

158 FERC ¶ 61,133
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Cheryl A. LaFleur, Acting Chairman;
Norman C. Bay, and Colette D. Honorable.

PJM Interconnection, L.L.C.

Docket No. ER16-372-002

ORDER ON PROPOSED TARIFF REVISIONS

(Issued February 3, 2017)

1. On August 16, 2016, PJM Interconnection, L.L.C. (PJM) submitted proposed revisions to its Open Access Transmission Tariff (Tariff) and Amended and Restated Operating Agreement (Operating Agreement),¹ to comply with the Commission's June 17, order in this proceeding.² In the June 2016 Order, the Commission found PJM's existing Tariff unjust and unreasonable because it does not allow market participants to submit day-ahead offers that vary by hour or to update their offers in real time (hourly offers); rejected Tariff provisions PJM had initially proposed in this proceeding to allow for hourly offers; and directed a further compliance filing. In its compliance filing, PJM includes provisions relating to its Fuel Cost Policies and states that to the extent the Commission determines that its proposed revisions related to the Fuel Cost Policy approval process and proposed penalty structure fall outside of the scope of PJM's compliance obligations, it is submitting these proposed changes pursuant to section 206 of the Federal Power Act (FPA).³ For the reasons discussed below, we accept PJM's compliance filing to the June 2016 Order and require PJM to make a further compliance filing within 30 days of the date of this order.

¹ Appendix A lists the Tariff and Operating Agreement sections filed by PJM. Capitalized terms not otherwise defined herein have the meaning specified in the Tariff and Operating Agreement as appropriate.

² *PJM Interconnection, L.L.C.*, 155 FERC ¶ 61,282 (2016) (June 2016 Order).

³ PJM Transmittal at 1-2 (citing 16 U.S.C. § 824e (2012)).

I. Background

2. The filing at issue here stems from a Commission order issued on June 9, 2015,⁴ in which the Commission found, pursuant to section 206 of the FPA, that PJM's Tariff or Operating Agreement may be unjust, unreasonable, unduly discriminatory or preferential because it did not appear to allow market participants to submit day-ahead offers that vary by hour and to update their offers in real-time, including during emergency situations. The Commission directed PJM to submit a compliance filing, "either to (1) report whether it will propose 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; such report must include a proposed timeline from PJM explaining how it will implement such changes by November 1, 2015... or as soon as practicable thereafter; or (2) explain why such changes are not necessary."⁵

3. On November 20, 2015, in response to the June 2015 Order, PJM submitted its proposal to implement hourly offers (November 2015 proposal). As noted, the June 2016 Order found that, in light of the potential for significant changes in costs between the time that offers are submitted in the day-ahead market and when resources operate in real-time, ensuring market participants have greater flexibility to modify their offers will allow resources in PJM to reflect their actual costs in their offers. The Commission determined that PJM's current Tariff was unjust and unreasonable because it did not allow market participants to submit offers that vary by hour in the Day-ahead Energy Market and to update their offers in real-time.⁶

4. Further, the Commission rejected PJM's November 2015 proposal because it lacked specific details necessary to find it just and reasonable. The Commission explained that the proposal: (1) did not include in PJM's Tariff and Operating Agreement the proposed rules for the offer parameters that are subject to flexible hourly

⁴ *Duke Energy Corp. v. PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,206 (2015) (June 2015 Order), *order on reh'g*, 154 FERC ¶ 61,156 (2016).

⁵ On July 10, 2015, PJM submitted comments stating that it agreed with the Commission that its current governing documents should be revised to allow market participants to submit day-ahead offers that vary by hour and to update their offers in real time on an hourly basis under certain circumstances. PJM proposed to submit Tariff and Operating Agreement revisions to the Commission on or before November 20, 2015 and to fully implement its hourly offers by November 1, 2016.

⁶ June 2016 Order, 155 FERC ¶ 61,282 at P 32.

offers and the appropriate definitions for various terms, (2) lacked the rules pertaining to the mitigation of self-scheduled resources, and (3) lacked provisions for sufficient review of cost-based offers to ensure that—even with increased offer flexibility—resources continue to have the proper incentive to submit accurate cost-based offers.⁷ The Commission provided further guidance and directed PJM to submit another compliance filing reflecting specific revisions.⁸

5. Among other things, the Commission directed PJM “to include in its Tariff and Operating Agreement (1) a requirement for market participants to submit fuel cost policies that are approved by PJM prior to submission of cost-based offers, and (2) 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.”⁹

6. Further, the Commission directed PJM to: (i) clarify that if a resource’s offer fails the three pivotal supplier test for market power, that resource’s offer is mitigated for the resource’s entire run time; (ii) include the formula PJM uses to determine the lower of a resource’s cost-based offer and market-based offer, which involves calculating the dispatch cost of each offer;¹⁰ (iii) explicitly state that the economic portion of offers submitted by self-scheduled resources is subject to the three pivotal supplier test and potential mitigation;¹¹ (iv) explain in detail and to include examples in its compliance filing as to why the \$5/MWh threshold is a reasonable threshold to minimize the administrative burden on resources associated with small changes in a resource’s costs; (v) explain how it proposes to use this threshold in conjunction with the ten percent adder that is currently included in cost-based offers;¹² (vi) make Flexible Resources that submit

⁷ *Id.* P 33.

⁸ *Id.* P 63.

⁹ *Id.* P 63.

¹⁰ *Id.* P 54.

¹¹ *Id.* P 59.

¹² *See e.g.*, PJM Filing to Increase Energy Offer Cap, Docket No. ER16-76-000, at 7 n.22 (Oct. 14, 2015) (“The 10% adder is allowed in order to account for uncertainty in the values of the costs utilized in computing cost-based offers, and helps to ensure that a generation resource’s cost-based offer covers all costs incurred by the Market Seller. Pursuant to those Tariff provisions, a cost-based offer can properly be viewed as the sum of the resource’s costs calculated pursuant to the Cost Development Guidelines, plus up

updated real-time offers at levels above their previously accepted day-ahead offers ineligible to receive Lost Opportunity Cost credits;¹³ (vii) define offer parameters (such as Incremental Energy Offers and Start-Up and No-load Costs) that were not defined in the Tariff and Operating Agreement and include the term “Flexible Resources”;¹⁴ (viii) include the general rules for flexibility of offer parameters;¹⁵ and (ix) clarify whether resources will be under-compensated for Lost Opportunity Cost credits in situations when the real-time price is between the Final Offer and Committed Offer.¹⁶

II. Notice of Filings and Responsive Pleadings

7. Notice of PJM’s August 16, 2016 filing was published in the *Federal Register*, 81 Fed. Reg. 56,628 (2016), with interventions, comments and protests due on or before September 6, 2016.¹⁷ Notices of intervention and timely-filed motions to intervene were submitted by the entities noted in Appendix B to this order. In addition, motions to intervene out-of-time were submitted by the Environmental Defense Fund (EDF) and the Office of the Ohio Consumers’ Counsel.

8. Supporting comments with limited protests were filed by Electric Power Supply Association (EPSA), Dominion Resources Services, Inc. (Dominion), PJM Power Providers Group (P3), PJM Utilities Coalition (PJM Coalition),¹⁸ American Petroleum

to 10% of those calculated costs.”) (PJM’s proposed tariff revisions were approved by the Commission in *PJM Interconnection, L.L.C.*, 153 FERC ¶ 61,289 (2015) (PJM Offer Cap Order)). *Id.* P 61.

¹³ *Id.* P 75.

¹⁴ *Id.* P 80.

¹⁵ *Id.* P 81.

¹⁶ *Id.* P 90.

¹⁷ On August 16, 2016, Monitoring Analytics, LLC, in its capacity as the PJM Independent Market Monitor (IMM), filed a motion for an extension of time, until September 16, 2016, to file comments in response to the filing. On August 22, 2016, the Commission granted the motion for an extension of time.

¹⁸ The PJM Coalition comprises: American Electric Power Service Corporation, the Dayton Power and Light Company, FirstEnergy Service Company, and East Kentucky Power Cooperative.

Institute (API), Direct Energy Business, LLC (Direct Energy), and EDF. Protests were filed by the IMM, Pennsylvania Public Utility Commission and the Delaware Public Service Commission (Pennsylvania and Delaware Commissions), Delaware Public Service Commission (Delaware Commission), Joint Consumer Representatives,¹⁹ the Organization of PJM States, Inc. (OPSI), Panda Power Funds (Panda), Old Dominion Electric Cooperative (ODEC), and the Delaware Municipal Electric Cooperative (DMEC).

9. On September 30, 2016, Dominion filed a motion for leave to answer and answer to the IMM's protest. On October 3, 2016, Direct Energy filed a motion for leave to answer and answer to the IMM's protest. On October 3, 2016, P3 filed a motion for leave to answer and answer to the IMM's protest and to other comments and protests filed on September 16, 2016. On October 7, 2016, PJM filed an answer to the comments and protests. On October 12, 2016, the PJM Coalition filed a motion for leave to answer and answer to the IMM's protest. On October 24, 2016, ODEC filed a response to PJM's answer. On October 26, 2016, the IMM filed a response to the answers filed by PJM, P3, Dominion, and Direct Energy. On November 10, 2016, PJM filed a limited answer to the IMM's response. On November 29, 2016, the IMM filed an answer to PJM's limited answer.

