholding by significantly increasing their cost-based energy offer.

PJM admits that it intends to allow for exceptions to a systematic standard, such that the fuel cost development will not be verifiable, in acknowledging (at 12):

> …PJM's appreciating that there are times (albeit limited) when natural gas markets are illiquid such that a pure 'algorithmic' approach tied to an index or that is otherwise 'reproducible' ignores the commercial realities of how natural gas markets operate during stressed conditions.

PJM is stating that the systematic development of fuel costs need not apply under illiquid gas market conditions. If the cost development process is not reproducible, it is not verifiable. Under PJM's standard, when the gas market is illiquid, no one will be able to verify the competitiveness of offer behavior.

It is under high demand conditions when data are least available that having a verifiable fuel cost is most difficult and most critical. PJM's approach fails to deal with these critical times. Reliance on bilateral quotes or trades constitutes an algorithmic, verifiable and systematic fuel cost policy under such defined circumstances and is one acceptable approach under the Market Monitor's approach to fuel cost policies. This is clear in the fuel cost policy templates posted by the Market Monitor.

PJM's standard would allow the Market Seller to suspend systematic cost development provisions of the fuel cost policy in situations where the fuel market is illiquid. Illiquidity in the fuel market generally indicates a scarcity of fuel for purchase by power generators. The Market Monitor advocates that efficient market pricing reflects scarcity of inputs. PJM states (at 3) that the "IMM's 'algorithmic' approach would cap natural gas prices when the market is illiquid thus potentially suppressing the real cost of natural gas generation." That is not correct. PJM confuses the algorithmic approach to calculating fuel costs during scarcity conditions with capping fuel costs below market levels. The Market Monitor does not recommend any cap on fuel costs that are verified by market evidence. The Market Monitor's standard would limit the fuel costs used to calculate cost-based offers to verifiable levels. Otherwise, prices will reflect the exercise of market power, the opportunities for which expand during scarcity conditions. PJM states (at 4) that "Fuel Cost Policies that prevent the market from reflecting the true and complete costs of one fuel type distort any comparison of how competitive one resource type is relative to the next." The Market Monitor agrees. But PJM forgets that fuel cost policies that allow Market Sellers to impose on the market prices that exceed the true and complete costs of one fuel type also distort any comparison of how competitive one resource type is relative to the next.

4. PJM Proposes a Safe Harbor from Market Power Review that Would Abrogate the Market Monitor's Market Power Review.

PJM proposes to review fuel cost policies for market power issues and provide a safe harbor from market power review and referrals by the Market Monitor and from enforcement of market power rules in the tariff by the Office of Enforcement. PJM states (at 15):

> [O]nce PJM approves a Market Seller's Fuel Cost Policy, the Market Seller should be reasonably certain that a cost-based offer submitted based on such Fuel Cost Policy would not on its face constitute an exercise of market power absent fraud, some manipulative scheme, or other extreme circumstances…PJM's proposal does not provide an absolute "safe harbor" from referrals by the IMM and review by the Office of Enforcement, such instances should be rare.

In this statement, PJM is requesting that PJM's review and approval of fuel cost policies create a safe harbor against the Market Monitor's referrals for market power and Office of

Enforcement action in all circumstances other than fraud or manipulation. This statement directly contradicts PJM's assertion in proposed Schedule 2(m) that:

> Nothing in this Schedule 2 is intended to abrogate or in any way alter the responsibility of the Market Monitoring Unit to make determinations about market power pursuant to PJM Tariff, Attachment M and Attachment M-Appendix.[10]

PJM states (at 23):

> PJM is not infringing on the IMM's independent authority and role as defined in the PJM governing documents to monitor for market power.

Under PJM's proposal, the Market Monitor may conduct its review of offers and fuel cost policies for market power, but PJM would control the enforceability of the Market Monitor's findings by making the final determination on the accuracy of the level of cost-based offers and creating safe harbors for the exercise of market power in fuel cost policies. While PJM's proposal does not infringe on the ability of the Market Monitor to monitor offers, PJM's safe harbor proposal would make it impossible for the Commission to enforce rules against the exercise of market power, rendering the monitoring meaningless.

PJM's proposal would mean that the rules governing market power in the PJM tariff would be weak, poorly defined and would permit the exercise of market power. The result would be that there are no effective rules against the exercise of market power in the PJM OATT that are enforceable by the Commission.

Short of fraud or manipulation, the Market Monitor and the Office of Enforcement would have no grounds for referral and enforcement of market power abuse under PJM's proposal. The scope of market power abuse is distinct from the scope of fraud and

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10 PJM August 16th Filing, Attachment A (proposed revisions).

manipulation.[11]A competitive PJM market requires enforceable standards under which behaviors that constitute market power abuse are tariff violations and may be penalized by the Commission. The Market Monitor recommends such provisions in its drafted Attachment M–Appendix.[12] In opposing the Market Monitor's recommendations, PJM seeks to prevent the addition of such rules to the OATT.

PJM also claims (at 3) that fuel cost policies are not "designed to substitute the judgment of either PJM or its market monitor as to how a Market Participant conducts its day-to-day business, including its fuel purchasing."[13]

PJM is incorrect. In cases where the proposed fuel cost policy would permit the exercise of market power, the fuel cost policy review process *is* designed to prevent that from occurring. PJM's approval of the Market Seller's usual course of business in this circumstance would provide an unjust safe harbor from enforcement action and from penalties for exercises of market power through cost-based offers. PJM also mischaracterizes the issue. Fuel cost policies are about the market value of gas and not about the business practices of fuel procurement. The fuel cost policy review process does not alter fuel procurement.

D. PJM Mischaracterizes the Nature of the Disagreement.

1. The Market Monitor Does Not Seek to Change Its Tariff Defined Role.

PJM states (at 1) that "some have offered to re-litigate the role of the Independent Market Monitor for PJM." The Market Monitor disagrees that it has offered to relitigate its role. PJM is attempting to significantly alter the roles of PJM and the Market Monitor

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11 "Market Violation means a tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies." 18 CFR § 35.28(b)(8).

12 IMM Protest at Attachment.

13 PJM Answer at 3.

related to market monitoring and market power review while denying that is what they are doing.

Section 12A of the OATT prohibits PJM from making judgments about market power. Attachment M to the OATT assigns review of cost-based offers, including compliance with Manual 15, to the Market Monitor, and PJM does not have authority to administer Attachment M. PJM Manual 15 clearly implies that the Market Monitor administers the Cost Methodology and Approval Process under which fuel cost policies are currently approved.[14] PJM has not, contrary to its statement (at 2), "proposed a *process improvement* to approve fuel cost policies" (emphasis in original). PJM proposes a new process that would significantly change the roles of PJM and the Market Monitor related to market monitoring and market power. Adding deadlines and an administrative role for PJM would be a process improvement, consistent with the Market Monitor's recommendations. Having PJM review fuel cost policies in order to provide a safe harbor for the exercise of market power is a new process. PJM's proposal does not, contrary to its statement (at 3), only "explicitly reserve[e] to PJM the role of deciding in the final instance whether or not to accept a Market Seller's Fuel Cost Policy in situations where the Market Seller and IMM have been unable to reach agreement." PJM's proposal reserves to PJM the role of deciding in every instance whether or not to accept a fuel cost policy, including evaluation of market power criteria, not just in cases of disagreement with the Market Monitor.

PJM's proposal does not require any interaction between the Market Seller and the Market Monitor. This is a marked difference between the fuel cost policy proposal and the RPM Avoidable Cost Rate ("ACR") process.[15] PJM states (at 5) that its "proposal continues to allow the Market Seller and IMM every reasonable opportunity to reach consensus." It

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[14] Manual 15: Cost Development Guidelines, Section 1.8, Rev. 27 (April 20, 2016) at 4.

[15] *See* OATT Attachment DD § 6.4.

does not. Unlike the ACR process, PJM's fuel cost policy proposal does not include a timeline for the Market Monitor to work directly with the Market Seller to reach an agreement prior to PJM compliance review. The proposed approval process only includes "any advice timely received from the MMU."[16] The Market Monitor agrees with the PJM Power Providers that the RPM ACR process is the appropriate model to follow for the review of cost-based offers in the energy market, including fuel cost policy review.[17] The Market Monitor's suggested language for Schedule 2 and Attachment M–Appendix follows the model of ACR review. PJM's proposal does not.

The Market Monitor agrees with PJM's statement (at 5) that "the potential for a difference of opinion must be anticipated." Disagreements exist currently. The Market Monitor raised the relevant issues in its September 16th Protest in an attempt to bring these disagreements to the Commission's attention. Until the Commission makes clear that the incremental costs included in cost-based offers should be restricted to short run marginal costs or reiterates whose role it is to "make determinations about…whether the level or value of inputs…involves the potential exercise of market power" in the case of cost-based offers, the process desired by the Commission in paragraph 63 of the June 17th Order will remain contentious.[18]

2. Short Run Marginal Costs Have Always Been the Standard in PJM and Should Remain So.

Numerous dockets before the Commission discuss the role of short run marginal costs in PJM's market design.[19] In describing the current PJM Market Rules in its November

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16 August 16th Filing, Attachment, proposed revised OA Schedule 2(e).

17 PJM Power Providers at 5.

18 OATT § 12A.

19 *See* PJM Revisions to the OA re FMU Adder Transmittal Letter, Docket No. EL14-95 (August 26, 2014) at 13, *PJM Interconnection*, 149 FERC ¶ 61,091 (2014), *First Energy v. PJM*, 148 FERC ¶ 61,140 (2014), and *PJM Interconnection*, 148 FERC ¶ 61,140 (2014).

2015 filing in this docket, PJM stated that "[c]ost-based offers are based on the short-run marginal cost of the applicable generation resource."[20] PJM now argues (at 28) that limiting incremental costs to short run marginal costs "would be a major shift in PJM market design and would likely have rippling effects on the market, as Market Sellers would not be able to recover all the costs incurred to produce energy." PJM's changed interpretation of its tariff surprises the Market Monitor. The Market Monitor knows of few differences between PJM's and the Market Monitor's interpretations of short run marginal cost. PJM included definitions for Maintenance Adders and Start Additional Labor Costs in its August 16th Filing that highlight those few differences.[21] The PJM Market Rules agree with the Market Monitor that the bulk of maintenance costs, long term maintenance expenses, are not short run marginal costs.[22] The determination of accurate cost-based offers, as required by the June 17th Order, requires an understanding of the costs includable as incremental costs.

E. RPM Avoidable Cost Rate Review Process

In PJM Power Providers' comments, they reference (at 5), as an appropriate model for fuel cost policy review, the review process for RPM Avoidable Cost Rates ("ACR"), which is used in constructing the Market Seller Offer Cap for the RPM Capacity Market.[23] The execution of the ACR process is consistent with Section 12A of the OATT. In that process, the Market Monitor reviews the included costs, cost calculations, and cost levels in a resource's ACR. PJM, in turn, confirms the Market Seller's use of a default ACR or a value agreed upon with the Market Monitor. If the Market Seller has not reached agreement with the Market Monitor, PJM may accept the offer if it is compliant with the provisions in

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20 PJM Compliance Filing to Implement Hourly Offers, Docket No. ER16-372 (November 20, 2015) at 4.

21 *See* September 16th Protest at 48.

22 *See, for example,* Manual 15: Cost Development Guidelines, Section 5.6, Rev. 27 (April 20, 2016) at 41.

23 *See* OATT Attachment DD § 6.4 and Attachment M–Appendix § II.E.