III. Discussion

A. Procedural Matters

10. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure,²⁰ the timely, unopposed motions to intervene serve to make the entities that filed them parties to the proceedings in which they were filed.

11. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure,²¹ the Commission will accept EDF's late-filed motion to intervene given its interest in the

¹⁹ The Joint Consumer Representatives include: New Jersey Board of Public Utilities, New Jersey Division of Rate Counsel, Pennsylvania Office of Consumer Advocate, Citizens Utility Board, Division of the Public Advocate for the State of Delaware, West Virginia Consumer Advocate, Maryland Office of People's Counsel, and Indiana Office of Utility Consumer Counselor.

²⁰ 18 C.F.R. § 385.214 (2016).

²¹ 18 C.F.R. § 385.214(d) (2016).

proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

12. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure prohibits an answer to a protest unless otherwise ordered by the decisional authority.²² We will accept the parties' answers because they have provided information that has assisted us in our decision-making process.

B. Substantive Matters

13. We find that PJM has partially complied with the Commission's directives in the June 2016 Order and require PJM to make a further compliance filing within 30 days of the date of this order, as discussed more fully below. We find that the aspects of PJM's compliance filing not otherwise discussed below are consistent with the Commission's prior directives, and we accept them without further discussion.

C. PJM's Flexible Hourly Offers Proposal

14. We find, as discussed below, that PJM's proposal is consistent with the Commission's directives in the June 2016 Order. PJM's proposal allows market participants to submit resource offers that vary by hour in the day-ahead market and to update their offers in the real-time market, and also provides adequate safeguards against potential exercise of market power through appropriate mitigation measures. We therefore accept PJM's proposal but require PJM to file an additional compliance filing within 30 days of the date of this order, as discussed below.

1. Local Market Power Mitigation

15. In the June 2016 Order, the Commission found that PJM's proposal lacked sufficient information about how it will apply the three pivotal supplier test to hourly offers and that this lack of detail could create uncertainty for market participants. The Commission therefore directed PJM to specify in its Tariff and Operating Agreement the manner in which a resource's offer will be mitigated when it fails the three pivotal supplier test. The Commission also found that PJM should clarify that if a resource's offer fails the three pivotal supplier test, the offer will be mitigated for the resource's entire run time. Similarly, the Commission directed PJM to include the formula PJM

²² 18 C.F.R. § 385.213(a)(2) (2016).

uses to determine the lower of a resource's cost-based offer and market-based offer, which, as noted above, involves calculating the dispatch cost of each offer.²³

a. PJM's Filing

16. PJM proposes to revise section 6.4.1, Schedule 1, of the Operating Agreement to provide greater detail describing how it will mitigate resources that may be dispatched out of economic order to maintain reliability in transmission-constrained areas.²⁴ PJM states that a resource already operating based on its day-ahead or real-time commitment and which may be needed for reliability in a transmission constrained area, will be offer capped, in accordance with the application of the three pivotal supplier test as appropriate, for each hour beyond the greater of its Minimum Run Time or its commitment period.²⁵

17. PJM's proposal also specifies the duration of mitigation for resources committed day-ahead and in real-time. Resources committed day-ahead will be offer capped for the entire commitment period. However, because the run time for resources committed day-ahead could be for non-sequential periods, PJM proposes to initially mitigate such resources for their commitment period. For any commitments made during the Operating Day, such resources will be reevaluated for market power as necessary. PJM explains that resources committed in real-time are offer capped "until the earlier of: (1) the point at which PJM releases the resource from its commitment; (2) the end of the Operating Day; or (3) the start of the resource's next pre-existing commitment that is distinct from the commitment under which it is currently operating."²⁶

18. According to PJM, a resource that is offer capped in real-time after the commitment period "will be subject to the three pivotal supplier test and further offer capping, as applicable, if the resource is committed for a period later in the same Operating Day."²⁷ PJM explains that it will commit or dispatch a mitigated resource on the lower of the resource's cost-based or market-based offer. That is, mitigated resources

²³ June 2016 Order, 155 FERC ¶ 61,282 at P 54.

²⁴ PJM Transmittal at 39.

²⁵ *Id.* at 42-44.

²⁶ *Id.* at 40; PJM proposed Operating Agreement, Schedule 1, section 6.4.1(a)(i) through (iii).

²⁷ *See* PJM proposed Operating Agreement, Schedule 1, section (6.4.1(a)).

committed in real-time will be dispatched at the offer that yields the “lowest overall dispatch cost.” Resources committed in the day-ahead market will be committed at the market-based offer or cost-based offer that PJM’s security constrained unit commitment engine determines “results in the lowest overall system production cost.”²⁸

19. PJM’s proposed section 6.4.1(g) of the Operating Agreement contains the static formula and the process for determining the lower of a resource’s cost-based offer and market-based offer. Accordingly, mitigated resources committed in real-time, will be dispatched on the cheaper of (1) the cost-based offer that is the offer cap level established under section 6.4.2 of the Operating Agreement; or (2) the resource’s market-based offer.²⁹ PJM explains that, for resources operating in real-time, that are already operating and dispatched beyond their commitment, the formula does not account for Minimum Run Time and Start-up Costs because such resources have already met their Minimum Run Time requirement.

b. Comments and Protests

20. The IMM argues that PJM’s proposed dispatch cost formula is inconsistent with the formula that PJM described in a supplemental filing submitted earlier in this proceeding on March 7, 2016.³⁰ The IMM states that PJM has not justified its decision to

²⁸ PJM Transmittal at 40-41. PJM states that this difference is the result of the fact that, in the Day-ahead Energy Market, PJM uses its security constrained unit commitment engine to determine the least cost solution, whereas in the Real-time Energy Market, PJM employs a static formula to determine the offer that yields the “lowest overall dispatch cost.” PJM Transmittal at 40-41.

²⁹ To determine which offer is cheaper, PJM calculates which offer would result in the lowest overall dispatch cost, in accordance with the following formula: “Dispatch cost = ((Incremental Energy Offer @ EcoMin [\$/MWH] * EcoMin [MW]) + No Load Cost [\$/H]) * Min Run Time [H] + Startup Cost [\$.” PJM Transmittal at 41.

³⁰ PJM submitted the supplemental filing in response to a deficiency letter issued by Commission staff on February 3, 2016. In response to Commission staff’s question about how PJM currently applies the three pivotal supplier test, PJM explained that if a resource fails the three pivotal supplier test, that resource’s offer will be mitigated to the lower of its market-based or cost-based offer based on the resource’s dispatch cost. PJM proposed to define a resource’s dispatch cost as the resource’s marginal cost at its economic minimum output level plus a fixed cost adder. PJM also explained that: “Dispatch cost = Marginal cost at Economic minimum output + *Fixed cost adder*, where *Fixed cost adder* = Startup cost/(Economic maximum output * Minimum run hours) +

change the method for determining the lower of the cost-based and market-based offers for resources that fail the three pivotal supplier test.³¹ With respect to the duration of mitigation for resources committed in real-time, the IMM disagrees with PJM's proposed provision and suggests that PJM offer cap a resource for its entire run time, regardless of whether the commitment crosses over into the next Operating Day.³²

c. PJM's Answer

21. In its answer, PJM states that it modified the dispatch formula and uses a straight production cost calculation to arrive at the lowest production cost in total dollars rather than dollars per MWh. PJM contends that, accordingly, the proposed correction to the dispatch formula calculates the cheapest schedule for selecting the "lowest overall dispatch cost." With respect to the duration of mitigation for resources committed in real-time, PJM argues that the IMM ignores the circumstances in which a resource is committed in real-time for an Operating Day and then is committed in the day-ahead for the next Operating Day on a different schedule than the one it currently operates. PJM further maintains that "if such resource does not go offline, it is unclear which offer would apply—the one on which it was offer capped the previous day and from which it was never released, or the offer on which it was committed in the Day-ahead Energy Market. PJM asserts that its proposal appropriately allows PJM to reevaluate whether the resource should be offer capped at the time the resource is committed in the Day-ahead Energy Market."³³

d. Commission Determination

22. We accept PJM's proposal as it relates to local market power mitigation. Under PJM's proposal, resources committed in the day-ahead market will be offer capped for the entire commitment period based on the offer, either market-based or cost-based, that results in the lowest overall system production cost.³⁴

No-load cost/Economic maximum output."

³¹ IMM Protest at 64-65.

³² *Id.* at 66-67.

³³ PJM Answer at 44-46. *See* PJM's proposed Tariff and Operating Agreement, section 6.4.1(a).

³⁴ *See* PJM's proposed Tariff and Operating Agreement, section 6.4.1(a).

23. We note that the Tariff and Operating Agreement will contain a dispatch formula and the process for determining the lower of a resource's cost-based and market-based offers for resources committed in the Real-time Energy Market. As PJM explained, the proposed formula will yield the schedule that results in the lowest overall dispatch cost.³⁵ Therefore, we find that these changes would remove any uncertainties regarding the implementation of the three pivotal supplier test to hourly offers for market participants.³⁶

24. We reject the IMM's argument that PJM's proposed dispatch cost formula should be rejected as inconsistent with the formula that PJM proposed in its supplemental filing submitted on March 7, 2016. We note that the modified dispatch cost formula PJM submitted in this proceeding is consistent with the formula PJM uses to determine the lower of a resource's cost-based and market-based offer. We accept PJM's proposed correction to the dispatch formula because it enables PJM to calculate the "cheapest schedule" for selecting the "lowest overall dispatch cost."³⁷ Therefore, we find that PJM's proposal here is just and reasonable, as it will allow PJM to reevaluate whether a given resource should be offer capped at the time the resource is committed in the day-ahead market.