Attachment DD. PJM "does not make determinations about market power, including, but not limited to, whether the level or value of inputs…involves the potential exercise of market power."[24] This process works. PJM's role is administrative. The Market Monitor's role focuses on market power review. The Market Monitor agrees with the PJM Power Providers that this is the appropriate model to follow for cost-based offers in the energy market, including fuel cost policy review. The Market Monitor's suggested language for Schedule 2 and Attachment M–Appendix follows the model of ACR review. PJM's proposal does not.

F. The Market Monitor's Fuel Cost Policy Review Process

In their October 3, 2016, answers to the September 16th Protest, PJM Power Providers and Direct Energy express their concerns as generators and gas marketers that the Market Monitor's fuel cost policy review process is overly restrictive and unworkable.[25] PJM reiterates the market participants' concerns in its October 7, 2016, answer. PJM Power Providers also emphasize that the primary matter of discussion in this docket should be the transition to hourly offers. The Market Monitor agrees. There are a number of issues specific to the implementation of hourly offers that deserve greater attention. The fuel cost policy process is the only item at issue in this docket that PJM brought to discussion before stakeholders since the June 17th Order, and PJM brought forward more sweeping changes to the process than necessary for compliance by transferring the primary responsibility for market power review from the Market Monitor to PJM.

PJM Power Providers misrepresent (at 3) the Market Monitor's ability and resources to properly review fuel cost policies. The Market Monitor's fuel cost policy review team during the past two years has more than 20 years of experience managing and purchasing

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24 OATT § 12A.

25 *See* Direct Energy at 1; Power Providers at 11.

natural gas and more than 20 years of experience economically managing and scheduling generating units. Review team members have "purchased gas to run a power plant." They have "managed the uncertainty of whether they will be dispatched with the need to procure the exact amount of fuel that will be burned." They have "managed the risk and reality of sudden fuel loss due to a third-party pipeline malfunction." They have "made calls to numerous gas providers on days of system stress to see if anyone has gas available to sell, and they have been caught in between gas nominating cycles scrambling to secure gas to meet unexpected dispatch."[26] Additionally, the team has 50 years of experience monitoring and analyzing generator market power in electricity markets.

Since June 2016 alone, the Market Monitor has solicited and reviewed fuel cost policies for 1,319 units (about 30 percent of which had nothing on file with the Market Monitor or PJM), refined fuel cost policy templates to include more detail, created fuel cost policy templates for units that do not burn fuel, and found unacceptable previously submitted fuel cost policies for 129 units that did not meet the Market Monitor's current, or in most cases PJM's proposed, standards. The Market Monitor has accepted fuel cost policies for 616 units, which means that PJM deems them approved without additional review.[27] The Market Monitor continues to engage in active discussion of fuel cost policies for 703 units.

The PJM generators, including those that protest the Market Monitor's standards, have and continue to engage in a cooperative, productive dialogue with the Market Monitor regarding the details of their situations. The ownership characteristics, fuel procurement practices, natural gas market access, and generating unit characteristics vary across units such that each fuel cost policy is unique. The Market Monitor considers each fuel cost policy with thoughtful care and rigorous analysis. In this initial implementation of

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26 Power Providers at 3.

27 PJM Manual 15: Cost Development Guidelines, Rev. 27 (April 20, 2016) at 4 & 9.

the strengthened requirement, the Market Monitor also provides education regarding the requirements and purpose of fuel cost policies. The Market Monitor recognizes that the need for a new approach to fuel cost policies triggered by the Polar Vortex and the increased role of natural gas in PJM markets has meant a paradigm shift for the Market Monitor and market participants. Both generation owners and the Market Monitor have learned a great deal during this process. Complaints that the Market Monitor's position has evolved during this process are ironic given that the positions of the generation owners have also evolved significantly. The notion that the sometimes bumpy nature of this learning process means that PJM should take it over are naïve and unfounded.

Five substantive technical issues have prolonged some discussions regarding natural gas fuel cost policies: the appropriate specification of a market index; the calculation of next day natural gas prices; the calculation of intraday natural gas prices; the treatment of penalty gas charges; and the treatment of balancing charges.

1. Appropriate Specification of a Physical Gas Hub Market Index

The majority of natural gas suppliers choose to base their fuel cost on the spot market replacement cost of gas.[28] In the simplest cases, the generator is located in a single natural gas market area, such as Texas Eastern Zone M-3, that has a single traded market index. Some generators purchase gas based on multiple market index points. If a generator is able to purchase from different gas market areas to minimize costs, plus any applicable transportation costs, the Market Seller may compute a weighted average cost of gas purchased from different locations. In some cases, the index point best representing the generator's cost varies with constraints on the natural gas pipeline system. In some cases,

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28 As allowed under Manual 15 Section 2.3, fuel costs development may use an inventory or replacement cost method based on either spot market prices or contract prices. Cost development using actual purchased inventory and/or demonstrated contracts lends itself naturally to an algorithmic, systematic, and verifiable process.

fuel procurement through existing transportation contracts determines the Market Seller's cost.

The Market Monitor's natural gas fuel cost policy template states that "the applicable physical hub chosen to develop the cost-based energy offer will be the one reliably available with the lowest delivered gas cost (including marginal transportation charges and pipeline losses)."[29] Constraints on the pipeline system may change availability of a physical hub's price to the generator. The generator's physical location and transportation arrangements may also change the availability of a physical hub. In either case, the market value of fuel depends on the lowest available index price. The Market Monitor discusses the specifics of each unit's location on the gas system and capacity availability to determine the validity of the specification of market indices used to construct a fuel cost that represents the actual market price of fuel at the generator under varying conditions.

2. Calculation of Next Day Natural Gas Market Prices

The traded market index price varies on the Intercontinental Exchange ("ICE") during the next day market trading period, from the time the market opens until 2:00 PM Eastern time. The Market Seller must define an expected price of gas based on the trades, offers, and bids listed on ICE at the time it calculates its offers, prior to the PJM Day-Ahead Energy Market 10:30 AM Eastern time deadline. Available information includes the weighted average price of trades, the volume of gas traded, bids, offers, the price trend, the price volatility, and the history of the same information on previous days. Market Sellers also consider weather and system load data in the calculation of fuel prices. The key piece of information that is never available is the final average settled price, which is published after the close of the trading period and after the close of the PJM Day-Ahead Energy

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[29] Natural Gas Cost Policy Template, Monitoring Analytics Tools (accessed October 21, 2106) at 2 <*http://www.monitoringanalytics.com/tools/tools.shtml*>.

Market. The Market Monitor asks Market Sellers to describe in their fuel cost policy how they use all of this information to develop a fuel cost. The Market Monitor's natural gas fuel cost policy template provides an example framework, which includes as much or more optionality and potential complexity than any PJM Market Seller actually uses.

On days when the natural gas market is illiquid, there may be no gas trades listed on ICE. These events tend to coincide with scarcity on the pipeline system. Most Market Sellers turn to the only available market source of information, natural gas brokers, for price quotes. When no broker will offer a quote, it may be that no gas is available for the next day. The Market Seller faces the decision to submit an outage for its generator. If its experience shows that gas is likely to be available for the next day, despite the market illiquidity, the Market Seller may choose to offer its generator in the PJM Day-Ahead Energy Market. If there is no alternative fuel, it must have a method for developing a fuel cost without current day data from ICE or third party quotes. The Market Monitor expects that any such process be detailed in the fuel cost policy. The process may rely on historic data, either from the market or from actual historic fuel purchase invoices. If the Market Seller uses, or proposes to use, statistical methods, the Market Monitor attempts to replicate and validate such methods before accepting them as reasonable for calculating fuel prices.

The Market Monitor does not find acceptable purely discretionary, vaguely defined fuel price estimates. The first draft of almost all the natural gas fuel cost policies submitted to the Market Monitor included such language. For example, after defining the use of an ICE index point and transportation charges, a fuel cost policy may include a statement that the Market Seller reserves the right to change the fuel cost to any other level it chooses, based on the judgment and experience of its natural gas traders. Such statements invalidate the rest of the content in the fuel cost policy. The Market Monitor does not question the judgment and ability of the natural gas traders. It simply asks that they document an algorithmic, systematic, and verifiable explanation of the process for developing the fuel cost used for the cost-based offer, without which the accuracy of cost-based offers cannot be reliably monitored or enforced.

3. Calculation of Intraday Natural Gas Prices

When Market Sellers do not expect a unit to clear in the day-ahead energy market, they may choose not to purchase fuel during the timely gas nomination cycle, which closes at 2:00 PM Eastern time the day prior to the operating day. Market Sellers may calculate the unit's fuel cost based on the expectation of paying an intraday natural gas price. As with the calculation of next day gas prices, the Market Monitor verifies any intraday price calculation adjustments proposed in fuel cost policies.

For gas market areas with ample publicly available intraday price data, such as Texas Eastern M-3, Transcontinental Pipeline Zone 6 Non-New York, Tennessee Gas Pipeline, and ANR Joliet hub, the Market Monitor evaluates the historic relationship between the next day natural gas price and the intraday natural gas price. In some market areas, the intraday price is higher on average. In others it is similar or the same, on average. For some market areas, little to no publicly available intraday market price data exists. In these cases, the Market Monitor has relied on the Market Seller's maintained documentation, if it exists, or the most similar physical hub with available historic data.

4. Penalty Gas Charges

Many Market Sellers have submitted to the Market Monitor fuel cost policies that include natural gas penalty charges in the cost-based offer. These include operational flow order penalty charges and local distribution company ("LDC") unauthorized gas use charges. Pipelines and LDCs use these charges to maintain the reliability of the natural gas system. The Commission has ruled that these charges may not be included in energy offer reference levels in the New York ISO. FERC found that the exclusions of "costs and penalties associated with unauthorized natural gas consumption from generator reference levels are just and reasonable. Allowing generators to recover costs and penalties associated with unauthorized natural gas consumption could jeopardize the reliability of natural gas pipeline and transmission systems and is therefore at odds with the reliability and costs benefits otherwise associated with allowing generators to recover actual fuel costs in reference levels."[30] The Market Monitor believes that the same principle applies to the PJM region. Generators should not be allowed to include gas penalty charges in their cost-based offers, and their fuel cost policies should not include provisions for the pass through of penalty gas costs to the energy market.

5. Balancing Gas Charges

Natural gas customers may incur balancing charges when nominated gas use does not match actual gas use. In some cases, balancing charges create a short run marginal cost for the generator. In other cases, they do not. Consider a situation where a generator expects to clear the PJM Day-Ahead Energy Market and purchases 10,000 dekatherms of gas to cover an anticipated eight hour commitment for the next day. Its expectation of clearing in the day-ahead market is correct. During the operating day, PJM extends the commitment of the unit for an extra two hours. The extended two hours trigger an overrun balancing charge per unit of gas for using gas from storage, which creates a short run marginal cost for fuel. Alternatively, if the unit only cleared four hours of energy in the day-ahead market when it purchased for eight hours, it would have 5,000 dekatherms of gas that must be resold, placed in storage, or left as imbalance on the pipeline. The Market Seller may recoup some or all of the balancing cost in reselling or storing the gas. The cost does not increase with short run marginal energy production, and it is recoverable in the capacity market, as described in Attachment DD of the PJM OATT.[31]

This issue is exacerbated when pipelines enforce ratable take provisions, which in certain cases require nominations for 24 hours of gas to generators that do not have flexible arrangements with the pipeline (e.g. storage and/or no notice service). When generators that do not have flexible arrangements with the pipeline are expected to run only for the

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30 *New York Independent System Operator, Inc.*, 154 FERC ¶ 61,111 at P 39 (2016).