2. Mitigation of Self-Scheduled Resources

25. In the June 2016 Order, the Commission found that under PJM's hourly offers proposal, exempting a self-scheduled resource from mitigation if that resource is dispatched on an economic basis at an output level above its self-scheduled quantity inappropriately increases the likelihood that the market clearing price will be higher than the competitive level. Therefore, the Commission directed PJM to submit Tariff and Operating Agreement revisions to explicitly state that the economic portion of offers submitted by self-scheduled resources is subject to the three pivotal supplier test and potential mitigation.³⁸

26. The Commission also found that because PJM did not propose to prevent a self-scheduled resource that offers a portion of its supply to the market on an economic basis from updating its offer between the day-ahead and real-time markets, the term

³⁵ *Id.*

³⁶ June 2016 Order, 155 FERC ¶ 61,282 at P 54.

³⁷ PJM Transmittal at 41.

³⁸ June 2016 Order, 155 FERC ¶ 61,282 at P 59.

Committed Offer³⁹ should be amended to accommodate the fact that self-scheduled resources can change their offers. Therefore, the Commission directed PJM to define the Committed Offer for a self-scheduled resource that clears the day-ahead market or the real-time market at a point on its economic Incremental Energy Offer curve that is above its self-scheduled quantity as the market-based or cost-based offer upon which the resource cleared the day-ahead market or the real-time market.⁴⁰

a. PJM's Filing

27. PJM states that its proposed revisions to several subsections in section 6.4.1, Schedule 1 of the Operating Agreement will ensure that PJM accounts for self-scheduled resources when performing the three pivotal supplier test. PJM states that the revisions extend the offer cap mitigation rules to all of the output from self-scheduled resources. PJM argues that subjecting all self-scheduled resources to the offer cap mitigation rules “will help ensure mitigation of the economic portion of offers by self-scheduled resources through different times in the Operating Day and facilitate application of mitigation to those economic offers by self-scheduled resources, as the Commission directed.”⁴¹

b. Comments and Protests

28. The IMM explains that proposed subsection 6.4.1(e) still needs to include a broader description of which resources are subject to mitigation since it only refers to resources committed by PJM, not self-scheduled resources. Thus, the IMM argues, PJM should clarify that self-scheduled resources will also be subject to the three pivotal supplier test. In addition, the IMM argues that the reference to the “applicable offer” for self-scheduled resources is ambiguous because it fails to specify which offer is being referenced, i.e., the offer on which the resource is self-scheduled or the offer on which

³⁹ PJM proposes the following revised definition of Committed Offer: (1) for pooled-scheduled resources, “Committed Offer” means an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day; and (2) for self-scheduled resources, “Committed Offer” means either the offer on which the Market Seller has elected to schedule the resource or the applicable offer for the resource (on which the Market Seller has elected to follow PJM’s dispatch instructions) determined pursuant to Operating Agreement, Schedule 1, section 6.4, or Operating Agreement, Schedule 1, section 6.6 for a particular clock hour for an Operating Day. PJM Transmittal at 67.

⁴⁰ *Id.* P 86.

⁴¹ PJM Transmittal at 44-45.

the resource is dispatched. The IMM argues that the Committed Offer should be defined as the offer on which a resource was scheduled by either PJM or the Market Seller.⁴²

c. PJM's Answer

29. PJM acknowledges that, as proposed, “section 6.4.1(e) fails to explicitly suspend the offer price cap for, and apply the TPS [three pivotal supplier] test to, self-scheduled resources.” Therefore, PJM proposes to revise section 6.4.1(e) to further clarify that self-scheduled resources will be subject to mitigation. With respect to the IMM’s comment on the definition of the Committed Offer, PJM states that its proposal clearly defines a self-scheduled resource’s Committed Offer as the offer on which the resource has self-scheduled the resource, while recognizing the limitations PJM may impose on a self-scheduled resource’s offer under certain conditions — e.g., that the resource may be offer capped pursuant to section 6.4.⁴³

d. Commission Determination

30. We find that PJM’s proposal complies with the directive to subject self-scheduled resources to the three pivotal supplier test and offer cap. We note that under its proposal, PJM will account for self-scheduled resources when it performs the three pivotal supplier test and will extend the offer cap mitigation rules to self-scheduled resources that offer economic supply to PJM. For example, the proposed revisions to section 6.4.1(f)(iii) state that “[a] generation supplier’s units, including self-scheduled units, are offer capped if, when combined with the two largest other generation suppliers, the generation supplier is pivotal.”⁴⁴ We disagree with the IMM that the definition of Committed Offer must include further specifications. PJM’s proposal defines a self-scheduled resource’s Committed Offer as the offer on which the resource is self-scheduled. PJM states that it places Market Sellers on notice of the circumstances under which a self-scheduled resource’s Committed Offer will not be the offer on which it is self-scheduled. Therefore, we accept PJM’s proposed definition of a self-scheduled resource’s Committed Offer.

31. We agree with the IMM and PJM that proposed subsection 6.4.1(e) should be revised to include a broader description of which resources will be subject to mitigation

⁴² IMM Protest at 63-64.

⁴³ PJM Answer at 43-44.

⁴⁴ Proposed section 6.4.1(f)(iii) of the PJM Tariff and Operating Agreement (emphasis added).

since it only refers to resources committed by PJM and not self-scheduled resources. Thus, we direct PJM to submit Tariff and Operating Agreement revisions consistent with the clarification it proposes to section 6.4.1(e) in its answer, within 30 days of the date of this order.⁴⁵

3. Fuel Cost Policies and Penalty Structure

32. In the June 2016 Order, the Commission found that PJM's November 2015 proposal lacked provisions for sufficient review of cost-based offers and could permit a resource to submit inaccurate cost-based offers.⁴⁶ The Commission also found that because a resource's cost-based offer will be permitted to vary by hour in the day-ahead market and can be updated in real-time, the frequency of changes to cost-based offers will increase under PJM's proposal and thus additional measures were necessary to ensure that resources have the proper incentive to submit accurate cost-based offers. Therefore, the Commission directed PJM to include in its Tariff and Operating Agreement (1) a requirement for market participants to submit Fuel Cost Policies⁴⁷ that are approved by PJM prior to submission of cost-based offers, and (2) 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 15.⁴⁸

a. Standards Governing Fuel Cost Policies

33. PJM filed revisions to Schedule 2 of the Operating Agreement regarding the standards governing its Fuel Cost Policies to comply with the Commission's June 2016 Order. PJM also separately filed revisions to its Fuel Cost Policy pursuant to section 206 of the FPA to the extent that the changes it proposes fall outside of the immediate scope of PJM's compliance obligation. PJM explains that many of the details for Fuel Cost Policies were either included previously in Manual 15 or absent from the Tariff and manuals altogether. PJM notes three reasons why its existing Fuel Cost Policy is no longer just and reasonable. First, PJM explains that section 1.8 of Manual 15 is unclear as to whether Market Sellers are required to have an approved Fuel Cost Policy for each

⁴⁵ PJM Answer at 46-47.

⁴⁶ June 2016 Order, 155 FERC ¶ 61,282 at P 63.

⁴⁷ See PJM Manual 15, section 2.3 Fuel Cost Guidelines.

⁴⁸ June 2016 Order, 155 FERC ¶ 61,282 at P 63.

of their generation resources. Therefore, some Market Sellers do not have any formal Fuel Cost Policy on file for certain generation resources.⁴⁹ Second, PJM explains that the current Fuel Cost Policy approval process, although retaining PJM's final approval, does not discuss in detail the role of the IMM. PJM states that, as a result, there was confusion among stakeholders as to whether it is PJM or the IMM that approves Fuel Cost Policies.⁵⁰ Third, PJM states that the standards that govern its approval of Fuel Cost Policies, although specific for a number of fuel types, are unclear with respect to the treatment of natural gas commodity and transportation procurement, particularly during periods of illiquidity in the natural gas markets, which is precisely when there is the most price volatility and Market Sellers are most likely to be mitigated to cost-based offers.⁵¹

34. PJM argues that its proposed market rules will, among other things, provide a clear "standard of review" that it will use to determine whether a submitted Fuel Cost Policy may be approved. PJM explains that the proposed standard of reviewing Fuel Cost Policies will require information for: (1) verifying a Market Seller's Fuel Cost Policy; (2) reflecting a Market Seller's applicable commodity and/or transportation contracts; (3) explaining the basis for and reasonableness of any applicable adders included in determining fuel costs; (4) accounting for situations where applicable indices or other market measures are not liquid; and (5) adhering to all requirements of PJM Manual 15.

35. PJM states that its proposed revisions require that a Market Seller (1) provide a Fuel Cost Policy to PJM and the IMM for each fuel type used by a given generation resource that the Market Seller intends to offer into the PJM energy market; and (2) detail and document how it prices fuel under different circumstances.⁵² Details of the standard

⁴⁹ PJM Transmittal at 11. Because section 1.8 states that it only applies to PJM Members (and by extension Market Sellers) that seek "to obtain an exemption, exception or change to any time frame, process, methodology, calculation or policy set forth in this Manual."

⁵⁰ *Id.* at 12. PJM states that "many Market Sellers have indicated they are in a state of uncertainty with regard to their Fuel Cost Policies because while the IMM had previously indicated that it agreed with such policies, the IMM has more recently indicated that it no longer agrees with them. This in turn leaves PJM and Market Sellers in a situation where a number of Fuel Cost Policies are neither definitively approved nor disapproved but are pending resolution between the IMM and the Market Seller."

⁵¹ *Id.* at 13.

⁵² *Id.* at 20. According to PJM, the purpose of the Fuel Cost Policy is to demonstrate how Market Sellers procure their fuels so that PJM can verify that submitted

of review that Market Sellers must meet in order for PJM to approve their Fuel Cost Policies are noted in proposed Schedule 2(f).⁵³ PJM explains that the proposed standard of review will help promote transparency and clarity as to what specific standards will govern a PJM review of a submitted Fuel Cost Policy. Under PJM's proposed rules, a Market Seller must submit its Fuel Cost Policy no later than 45 days before the initial submission of a cost-based offer. PJM states that it will consult with and consider any input and advice timely received from the IMM in its determination of whether to approve a Market Seller's Fuel Cost Policy.⁵⁴ PJM states that it will also notify a Market Seller of its determination, with a copy to the IMM, whether a given Fuel Cost Policy is approved or rejected. PJM explains that if it rejects a Market Seller's Fuel Cost Policy, it will explain to the Market Seller why the Fuel Cost Policy was rejected.⁵⁵

36. PJM states that proposed Schedule 2(d) requires that Market Sellers with PJM-approved Fuel Cost Policies may submit non-zero cost-based offers for their generation resources. Market Sellers without a PJM-approved Fuel Cost Policy will only be permitted to submit cost-based offers of \$0/MWh because such Market Sellers have a

cost-based offers are determined in a manner that represents Market Sellers' applicable costs.

⁵³ Proposed subsection (f) requires, among other things, that Market Sellers provide: information sufficient for verification of the Market Seller's fuel procurement practices; information on commodity and transportation contracts; and explanation for lack of liquidity in applicable indices and documentation on any alternative measures used to price the applicable fuel. In addition, proposed subsection (f) contains a notable exception to PJM Manual 15 (i.e., "a Market Seller's Fuel Cost Policy must now account for situations where applicable indices or other market measures are not sufficiently liquid by documenting the alternative means utilized by the Market Seller to price the applicable fuel used in the determination of its cost-based offers.") PJM explains that this is appropriate so that it can determine how Market Sellers price their fuel during periods where there is limited market liquidity, making verification through published indices difficult if not impossible to effectuate. *Id.* at 20-21.

⁵⁴ PJM explains that the "[t]he basis for the Market Monitoring Unit's review is described in PJM Tariff, Attachment M-Appendix. PJM shall consult with the Market Monitoring Unit, and consider any input and advice timely received from the

Market Monitoring Unit, in its determination of whether to approve a Market Seller's Fuel Cost Policy." *Id.* at 19.

⁵⁵ See Proposed PJM Operating Agreement, Schedule 2(e).

must-offer requirement into the PJM energy markets. PJM explains that “prohibiting a Market Seller of a Generation Capacity Resource from submitting any cost-based offer would mean that the resource is not permitted to operate and could jeopardize reliability in the PJM Region.”⁵⁶

37. PJM contends that its proposed Schedule 2(g) provides Market Sellers with the flexibility to have their Fuel Cost Policies approved if they wish to use an alternative methodology to document fuel costs that is consistent with or superior to the standard of review set forth in Schedule 2(f) described above. PJM contends that Schedule 2(g) will provide a standard which is lacking today that could govern litigation over PJM’s particular decisions concerning non-conforming submittals made by Market Sellers pursuant to these procedures.⁵⁷ PJM also proposes revisions to Schedule 2(h), which gives PJM the authority to reject a Market Seller’s Fuel Cost Policy that does not comply with PJM’s standard of review. PJM argues that proposed subsection (h) is appropriate because currently there are no rules that specifically give PJM authority to reject a Market Seller’s submitted Fuel Cost Policy, and such authority should go hand in hand with PJM’s authority to approve a Fuel Cost Policy. In addition, PJM states that if it rejects a Market Seller’s Fuel Cost Policy, the Market Seller’s previously approved Fuel Cost Policy will remain in effect until the Market Seller submits a Fuel Cost Policy that satisfies the standard of review. PJM explains that the Market Seller will be required to submit an acceptable Fuel Cost Policy within a specified period of time, consistent with the provisions of proposed Schedule 2(k), and applicable deadlines to be articulated in PJM Manual 15, after PJM initially rejects its submitted Fuel Cost Policy; otherwise, the Market Seller will be prohibited from submitting non-zero cost-based offers and will begin to incur penalties specified in Schedule 2(l).⁵⁸

38. PJM states that proposed Schedule 2(j) requires that a Market Seller provide a detailed explanation of the method established to calculate fuel costs and to determine commodity handling and transportation costs. Further, Schedule 2(j) requires Market Sellers to indicate whether fuel purchases are subject to a contract price and/or spot price. PJM also states that proposed Schedule 2(i) describes the conditions under which PJM will revoke a Market Seller’s Fuel Cost Policy. PJM explains that once it revokes a

⁵⁶ PJM Transmittal at 17-18.

⁵⁷ *Id.* at 22.

⁵⁸ PJM explains that the rationale for this rule is to give a Market Seller the ability to continue to submit cost-based offers under its previously approved Fuel Cost Policy without automatically incurring penalties if PJM rejects a request for a new or updated Fuel Cost Policy. *Id.* at 23.

Market Seller's Fuel Cost Policy, under proposed Schedule 2(i), the Market Seller will be prohibited from submitting non-zero cost-based offers and will begin incurring penalties the day after PJM notifies the Market Seller that its Fuel Cost Policy has been revoked consistent with the proposed provisions of Schedule 2(l) referenced above.⁵⁹

i. Comments and Protests

39. The Pennsylvania and Delaware Commissions state that they generally support most aspects of PJM's filing including PJM's proposal to implement a Fuel Cost Policy because PJM's filing represents a significant improvement to its market power mitigation policies and accommodates hourly offer flexibility. With regard to PJM's proposed revisions to Schedule 2(d), the Delaware Commission states that it is unclear "why PJM would facilitate potential conflicts between Market Sellers and the IMM when only a PJM-approved Fuel Cost Policy is required to submit a cost-based offer." The Delaware Commission requests that, to clarify such conflicts, the Commission should require PJM to adopt Fuel Cost Policies that are approved by PJM and reviewed and accepted by the IMM prior to submitting a non-zero cost-based offer.⁶⁰

40. P3 and Panda argue that there are certain provisions that would specify certain components of the Fuel Cost Policy, some of which PJM proposes to include in Manual 15, that are absent from the Tariff and Operating Agreement including the standard of review for accepting a Fuel Cost Policy and the rules for how a Market Seller could be found noncompliant with a Fuel Cost Policy.

41. Panda also seeks clarification on timeline milestones within the 45-day review period.⁶¹ Similarly, Direct Energy requests that PJM be required to include the timeline

⁵⁹ *Id.* at 24.

⁶⁰ Delaware Commission Protest at 11. The Delaware Commission proposes the following revision to PJM's proposed subsection (d): "d) A Market Seller may only submit a non-zero cost-based offer into the PJM Interchange Energy Market for a generation resource if it has a PJM-approved Fuel Cost Policy and a Fuel Cost Policy that has been reviewed and accepted by the IMM for such generation resource." *Id.* at 6.

⁶¹ P3 suggests the following milestones: the submittal due date, period for IMM review, date for notifying PJM of a disagreement, deadline for PJM's response, and provisions/deadlines in the event of a lack of response by the IMM. P3 Comments at 12, n.18.

for modification of an existing Fuel Cost Policy in the Operating Agreement and to revise the timeline so that PJM has the incentive to approve the policies in a timely manner.⁶²

42. Panda also raises concerns over the application of rules on Fuel Cost Policies to new generators that would not already have a Fuel Cost Policy on file with PJM. Panda argues that, as an example, the emission rate, starting fuels, and other components of a new resource's Fuel Cost Policy should be incorporated no sooner than 90 days after commercial operations.⁶³ Panda requests that the Commission direct PJM to supplement its Fuel Cost Policy proposal with a mechanism that will allow new resources to establish an interim approval of a simplified Fuel Cost Policy until the new resource has sufficient operational experience to complete a full Fuel Cost Policy.