31 *See* OATT Attachment DD § 6.8(a) (Avoidable Fuel Availability Expenses).

peak hours of the day, the generators may be exposed to charges for balancing gas for the hours when the unit does not run. Some Market Sellers propose to include the charges for balancing gas associated with not running, in the offer for the hours when a unit is expected to run. These costs actually decrease with energy output, are not short run marginal costs and should not be includable in the cost-based energy offer.

These costs are a result of generators' fuel management and procurement strategies. Including these costs in cost-based energy offers would allow generators to exercise market power by imposing on customers costs that customers are already paying in the capacity market. It would also allow some generators to meet their Capacity Performance capacity market obligations by transferring the pricing risk to the customers or avoiding it altogether by not running.

6. The Market Monitor's Fuel Cost Policy Review Should be Maintained.

All of these issues deserve careful treatment in the review of fuel cost policies. Generators with market power have the ability and incentive to raise LMPs by including excessive fuel costs in their cost-based offers. Generators with capacity market obligations have an incentive to avoid taking an outage by offering their energy at a price high enough that it will not clear the market. Fuel traders have an incentive to overestimate prices to ensure their ability to purchase fuel at a lower price and build in a guaranteed margin. Given the incentives to overstate costs, fuel cost policies and cost-based offers require a careful review process with the explicit standards proposed by the Market Monitor.

As demonstrated in this docket, generators resist change that would require them to use verifiable fuel costs in cost-based offers. Under the PJM proposal, PJM will face the choice of forcing a Market Seller to offer at zero or approving a fuel cost policy that allows a Market Seller to exercise market power. This creates the conflict of interest for PJM between

RTO administration and market power mitigation that was specifically contemplated in Order No. 719.[32]

G. The Rules Can and Should Accommodate Flexibility without Compromising Verifiability.

Dominion recognizes the role of fuel cost policies in market power mitigation and monitoring, but would undermine it with unverifiable exceptions. Dominion makes three points in its September 30 response to the Market Monitor's September 16th Protest. Dominion emphasizes the importance of the fuel cost policy in establishing an understanding between the Market Seller and the Market Monitor for market power monitoring; argues for flexibility for Market Sellers to exceed verifiable costs in their cost-based offers; and requests clarification regarding the interpretation of proposed tariff revisions to dual fuel units.

The Market Monitor agrees with Dominion's first and third points and disagrees with the second point. The June 17th Order stated (at P 63) the goal of providing incentives for Market Seller's to submit accurate cost-based offers to support market power monitoring and mitigation. Compliant tariff revisions should facilitate communication about costs between Market Sellers, the Market Monitor and PJM in a way that accommodates the flexibility necessary to reflect the intricacies of generator costs without compromising the verifiability of cost-based offers.

Dominion confirms its agreement with the Market Monitor that the fuel cost policy plays a key role in establishing agreement between the Market Seller and the Market Monitor regarding the short run marginal costs of a generator. It has never been used for any other purpose in the PJM Markets. The Commission seeks to require fuel cost policies for all generators and to strengthen the supporting language in the tariff.[33]

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32 Order No. 719-A at PP 133–137.

33 *Id.* at P 63.

Dominion suggests that the Fuel Cost Policy and Manual 15 should not be a bright-line test for cost-based offers.[34] The suggestion would undermine the Commission's requirement to penalize inaccurate cost-based offers. If PJM is to charge penalties, the tariff must define a clear standard for accuracy. The Market Monitor proposes a clear standard, that "the level of incremental costs included in the Offer Price Cap (i) is sufficiently documented and (ii) accurately reflects the Market Seller's short run marginal costs."[35] An algorithmic, systematic, and verifiable fuel cost policy supports this standard. Manual 15 should be rewritten to support this standard.

Dominion argues that cost uncertainties justify unverifiable "risk adders" in cost-based offers.[36] The Market Monitor disagrees. Uncertainties do not excuse Market Sellers from the responsibility to behave competitively. Uncertainty can be anticipated. Uncertainty about the price of natural gas supply to PJM generators will to continue to exist. While recognizing the challenges, the Market Monitor expects competitive Market Sellers to develop cost-based offers in a transparent, verifiable manner despite fuel supply uncertainty. The fuel cost policy should explain how Market Sellers will do so. The Market Monitor does not and does not propose to prescribe a particular method.

Dominion cites the reference level consultation process used by the ISO New England market monitor.[37] The ISO-NE process also requires that fuel costs be accurate and verifiable.[38] No RTO tariff allows cost-based offers or reference levels to include

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34 *See* Dominion at 3.

35 *See* Protest of the Independent Market Monitor for PJM, Docket ER16-372 (September 16, 2016) at Attachment.

36 *See* Dominion at 4.

37 *See* Dominion at 3. Dominion appears to stop short of recommending that the Market Monitor in PJM calculate cost-based offers for Market Sellers.

38 *See* ISO New England, Market Rule 1, Appendix A § III.A.3.4(b).

unverifiable fuel costs based on what the Market Seller "feels compelled to add," regardless of the market circumstances, as Dominion would have it.[39]

Dominion raises concern with the Market Monitor's suggestion that cost-based offers reflecting an incorrect fuel type are inaccurate and should be subject to penalties and enforcement action.[40] PJM provides to generators ample flexibility to submit cost-based offers for all available fuels and opportunities to update fuel availability status upon unit commitment. Such flexibility will be further enhanced upon implementation of hourly offer flexibility. The Market Monitor recognizes that fuel availability, at times, involves uncertainty. The generator is in the best position to manage that uncertainty and to make the appropriate adjustments to its offers. The Market Monitor recommends that Market Sellers submit cost-based offers representing all fuels with anticipated availability, particularly for the fuel used to construct the price-based offer.[41]

The Market Monitor's concern lies with the deliberate misrepresentation of fuel costs, which the Market Monitor, or the Office of Enforcement, can verify after the fact. A Market Seller's submittal of a price-based offer using a low cost fuel along with cost-based offers reflecting only more expensive fuel calls for scrutiny. The deliberate misrepresentation of costs may be found upon investigation. It should be a tariff violation, subject to applicable penalties.