43. With respect to PJM's statement that it is currently working with stakeholders on certain changes to PJM Manual 15 in order to provide further details about the Fuel Cost Policy approval process,⁶⁴ Joint Consumer Representatives urge the Commission to find PJM's compliance filing deficient for its failure to submit proposed Manual 15 revisions for the benefit of the Commission and interested parties' scrutiny.⁶⁵

44. The IMM states that Fuel Cost Policies should be algorithmic, verifiable, and systematic for all market conditions including normal and high demand conditions, contrary to PJM's proposed standards for Fuel Cost Policies.⁶⁶ API argues that "if PJM, the IMM, or the Commission prescribes specific means and terms of fuel procurement, this may restrict generators in a way that could lead to higher consumer costs as more

⁶² Direct Energy Comments at 14-16.

⁶³ Panda Comments at 6-9. Panda also argues that a new resource should not have to submit a Fuel Cost Policy prior to continuous emissions monitoring system data on actual operating experience being submitted to the Environmental Protection Agency.

⁶⁴ PJM Transmittal at 11, n.32.

⁶⁵ Joint Consumer Representatives Protest at 6-8.

⁶⁶ According to the IMM, "algorithmic" means that the Fuel Cost Policy must use a set of defined, logical steps such as, a simple average of broker quotes, bilateral offers, or a weighted average index price posted on the Intercontinental Exchange (ICE) trading platform; "verifiable" means that the Fuel Cost Policy must include a fuel price that can be reproduced by the IMM using the same data used by the Market Seller; and "systematic" means that the Fuel Cost Policy must document a standardized method or methods used in the calculation of fuel costs. IMM Protest at 7-8, 32.

flexible and cost-effective means to obtain fuel in real-time may be “locked out” by the proscribed fuel procurement formula.” API does not support a formulaic or overly prescriptive methodology for procuring fuel.⁶⁷

45. The IMM states that, because the listing of the components of cost in Schedule 2(a) of the Operating Agreement does not parallel the components used to construct cost-based offers, it recommends a clarification to list the components of cost as applicable to the three-part offer in the energy market. The IMM argues that the recommended revision “would align PJM’s compliance review of the components of costs included in cost-based offers, as described in the fuel cost policy, with the structure of actual cost-based offers by identifying the components includable in cost-based incremental energy offers, no load costs, and start costs.”⁶⁸ The IMM recommends including the following components in Schedule 2: fuel cost, heat rate, emissions allowance cost, variable operations and maintenance cost, opportunity costs, no-load heat input, start fuel cost and heat input, and station service power costs.

ii. PJM’s Answer

46. PJM responds that the IMM’s algorithmic approach to Fuel Cost Policy would cap natural gas prices when the market is illiquid, potentially understating the real cost of natural gas generation. While PJM agrees that the Fuel Cost Policy must follow defined, logical steps, PJM explains that there may be times, particularly for natural gas generators, when the IMM’s formulaic approach may not be possible, such as when natural gas markets are illiquid. Thus, PJM argues, 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 states that its proposal does not provide a generator with a free pass but requires upfront documentation of the fuel procurement process in order to verify how Market Sellers procure and price their fuel.⁶⁹

iii. Additional Answers

47. PJM Coalition argues that the IMM’s proposed standard for Fuel Cost Policies is too restrictive and unworkable in the context of a gas market that is “decidedly not

⁶⁷ API Comments at 4.

⁶⁸ IMM Protest at 36.

⁶⁹ PJM Answer at 11-12.

algorithmic or systematic.”⁷⁰ Direct Energy agrees that the IMM’s algorithmic approach is too restrictive because, among other things, it requires gas-fired generators to be tethered to average index prices, or averages of quotes or bilateral offers rather than reflect costs based on actual procurement practice based on market fundamentals.⁷¹

48. P3 requests that the Commission accept PJM’s proposed standard of review and suggests that, if needed, the Commission should require PJM to define illiquidity by reference to a low volume of available broker quotes or to the bid-ask spread.⁷² Dominion seeks clarification on the IMM’s statement that “[s]ubmittal of cost-based offers for an incorrect fuel type should be deemed to be inaccurate and subject to penalties. It should be deemed a tariff violation.” Dominion states that the IMM describes an example where a dual-fuel unit exercises economic withholding by offering its unit on higher priced oil despite the availability of lower priced gas. According to Dominion, situations where offers are based on incorrect fuel should not be confused with cases of fuel uncertainty.⁷³

49. The IMM disagrees with PJM’s stipulation that a Fuel Cost Policy based on an algorithmic approach is a higher standard and would not be feasible during illiquid conditions. The IMM explains that 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 and cannot be acceptable from a market power perspective. The IMM states that many Market Sellers have provided the IMM with Fuel Cost Policies that rely on an algorithmic approach of calculating fuel costs applicable under illiquid market conditions. According to the IMM, in such cases, the algorithm is either a simple volume weighted average of independent third party quotes, where available, or an explanation of their algorithmic methods for calculating the fuel cost and reasons for the appropriateness of those methods. Furthermore, the IMM states that, through consultations, it 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.⁷⁴

⁷⁰ PJM Coalition Answer at 4.

⁷¹ Direct Energy at 3.

⁷² P3 Answer at 4, 17.

⁷³ Dominion Resources Answer at 5-6.

⁷⁴ IMM Answer at 7-10.

iv. **Commission Determination**

50. We accept PJM's proposed Fuel Cost Policy because, as PJM explained, it will help promote transparency and clarity regarding the standards that will govern PJM's review of a Market Seller's Fuel Cost Policy. PJM's proposed Fuel Cost Policy will also provide Market Sellers with the flexibility to use an alternative methodology to document fuel costs provided the alternative is consistent with or superior to the standard review criteria set forth in Schedule 2(g) of the Tariff and Operating Agreement.

51. Various parties protested PJM's standard of review, set forth in Schedule 2(f) described above, and questioned how a Market Seller would be determined to be noncompliant with a Fuel Cost Policy. We agree that more information needs to be included in Schedule 2 of the Operating Agreement and, therefore, direct PJM to incorporate into Schedule 2(f), the standard of review and explain how a Market Seller would be found to be noncompliant with this standard. Proposed Schedule 2(f) only outlines the items a Market Seller would be required to include in its Fuel Cost Policy, and does not discuss how PJM would make a determination or evaluate a Fuel Cost Policy. In this section and in its transmittal, PJM references Manual 15 as the location where it will include more detail about Fuel Cost Policies, but we find that this information needs to be included in the Operating Agreement, not the manuals. We also direct PJM to clearly specify when a penalty for noncompliance for a Fuel Cost Policy would be terminated by PJM. We direct PJM to submit Tariff and Operating Agreement revisions implementing these changes, within 30 days of the date of this order.

52. Regarding protestors' argument that the Commission should require PJM to include in Manual 15 a timeline with milestones for processing the Fuel Cost Policy, we agree that PJM should delineate, in Schedule 2(e), a timeline with specific milestones during the 45-day review period to provide more transparency on requirements and deadlines. With regard to Panda's comments about the treatment of new resources, we agree that a new resource should be granted a 90-day time period before it submits its actual Fuel Cost Policy, since it may not have operational data available before it starts commercial operations. Therefore, we direct PJM to submit revisions incorporating the details of this mechanism in Schedule 2 of the Operating Agreement, within 30 days of date of this order.

53. The IMM argues that certain cost components that a Market Seller would calculate in its determination of costs to supply energy should be included in Schedule 2(a) (Components of Cost) of the Operating Agreement. The IMM's proposal includes the following cost components: fuel cost, heat rate, emissions allowance cost, variable operations and maintenance cost, opportunity costs, no-load heat input, start fuel cost and heat input, and station service power costs for the three-part offer curve (i.e., Incremental Energy Costs, No-load Costs, and Start-Up Costs). We disagree that all these specific costs need to be included in Schedule 2(a) of the Operating Agreement. However, we agree that Schedule 2 should refer to those components used to determine a generator's

cost-based offer. We require PJM to list under the heading in Schedule 2 “For all generating units” the following additional components included in fuel cost: emissions allowances/adders, variable operation and maintenance adders, and the ten percent adder, to read as follows:

For all generating units

Incremental fuel cost
Incremental maintenance cost
No-load cost during period of operation
Incremental labor cost
Emissions allowances/adders
Variable operation and maintenance adders
Ten percent adder
Other incremental operating costs

54. Including these cost components will help ensure clarity and consistent application. In addition, we find the tariff organization confusing as to which provisions are part of the Fuel Cost Policy and which are independent of that policy and procedures. The provisions relating to verification of emission allowances (subsection (j)(iii)) and verification of variable operation and maintenance adders (subsection (j)(iv)) are not components of the Fuel Cost Policy.⁷⁵ The verification of emission allowances also does not specify when such allowances should be reviewed, and we require PJM to revise the provision to provide for annual review. The penalty provision (subsection (l)) also applies to the entire cost-based offer, not just the Fuel Cost Policy.

55. To ensure that the tariff is clear as to which provisions apply to Fuel Cost Policy, we require PJM to reorganize Schedule 2 as follows: “Section I General Cost Provisions” will include current subsections (a), as revised above, through (c), “Section II Fuel Cost Policy” will include proposed subsections (d) through (k) and (m), “Section III. Emission Allowances/Adder” will include proposed subsection (j)(iii); “Section IV Variable Operation and Maintenance Adders” will include proposed subsection (j)(iv); and “Section V Penalty Provisions” will include proposed subsection (l). PJM must file these revisions within 30 days of the date of this order.

56. Schedule 2(d) of the Operating Agreement requires that a Marker Seller may only submit a non-zero cost-based offer into the PJM Interchange Energy Market for a generation resource if it has a PJM-approved Fuel Cost Policy for such generation

⁷⁵ Market Sellers are not required to include the emissions allowances/adders or variable operation and maintenance adders in their Fuel Cost Policy submissions to PJM and the IMM.

resource. While we accept this provision, we require that PJM add the words “consistent with its fuel type” to this provision for greater clarity. PJM must file this revision within 30 days of the date of this order.

57. The IMM argues that Fuel Cost Policies should be algorithmic, verifiable, and systematic for all market conditions.⁷⁶ PJM states that its proposed standards already require Market Sellers’ Fuel Cost Policies to be verifiable and systematic. We note that PJM has stated that Fuel Cost Policies need 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.”⁷⁷ Similarly, PJM requires Fuel Cost Policies to be systematic, meaning they must “document a standardized method or methods for calculating fuel costs including objective triggers for each method.”⁷⁸ We find that PJM’s proposal requires that Fuel Cost Policies be verifiable and systematic. PJM and the IMM disagree on whether Fuel Cost Policies should be “algorithmic.” We are not convinced by the IMM’s argument that Fuel Cost Policies should be “algorithmic under all circumstances” because, as PJM explained, the IMM’s argument ignores situations “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.”⁷⁹

58. Joint Consumer Representatives argue that PJM’s compliance filing is deficient because PJM did not submit the proposed Manual 15 revisions for the benefit of the Commission and interested parties’ scrutiny. We are not persuaded by the Joint Consumer Representatives’ argument. We expect that PJM will include sufficient details in Manual 15, and find that the framework that PJM has provided, including the revisions we are directing in this order, satisfy the Commission’s compliance requirements.

⁷⁶ IMM Protest at 9.

⁷⁷ PJM Answer at 11.

⁷⁸ *Id.*

⁷⁹ *Id.*

b. Final Authority on Approval of Fuel Cost Policy

59. PJM contends that its proposed market rules will also clearly codify the role of the IMM in advising PJM on its approval of Fuel Cost Policies.⁸⁰ PJM explains that the IMM's role is to provide input to PJM in its determination of whether to approve a Fuel Cost Policy submitted by a market participant. PJM asserts that nothing submitted in its compliance filing infringes upon the IMM's defined role pursuant to the applicable provisions of PJM's governing documents.⁸¹ PJM contends that, however, Regional Transmission Organizations (RTOs) have both an interest and responsibility to design and implement their markets in a manner that prevents the exercise of market power – by either sellers or buyers. PJM also states that “[w]hile there is undeniable expertise in this area offered by PJM’s external IMM, the Commission has made repeatedly clear that such expertise does not relieve PJM from its administrative duties in ensuring just and reasonable market outcomes, particularly in the form of prospective mitigation, and more specifically, approving Fuel Cost Policies.”⁸²

60. PJM further explains that, in Order No. 719,⁸³ the Commission defined the respective roles of RTOs and their market monitors and found that RTOs are responsible for conducting prospective mitigation, while market monitors are responsible for conducting retrospective mitigation, because “*there is an inherent conflict of interest in an MMU conducting mitigation and also opining on the state of the market, the health of which may in part reflect the results of its mitigation.*”⁸⁴ PJM also explains that in the PJM Offer Cap Order,⁸⁵ the Commission found that “the authority to approve or reject

⁸⁰ PJM Transmittal at 14-15.

⁸¹ As described in PJM’s Tariff, Attachments M and M-Appendix.

⁸² PJM Transmittal at 5.

⁸³ See *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, FERC Stats. & Regs. ¶ 31,281 (2008) (Order No. 719), *order on reh’g*, Order No. 719-A, FERC Stats. & Regs. ¶ 31,292, *order on reh’g*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

⁸⁴ Order No. 719, FERC Stats. & Regs. ¶ 31,281 at P 371 (emphasis added). PJM Transmittal at 7 n.21.

⁸⁵ PJM Offer Cap Order, 153 FERC ¶ 61,289.

fuel cost policies lies with PJM, and the role of the IMM is to advise the generator and PJM.”⁸⁶

i. Comments and Protests

61. The IMM protests the proposed Fuel Cost Policy contending that it would substantively change the roles of PJM and the IMM in the review of offers for market power in a manner inconsistent with the roles specified in the Tariff, and argues that the Commission should reject PJM’s proposal. The IMM submitted alternative language that it argues should be approved by the Commission instead, or, alternatively, requests that PJM should be directed to submit conforming revisions.⁸⁷

62. The IMM states that under the provisions in section 12A, Attachment M, and Attachment M-Appendix of the Tariff, PJM’s role is to implement the market rules, make determinations on compliance with the market rules, accept offers, and apply the mitigation program. The IMM asserts that its role, on the other hand, is to review the level of offers and the documentation supporting such offers to determine whether

they raise market power concerns.⁸⁸ The IMM also contends that the directive of the June 2016 Order⁸⁹ has shown that the Commission did not intend to fundamentally change the process of market power monitoring and mitigation. The IMM asserts that, as an example, the Commission directive acknowledged the involvement of both PJM and the IMM in the review and separate determinations of Fuel Cost Policies.⁹⁰

63. The IMM believes that it has the responsibility of reviewing Fuel Cost Policies, arguing that, “[t]he review of fuel cost policies is not materially different, for example,

⁸⁶ *Id.* at P 47; PJM Transmittal at 7 n.22.

⁸⁷ IMM Protest at 4-5.

⁸⁸ *Id.* at 12. *See* section 12A, Attachment M, and Attachment M-Appendix of the Tariff. According to the IMM, “Section 12A prohibits PJM from any evaluation of market power concerns, including evaluation of the level of costs. Review of the sufficiency of fuel cost policies cannot be done without evaluation of the levels of costs and the potential to exercise market power under the policy.”

⁸⁹ *See* June 2016 Order, 155 FERC ¶ 61,282 at P 63.

⁹⁰ IMM Protest at 21.

from the Market Monitor's market power reviews of Avoided Cost Rates (ACR)⁹¹ for use in the Reliability Pricing Model (RPM).⁹²

64. With respect to PJM's assertion that, in the Offer Cap Order, the Commission made explicitly clear that "the authority to approve or reject fuel cost policies lies with PJM, and the role of the IMM is to advise the generator and PJM," the IMM argues that it does not seek any revisions to the rules that would give it new authority. The IMM contends that, rather, it only seeks to preserve its existing authority related to Fuel Cost Policy reviews.⁹³ The IMM contends that its review is the only review that considers whether offers are at a competitive level, short run marginal cost. The IMM argues that PJM's process under proposed Schedule 2 of the Operating Agreement and PJM Manual 15 impermissibly mixes its review for administrative compliance with the IMM's market power review.⁹⁴ The IMM also argues that if PJM is allowed to make determinations on market power in the Fuel Cost Policy review process, the process will no longer create incentives for participants to submit accurate cost-based offers, but instead would create safe harbors for the exercise of market power.

65. The Pennsylvania and Delaware Commissions request that the Commission clarify the roles of PJM and the IMM on the Fuel Cost Policy process.⁹⁵ They contend that the IMM, and not PJM, is the appropriate party to review Fuel Cost Policies submitted by Market Sellers.⁹⁶ They add that, per the guidelines of PJM's Tariff Attachment M, the IMM has been independently evaluating and approving fuel cost proposals of market

⁹¹ ACR is the fixed annual operating costs and incremental investments that allow a generation resource to remain in commercial operation to be available to PJM as a Capacity Resource. *See* OATT Attachment DD § 6.7.

⁹² *See* OATT Attachment DD § 6; Attachment M–Appendix § II.E.

⁹³ IMM Protest at 23-24.

⁹⁴ *Id.* at 30-31.

⁹⁵ The Pennsylvania and Delaware Commission Protest at 15. The Pennsylvania and Delaware Commissions state that they "supports the IMM's proposal for a division of responsibility in reviewing FCPs [Fuel Cost Policies] and cost-based offers through the following revisions: (1) a delineation of PJM responsibilities in the OATT Schedule 2 and (2) a delineation of the IMM's responsibilities in OATT Attachment M – Appendix in accordance with Section 12A of the OATT."

⁹⁶ *Id.* at 11.

participants, although not in the form of formal Fuel Cost Policies, but under the Cost Development Guidelines of PJM Manual 15. The Delaware Commission states that there is no ambiguity in section 12A, Attachment M, and Attachment M-Appendix of the Tariff, regarding the role and responsibility of the IMM and explains that the Tariff provides that the “MMU has the exclusive authority to perform the functions set forth in Attachment M [PJM Market Monitoring Plan] and the Attachment M-Appendix.”⁹⁷ The Pennsylvania and Delaware Commissions also state that under proposed Schedule 2(e), the IMM may make recommendations to PJM, but PJM is under no obligation to consider these inputs and believe that PJM will effectively displace the IMM from its proper role as the sole evaluator of fuel cost input as established under Attachment M.⁹⁸

ii. PJM Answer

66. PJM reiterates that it is the proper party to make this decision and highlights several recent examples where the Commission found that PJM has the ultimate decision-making authority for approval of Fuel Cost Policies.⁹⁹

iii. Additional Answer

67. P3 argues that the IMM proposes to usurp PJM’s authority as the public utility, despite the fact that the Commission made it clear that the RTO has the ultimate authority in deciding whether its own Tariff and manuals are being followed correctly.¹⁰⁰

iv. Commission Determination

68. The IMM contends that PJM’s proposal would redefine its role as the market monitor and fundamentally change the process of market power monitoring and mitigation. We are not persuaded by the IMM’s argument that PJM’s proposal would infringe upon its current role as the market monitor or would substantively change the roles of the IMM and PJM in reviewing Fuel Cost Policies. We also find that this compliance proceeding is not the proper forum for proposals to redefine the IMM and PJM’s roles in the review of Fuel Cost Policies. PJM’s proposed revisions to Attachment M-Appendix are intended to clearly and unambiguously codify the role of the IMM in

⁹⁷ Delaware Commission Comments at 5.