H. PJM's Legal Arguments Have No Merit.

PJM continues to argue that its jurisdictional status as a public utility has relevance to this proceeding. The market monitoring process that has been in place for over decade did not require then and does not require now that the Market Monitor be a public utility.

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39 Dominion at 4.

40 Dominion at 5–6.

41 *See 2015 State of the Market Report for PJM 2015*, Vol. II, Section 2: Recommendations, New Recommendations from Section 3, Energy Market.

Nothing about PJM's or the Market Monitor's jurisdictional status compels the approval of rules that would afford participants a safe harbor from referrals, complaints and investigation by the Market Monitor and the Office of Enforcement based on whether participants can satisfy any concerns that PJM may have about the potential exercise of market power.

PJM suggests (at 18) that a participant requires approval of a fuel cost policy from the Market Monitor before the participant can submit and PJM can accept an offer based on such policy:

> Any paradigm in which the IMM makes substantive determinations related to Fuel Cost Policies and acts as any form of a de facto gatekeeper preventing Market Sellers from submitting cost-based offers unless such Fuel Cost Policies adhere to the IMM's standard creates an irreconcilable legal 'Catch-22.'

PJM alleges that the Market Monitor is "a de facto gatekeeper." PJM's apparently recognizes that the Market Monitor is not a de jure gatekeeper.

The Market Monitor does not serve as a gatekeeper and never has. The Market Monitor advises participants on whether their behavior raises market power concerns before they irreversibly commit to that behavior.

The tariff does not require and no one argues that it requires a participant to satisfy the Market Monitor's market power concerns as a condition to submit an offer. The tariff requires good faith participation in the process, but it does not require a participant to come to an agreement with the Market Monitor as an administrative condition to submit an offer.[42] (In contrast, a participant does need PJM approval of its fuel cost policy as compliant with the tariff's administrative provisions in order to submit an offer.)[43]

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42 *See* OATT § 12A.

43 *See* September 16th Protest, Market Monitor proposed revised OA Schedule 2(d).

The Market Monitor's objective in this proceeding is to defend the tariff's definition of the Market Monitor's and PJM's roles in review processes. There is, however, one new element to the process that is added solely because the Commission required that PJM add it. The June 17th Order directs PJM to include "a penalty structure that will be applicable in the event that PJM or the IMM determines that a resource has submitted a cost-based offer that does not comply with Schedule 2 of the Operating Agreement or the Cost Development Guidelines in Manual 15." The Market Monitor submitted a proposal to comply with this directive because PJM failed to do so.

The Market Monitor does not propose that the Market Monitor itself assess and collect penalties.

To be consistent with the directive in the June 17th Order, PJM should apply a penalty for attempted exercise of market power based on the Market Monitor's determination. PJM argues that this arrangement requires PJM to defend a determination with which it does not agree. That argument is false and misleading. If PJM applies a penalty because it must do so when the Market Monitor makes a determination, the only administrative action for which PJM must answer is whether, in fact, the Market Monitor made a determination and what that determination was. In that case, PJM is not required to argue on the substantive merits of the Market Monitor's determination. The Market Monitor can and will defend the substance of any determinations that it makes concerning market power.[44] The Market Monitor would prefer that PJM not weigh in on the other side, but recognizes that PJM can take any position its wants in a FERC proceeding.

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[44] An approach where PJM takes administrative actions not based on its own substantive determination is not unusual. The PJM tariff includes many instances where PJM must make administrative actions, including filings at the Commission, based on actions, including discretionary actions, made by others. *See*, *e.g.*, OATT Attachment DD § 6.7 ("To determine the default ACR values for the 2013-2014 and subsequent Delivery Years, the Office of the Interconnection shall multiply the ACR values for the immediately preceding Delivery Year by a factor equal to the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman Index of Public Utility Construction Costs"); OATT Schedule 2 ("In the event a

Finally, PJM argues (at 17) that even if the inferiority of its proposal is established, the Commission is nevertheless bound to accept it. The Market Monitor does not agree that PJM's proposal is entitled to any deference in this proceeding.[45] PJM's proposal is not adequate to accept under the directives in the June 17th Order, Commission policies for market monitoring or its own tariff. PJM's proposal is not adequate to protect the competitiveness and efficiency of its markets. PJM has not established that its proposal is just and reasonable, and it is not entitled to any deference.

II. PJM'S HOURLY OFFER PROPOSAL

Like PJM, the Market Monitor recognizes the importance of the implementation of hourly offers. The Market Monitor also appreciates the magnitude of the market design change. What may now appear as seemingly trivial tariff provisions may have significant unintended consequences. The numerous modified provisions involved in the implementation of hourly offers call for careful consideration. For the benefit of PJM, its market participants, customers, and the Commission, the Market Monitor seeks clarity and transparency regarding the details of the market design.

PJM argues in its October 7 answer that the Market Monitor has not demonstrated that PJM's proposal is not just and reasonable and that the Market Monitor's complaints reflect how the Market Monitor would rather draft PJM tariff language. PJM's proposal is not just and reasonable because it is unclear. The Market Monitor has carefully reviewed the details of PJM proposal to ensure that the tariff is clear and transparent. Clarity and transparency facilitate market efficiency and prevent market abuse.

Generation or other source Owner sells a Generation Capacity Resource(s) which is included in its current effective monthly revenue requirement accepted or approved by the Commission, payments in that Generation or other source Owner's Zone may be allocated as agreed to by the owners of Generation Capacity Resources in that Zone.").

45 The cases PJM cites (at 17 n.43) do not apply to circumstances comparable to those in this proceeding and rely upon defective analyses.