⁹⁸ *Id.* at 11-13.

⁹⁹ PJM Answer at 7-10.

¹⁰⁰ P3 Answer at 19.

advising PJM on its approval of Fuel Cost Policies in response to the Commission's June 2016 Order directing PJM to include Fuel Cost Policies in PJM's Tariff. PJM's current Tariff permits the IMM to advise PJM, but does not permit the IMM to make final decisions on Tariff issues.¹⁰¹ Nothing about PJM's proposal prevents or exempts the IMM from independently reviewing Fuel Cost Policies as part of its duties in Attachment M and Attachment M-Appendix of the Tariff, and providing valuable feedback to Market Sellers. At issue here is not whether the IMM can perform its necessary function in reviewing market behavior, but which party, the IMM or PJM, has the final authority for approval of Fuel Cost Policies.

69. Addressing a similar issue in the Offer Cap Order, the Commission found that PJM has the final approval authority on Fuel Cost Policy.¹⁰² In that order, the Commission stated that "the authority to approve or reject fuel cost policies lies with PJM, and the role of the IMM is to advise the generator and PJM. To the extent Fuel Cost Policies do not meet Tariff and PJM manual guidelines, the IMM may recommend to PJM not to accept such deficient Fuel Cost Policies. Further, if the IMM believes aspects of the Tariff or manuals are unjust and unreasonable as it relates to the Fuel Cost Policy, it should present evidence to the Commission demonstrating why a change is necessary."¹⁰³ Further, we agree with PJM that the proposed changes related to the Fuel Cost Policy are not designed to change the fundamental roles between the IMM and PJM, but rather to codify the role of the IMM in advising and providing input to PJM in its determination of whether to approve a Fuel Cost Policy submitted by a Market Seller. Accordingly, we reiterate our finding in the order that PJM has the final approval authority on Fuel Cost Policy.

¹⁰¹ PJM Tariff, Attachment M § IV. E. (3.0.0) ("the Market Monitoring Unit may, consistent with the PJM Market Rules, recommend to PJM that it take specific mitigation action that PJM is authorized to take under the PJM Market Rules to address market behavior or conditions"); PJM Tariff, Attachment M-Appendix, Section II (A) 1 (13.0.0) ("the Market Monitor or his designee shall advise the Office of the Interconnection whether it believes that the cost references, methods and rules included in the Cost Development Guidelines are accurate and appropriate, as specified in the PJM Manuals").

¹⁰² PJM Offer Cap Order, 153 FERC ¶ 61,289 at 47.

¹⁰³ *Id.*

c. Penalty Structure

70. To comply with the June 2016 Order's directive that PJM include a penalty structure that will apply in the event 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, PJM states that if, upon review of a Market Seller's cost-based offer, PJM or the IMM determines that the offer does not comply with the Market Seller's PJM-approved Fuel Cost Policy, the Market Seller will be subject to a penalty pursuant to proposed Schedule 2(1).¹⁰⁴

71. PJM proposes the following penalty structure:

$$\frac{\sum \text{Penalty}_{dh} = \min(d, 15) \times \text{LMP}_h \times \text{MW}_h}{20}$$

where:

d is the greater of one and the number of days since PJM first notified the Market Seller of PJM's and the IMM's agreement regarding applicability of the penalty

h is the applicable hour of the day for which the offer applies

LMP_h is the real-time locational marginal price (LMP) at the applicable pricing location for the resources for the hour

MW_h is the available capacity of the resources for the hour¹⁰⁵

72. According to Schedule 2(1), if a Market Seller does not already have a PJM-approved Fuel Cost Policy, the Market Seller shall be subject to a penalty structure that increases based on the number of days a Market Seller has submitted offers that were not in compliance with its Fuel Cost Policies, up to a cap of 15 days. PJM proposes to use an initial ratio of 5 percent (1/20) on the first day of non-compliance, but that ratio escalates to a maximum of 75 percent (15/20) on the fifteenth day. That is, PJM's proposed penalty is:

¹⁰⁴ PJM states that its proposed penalty structure is based on a similar penalty structure adopted in ISO-NE for an "Inaccurate Bid on a Supply Offer," which is equal to $\frac{1}{2} * \text{LMP} * \text{"MW Deviation"}$, where the MW Deviation is essentially the amount of megawatts offered by a resource that is not in compliance.

¹⁰⁵ PJM Transmittal at 28.

designed to grow proportionally with the possible impact that the Market Seller's non-compliant cost-based offer may have on the market (based on the product of LMP x MW), is based on how long the Market Seller has non-compliant cost-based offer, and is cumulative for each hour of each Operating Day that the Market Participant submits a non-compliant cost-based offer.¹⁰⁶

With respect to charges related to PJM's proposed penalty, PJM proposes that all penalties be allocated by Load Ratio Share¹⁰⁷ to all load serving entities (LSEs) in the PJM Region as credits. PJM contends this is an appropriate allocation because if a Market Seller submits a cost-based offer that is not compliant with its PJM-approved Fuel Cost Policy, LSEs would be responsible to pay such costs.¹⁰⁸

i. Comments and Protests

73. The IMM contends that, while PJM adopted a penalty formulation similar to the structure the IMM proposed, PJM's Fuel Cost Policy penalty should apply at the generation resource level so that each individual generation resource has an approved Fuel Cost Policy and that it should cover all cost-based offers accepted by PJM and any applicable Fuel Cost Policy. The IMM also argues that the "submittal of cost-based offers for an incorrect fuel type should be deemed to be inaccurate and subject to penalties. It should also be deemed a tariff violation."¹⁰⁹ The IMM describes a situation where a combustion turbine dual fuel unit, which operates on either natural gas or fuel oil, accomplishes economic withholding by offering the unit on higher priced oil despite the availability of lower priced gas, thereby raising LMPs that would benefit a lower-priced affiliated unit located at the same geographic location, such as a combined cycle unit. The IMM argues that its example illustrates the need to require accuracy of multiple cost-based offers considered jointly. Therefore, the IMM recommends that the penalty apply to all market hours for which an inaccurate cost-based offer applied including those

¹⁰⁶ *Id.* at 32.

¹⁰⁷ Load Ratio Share is defined as the "Ratio of a Transmission Customer's Network Load to the Transmission Provider's total load." *See* Tariff and Operating Agreement, Definitions-L-M-N.

¹⁰⁸ PJM Transmittal at 32.

¹⁰⁹ IMM Protest at 46.

hours prior to notification by PJM or the IMM at a factor of one twentieth of potential gross revenues.¹¹⁰

74. The IMM argues that, while it supports the simple formulation of the proposed penalty, it does not believe that the penalty is high enough to deter anticompetitive behavior and therefore argues that the penalty should be increased by a factor of two by making it applicable to both day-ahead and real-time market offers. The IMM explains that the change would provide a greater market incentive for competitive behavior and also provides the Market Seller an opportunity to decrease the resulting penalty by revising the cost-based offer in the market rebidding period so that the penalty applies only to the day-ahead offer. The IMM argues that PJM's proposal would apply the same penalty amount whether or not the Market Seller revises the cost-based offer.¹¹¹ The IMM states that the allocation of penalty payments should account for the appropriate time period and appropriate location and ensure that no penalty payments are returned to the penalized entity or any of its affiliates.¹¹² Joint Consumer Representatives agrees with the IMM that PJM's proposal offers a weak penalty mechanism that lacks sufficient deterrent capability that could actually incentivize market power abuse.¹¹³

75. API argues that the penalties for noncompliance with a Fuel Cost Policy are too severe and that there is no reason to expose a resource to both a penalty and require that it offers into the market at \$0/MWh.¹¹⁴ Dominion argues that restricting a resource to a \$0/MWh cost-based offer runs the risk of the resource not covering its costs when dispatched and should be rejected.¹¹⁵ Panda suggests terminating the penalty once a Fuel Cost Policy has been submitted and to not continue the penalty while PJM or the Commission determine whether a resource was noncompliant with its Fuel Cost

¹¹⁰ *Id.* at 45-46. The IMM recommends clarity in Schedule 2(1) of the Operating Agreement regarding the addition of the words "any of" before "a Market Seller's cost-based offer[s]."

¹¹¹ *Id.* at 46.

¹¹² *Id.* at 44.

¹¹³ Joint Consumer Representatives Protest at 2-3.

¹¹⁴ API Comments at 5.

¹¹⁵ Dominion Protest at 7-8.