A. PJM's Proposed $5/MWh Threshold

PJM's proposed $5/MWh threshold for offer updates, while trying to minimize the burden on generators to update their cost-based offers, fails to prioritize the need for accurate cost-based offers. The Commission prioritized accuracy in the June 17th Order (at P 71):

> We find that it is critical for the Market Sellers of resources to make accurate and timely updates to their cost-based offers, and direct PJM to explain in detail why the $5/MWh threshold is a reasonable amount in its compliance filing.

PJM notes (at 36) that it subjects resources to the three pivotal supplier test for market power mitigation for uncommitted hours. However, market power mitigation is not effective when the cost-based offer to which a resource is mitigated, is overstated. Market power is mitigated when the resources owned by suppliers that fail the TPS test are appropriately committed on an offer that reflects the short run marginal cost of producing energy. The Market Monitor's recommendation, to use a $1/MWh decrease in the operating rate at economic maximum MW as the trigger, ensures that an accurate cost-based offer is used in market power mitigation.

PJM fails to state to which point on the incremental offer curve the threshold applies. The incremental offer curve for energy can consist of up to ten points. When fuel costs change, each price point changes by a different amount because the incremental heat rate is different for each point along the incremental curve. For example, an incremental offer curve could change by $3/MWh for the first point, and change by $10/MWh for the tenth point on the curve. Lack of clarity in the details of implementation of hourly offers will lead to inconsistency in practice and increase the compliance risk for generators.

Regarding PJM's analysis to support the $5/MWh threshold, the Market Monitor has already provided a detailed critique of the methodology in the September 16th Protest (at 53–54). PJM's use of day over day change in gas price indices instead of how intraday gas prices change compared to the day-ahead gas prices does not reflect the circumstances faced by generators.

B. Incremental Energy Offer, Startup Cost, and No Load Cost Definitions

In its August16th Protest, the Market Monitor pointed out that PJM's proposed definitions of the components of the three part offer, incremental energy, start up, and no load, are "overly restrictive" and "do not clearly distinguish between the price-based and cost-based offer."[46] OATT defined terms should be clear, comprehensive of all possible situations, and not rely on details in PJM's Manuals for clarification. PJM's definitions do not meet this standard.

C. Flexible Resource Definition

In its September 16th Protest, the Market Monitor points out that PJM's proposed flexible resource definition requires less flexibility than expected of resources for Capacity Performance. The Market Monitor also advised that

> PJM should only compensate the resource for providing flexible generation to the market when it has the verified physical capability to do so, as indicated by its cost-based offers, and indicates its willingness to do so, as indicated by its price-based offers.[47]

PJM argues (at 41) that there is no need to change PJM's flexible resource definition. It is unclear why PJM would argue against having better incentives for flexible resources and for overcompensating resources that would be unable to perform flexibly when needed by PJM.

PJM's argument (at 42) implying that the Market Monitor's proposal will require the application of parameter limited schedules on price-based offers is also confusing. Generators in PJM submit cost-based offers with limits on operating parameters, price-

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46 September 16th Protest at 56.

47 September 16th Protest at 59.

based offers with limits on parameters (price PLS offers) and price-based offers without limits on operating parameters. The Market Monitor is not proposing that all offers in PJM have limits on its parameters. It would be the generation owner's decision whether or not to have a price-based offer with flexible parameters.

D. Minimum Run Time Hourly Granularity

PJM argues (at 42) that its proposal appropriately allows hourly granularity for minimum run times in real time. PJM's reasoning (at 43) is based on software limitations. Furthermore, PJM agrees with the Market Monitor that this feature could be manipulated to increase make whole payments. Therefore, it is unclear why PJM believes the tariff language should allow hourly granularity for Minimum Run Time. The market rules should state that Minimum Run Time updates would apply for the rest of the day. It is the market seller's responsibility to offer one value for the Minimum Run Time parameter in real-time offers for the rest of the operating day. It is also unclear how implementing a software feature that allows multiple values of a variable for different hours during the rest of the operating day is feasible while one constant numeric value that would apply for the rest of the day is not.

E. Committed Offer

PJM admits (at 43) that under situations in which a self-scheduled resource is offer capped the committed offer will not be the same as the one in PJM's committed offer definition and the applicable offer would apply. To ensure transparency and proper implementation, the Market Monitor advises the Commission that an appropriate minor clarification is needed.

F. Dispatch Cost Formula

PJM states (at 44–45) that it modified the dispatch cost formula because the prior formula favored less flexible schedules since it uses minimum run hours in the denominator of one of the components (startup cost). The new formula instead multiplies the incremental and no load components with minimum run hours to arrive at a total dollar value.[48] PJM uses an example (at 45) of a resource whose cost-based offer and market-based offer are exactly the same except for the minimum run time parameter. In this particular example, the new formula results in the more flexible schedule being the lowest cost schedule, because all else is constant for both schedules. The Market Monitor agrees with PJM for this particular case.

However, this example does not reflect the norm of how price-based offers and cost-based offers are made in the PJM Energy Market. PJM's new proposed formula for dispatch cost favors flexibility over the cost of energy. Table 1 illustrates an example similar to what PJM proposed using hypothetical values for the generator offers. Both the price-based and cost-based offers are exactly the same except for the Minimum Run Time. The boxes shaded in green represent the lower dispatch cost using the formulas proposed by PJM. As PJM states, the new formula finds the more flexible cost-based offer to have the lower dispatch cost, whereas the old formula results in a lower dispatch cost for the less flexible price-offer.

Table 1 Identical cost and price-based offers except for Minimum Run Time

	Price based offer	Cost based offer
Min Run Time (hours)	24	4
Eco max (MW)	100	100
Eco min (MW)	50	50
Incremental offer at Eco min ($/MWh)	20	20
Incremental offer at Eco max ($/MWh)	30	30
Startup cost ($/start)	500	500
Noload cost ($/hour)	80	80
Old dispatch cost ($/MWh)	21.0	22.1
New dispatch cost ($)	26420	4820

Consider the example in Table 2 where a 100 MW unit has a positive markup in its price-based offer relative to its cost-based offer. The Minimum Run Time is the same in both the schedules. The price-based offer has an economic minimum of 40 MW compared

[48] *See* September 16th Protest at 65.

the cost-based offer's economic minimum of 50 MW. In other words, the price-based schedule offers more flexibility compared to the cost-based schedule but it comes with additional cost in its markup over the cost-based offer. PJM's new dispatch cost formula would choose the price-based offer because the dispatch cost for price-based offer ($4,660) is lower than for the cost-based offer ($4,820). However, if the unit is marginal, the price-based offer sets the LMP at a markup over the cost-based offer. This not only impacts the unit that is mitigated but a number of other nodes in the system (both generator nodes and load nodes) because LMP is based on the marginal unit's offer. This behavior constitutes exercise of market power.

Table 2 Price-offer with positive markup and lower Economic Minimum MW

	Price based offer	Cost based offer
Min Run Time (hours)	4	4
Eco max (MW)	100	100
Eco min (MW)	40	50
Incremental offer at Eco min ($/MWh)	24	20
Incremental offer at Eco max ($/MWh)	40	30
Startup cost ($/start)	500	500
Noload cost ($/hour)	80	80
Old dispatch cost ($/MWh)	26.1	22.1
New dispatch cost ($)	4660	4820

Consider another example in Table 3 where the price-based offer has a negative $2 per MWh markup at Economic Minimum, but a positive $10 per MWh markup at the economic maximum. The rest of the components in the offers are identical. In this example, both the old and the new dispatch cost formulas choose the price-based offer as the one with the lower dispatch cost. However, if the unit runs above its economic minimum, it is likely to have a positive markup. If the unit is marginal, it sets the LMP at a level above its cost, impacting the LMPs at a number of other nodes in the system. This behavior constitutes an exercise of market power.

Table 3 Crossing curves with negative markup at economic minimum and positive markup at economic maximum

	Price based offer	Cost based offer
Min Run Time (hours)	4	4
Eco max (MW)	100	100
Eco min (MW)	50	50
Incremental offer at Eco min ($/MWh)	18	20
Incremental offer at Eco max ($/MWh)	40	30
Startup cost ($/start)	500	500
Noload cost ($/hour)	80	80
Old dispatch cost ($/MWh)	20.1	22.1
New dispatch cost ($)	4420	4820

As the Market Monitor demonstrated in its earlier protest, both the formulas proposed by PJM are ineffective at determining which is the correct offer to commit the unit while effectively mitigating the exercise of market power.[49] While PJM's new formula values flexibility in terms of minimum run hours, it fails to curb positive markup being used to exercise market power and inflate LMPs. The Market Monitor's proposed rules requiring constant markup and parameter flexibility will ensure that there is no ambiguity regarding the lowest cost offer and ensures that market power is effectively mitigated.[50]

G. Cease Offer Capping at End of the Operating Day

PJM appears to misunderstand the Market Monitor's recommendation on the duration of offer capping.[51] PJM argues (at 46) that the Market Monitor suggests offer capping a resource for multiple days or weeks or months if the resource remains online. PJM also argues that the Market Monitor ignores the circumstance in which a resource is

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[49] Protest of the Independent Market Monitor for PJM, Docket Nos. EL15-73-000 & ER16-372-000 (December 14, 2015) at 18–21.

[50] Protest of the Independent Market Monitor for PJM, Docket Nos. EL15-73-000 & ER16-372-000 (December 14, 2015) at 32–36.

[51] September 16th Protest at 66–67.

committed in real time for an operating day and then committed in the Day-Ahead Energy Market for the next Operating Day on a different schedule than the schedule on which it is currently operating. Both the arguments are incorrect. The Market Monitor's recommended update is:

> For such generation resources committed in the Real-time Energy Market such offer prices shall be capped until the earlier of: (i) the resource ~~is~~ being released from its commitment by the Office of the Interconnection; ~~(ii) the end of the Operating Day;~~ or (ii~~i~~) the start of the generation resource's next pre-existing commitment.[52]

The third condition, which PJM proposed, and the Market Monitor agrees, will ensure that the generation resource is only offer capped until the start of the next pre-existing commitment.[53] The Market Monitor's recommended update will only applies to single commitments in real time that may spill over to the next operating day. It ensures that the appropriate market power mitigation is applied for the length of the commitment.

H. Offer Mitigation of Self-Scheduled Resources

PJM agrees (at 46) with the Market Monitor's complaint that the mitigation of self-scheduled resources needs to be clarified. PJM's suggested language addresses the Market Monitor's concern.

I. Generation Supplier Term in TPS Test

PJM agrees (at 47) with the Market Monitor that the term "Generation Supplier" should be used in describing the Three-Pivotal Supplier test. The Market Monitor agrees with PJM's proposed solution to retain the term 'generation supplier' throughout other provisions of section 6.4.

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52 September 16th Protest at 67.

53 *See* August 16th Filing, Attachment, proposed revised OATT § 6.4.1(a).

J. LOC Deviation

PJM argues (at 48) that there is no need to change the LOC deviation definition. The Market Monitor presented clear outcomes of both the Market Monitor's previous recommendation and the PJM proposal. The Market Monitor showed how in some cases the Market Monitor's previous recommendation would have resulted in overcompensation as pointed out by PJM and the Market Monitor also showed how in some cases PJM's proposal results in under compensation. It is clear that the calculation should be based on two different methods depending on the situation as described by the Market Monitor.[54] The Market Monitor demonstrated that PJM's proposal results in improper LOC compensation.

III. 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.[55] 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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54 September 16th Protest at 69–73.

55 *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).

IV. 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: October 26, 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 26th day of October, 2016.

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