Policy.¹¹⁶ Panda and ODEC argue that a resource offering in at \$0/MWh is untenable and exacerbates the problem because it could trigger a confiscatory rate.¹¹⁷ P3 also requests that the Commission reject the IMM's proposed doubling of the size of the penalty.¹¹⁸

76. The Delaware Commission argues that PJM's use of the Load Ratio Share for the allocation of penalty charges, among other things, has no relation to the hours used to determine the penalty charges and does not recognize the possibility that the hours may not include all LSEs that were present in the annual peak load for the previous year because the Load Ratio Share represents the zonal share of load during an annual single peak hour and would have no relation to the particular hours that formed the basis for the calculation of the penalty charge.¹¹⁹ The Delaware Commission therefore requests that the Commission require PJM to remove the Load Ratio Share basis from the allocation of penalty charges and in its place determine the megawatt hours of LSEs during the applicable hours utilized in the calculation of the penalty charge, to remove the discrepancy between the calculation of the penalty and its allocation to appropriate LSEs.¹²⁰

ii. PJM's Answer

77. PJM argues that the proposed penalty structure is just and reasonable because it strikes an appropriate balance between addressing the concerns raised by market participants during the stakeholder process and ensuring that Market Sellers submit cost-based offers that are consistent with their PJM-approved Fuel Cost Policies. With respect to the IMM's arguments described above, PJM states that the penalty should only apply in instances when a cost-based offer is submitted that is not in accordance with a PJM-

¹¹⁶ Panda Comments at 9-10.

¹¹⁷ Panda Comments at 5-6; ODEC Comments at 4-10.

¹¹⁸ P3 Comments at 19.

¹¹⁹ Delaware Commission Comments at 7-8.

¹²⁰ *Id.* at 10-11. The Delaware Commission proposed revision to Schedule 2(l) as follows: “All charges collected pursuant to this provision shall be allocated by the share of Load Ratio Share to all Load Serving Entities' MWHs during the applicable hours of the day for which the offer applies as reflected in term “h” above. in the PJM Region.”

approved Fuel Cost Policy.¹²¹ PJM also states that the IMM's recommendation that the penalty should apply to all market hours, including the hours prior to notification by PJM or the IMM, is unjust and unreasonable because such application would apply retroactively and would not provide Market Sellers adequate notice of their infraction.¹²²

iii. Commission Determination

78. Several parties filed comments regarding PJM's proposed penalty structure for noncompliance with a Fuel Cost Policy, some in favor of more severe penalties, and others seeking to relax the penalties. We find that PJM's proposed penalty structure is appropriate because, as PJM explained, it is designed to grow in proportion with the possible impact that a Market Seller's cost-based offer may have on the market (i.e., the proposed penalty is based on the product of LMP and MW). Also, the proposed penalty is cumulative for each hour of each Operating Day that a Market Seller submits a non-compliant cost-based offer. Further, we note that PJM's proposed penalty structure was based on the penalty formulation developed by the IMM during the stakeholder process. The penalty structure should dissuade a Market Seller from submitting a cost-based offer that is inconsistent with its Fuel Cost Policy. We are not convinced that, as the IMM argues, there should be a double penalty structure in place, one for the day-ahead market and one for the real-time market. We are also not convinced by the arguments presented by ODEC and Dominion that, in the event that a Fuel Cost Policy is rejected with no prior Fuel Cost Policy on file, restricting a resource from offering in above \$0/MWh will result in a confiscatory rate because Market Sellers without a PJM-approved Fuel Cost Policy have a must-offer requirement in the PJM energy markets. As PJM explained, "prohibiting a Market Seller of a Generation Capacity Resource from submitting any cost-based offer would mean that the resource is not permitted to operate and could jeopardize reliability in the PJM Region."¹²³

79. With regard to the example provided by the IMM for the application of the penalty for an incorrect fuel type and an affiliated unit, we agree with PJM that the proposed penalty is sufficient. Further, we find that the application of the penalty appropriately focuses on submitting cost-based offers that are accurate, *in accordance with fuel type*, since there are situations that could arise where a dual-fuel resource may be limited by an Operational Flow Order (OFO) on a pipeline, which could hinder the reliable procurement of natural gas. We note that every dual-fuel resource is required to submit cost-based offers that most accurately reflect the type of fuel the resource expects to use. Every resource can be subject to an *ex post* review to determine whether an inaccurate

¹²¹ PJM Answer at 31.

¹²² *Id.* at 32-33.

¹²³ PJM Transmittal at 17-18.

fuel type was used in its cost-based offer. A resource that submitted a cost-based offer based on an inaccurate fuel type would not only violate its Fuel Cost Policy, but could become the subject of a Commission investigation for market manipulation.

80. The Delaware Commission and the IMM argue that the revenues collected from penalties should not be distributed to LSEs on a Load Ratio Share basis. According to the Delaware Commission, this is because the Load Ratio Share represents a specific MW capacity, LMP, and hours during a year based on annual average peak load and, therefore, does not recognize the possibility that the hours reflected in the calculation of the penalty charge may not include all LSEs that were present in the annual peak load for the previous year. The IMM states that the allocation of penalty payments should account for the appropriate time period and appropriate location. We agree with the Delaware Commission and the IMM and direct PJM to revise Schedule 2(1) to allocate the penalty charges based on the share of LSEs' MWhs reflected in the penalty hours.

81. Panda argues that PJM's Operating Agreement is silent on when a penalty for noncompliance would terminate. We agree that PJM should clarify what conditions need to be in place before it expects to terminate a penalty for a Market Seller that was found to be noncompliant and include this information in Schedule 2(1). PJM should also specify, in Schedule 2(1), a rebuttal period to allow for a Market Seller to respond to PJM's revocation of its Fuel Cost Policy. We note that the penalty can still apply during the rebuttal time period, but if found to not be in violation of its Fuel Cost Policy, a Market Seller must be issued refunds as of the date of its rebuttal. During this rebuttal period, if a Market Seller does not have a PJM-approved Fuel Cost Policy on file, it will still be required to submit a \$0/MWh offer, but in the event that it is mitigated to its cost-based offer during this time period and its costs to operate, as per a PJM dispatch, are not covered by its market revenues, PJM should make the Market Seller whole by providing it with an uplift payment. We direct PJM to submit Tariff and Operating Agreement revisions which reflects the requirements specified in this paragraph, within 30 days of the date of this order.

82. With respect to Dominion's request for clarification on the IMM's statement that the submission of an incorrect fuel type should be deemed a Tariff violation and should be subject to penalties, we agree with Dominion that situations where offers are based on incorrect fuel should not be confused with cases of fuel uncertainty. The IMM recognizes that fuel availability, at times, involves uncertainty and a generator is in the best position to manage that uncertainty and to make the appropriate adjustments to its offers. The IMM asserts, and we agree, that its concern lies with the deliberate misrepresentation of fuel costs, which can be verified ex post.¹²⁴ We also note that PJM

¹²⁴ IMM Answer at 28.

clarifies that it will apply the penalty only when a Market Seller's lowest available cost-based offer by fuel type, or the cost-based offer on which the Market Seller's resource is dispatched by PJM, is inconsistent with the Market Seller's Fuel Cost Policy.¹²⁵ For the reasons noted here, we find that the statements made by PJM and the IMM do provide the necessary clarification.

d. Tariff Provision on Dispute Resolution by the Office of Enforcement

83. PJM proposes that, in the event PJM or the IMM disagree over whether the penalty should apply, the matter should be referred to the Commission's Office of Enforcement for resolution. PJM's proposed Schedule 2(k) establishes an annual review process by which all Market Sellers in PJM must either submit to PJM and the IMM, no later than June 15 of each year, an updated Fuel Cost Policy that complies with Schedule 2 and Manual 15, or confirm that their currently effective Fuel Cost Policy remains compliant, pursuant to the procedures and deadlines specified in Manual 15.¹²⁶

i. Comments and Protests

84. With respect to PJM's proposed referral to the Commission's Office of Enforcement in the event PJM or the IMM disagree over whether a penalty should apply, the IMM argues that the "Office of Enforcement will be unable to defend determinations that participants exercised market power when PJM has approved such behavior in advance even if it agrees with the Market Monitor that cost based offers were not competitive. The IMM argues that the result would be a weakening of the competitiveness of the PJM Energy Market."¹²⁷ The IMM adds that to satisfy the Commission's directives in the June 2016 Order, it has developed alternative Tariff language that it believes would: (1) preserve and enhance the incentives to submit

¹²⁵ PJM further states that "[d]ual-fuel units in PJM are not required to submit cost-based offers for each fuel type. However, if they elect to submit cost-based offers for both fuel types, PJM will assess the penalty if either of the lowest available cost-based schedules per fuel types is not in compliance with their Fuel Cost Policy." PJM Answer at 34, n.102.

¹²⁶ PJM states that if a Market Seller wishes to update its Fuel Cost Policy, the Market Seller must do so outside of the annual review process. PJM states that it is currently working with its stakeholders to finalize the processes and deadlines associated with this non-annual review process.

¹²⁷ IMM Protest at 32-33.

accurate cost-based offers that do not raise market power concerns; (2) not permit non-zero offers from participants whom PJM determines have not complied with the Tariff; and (3) provide for penalties when PJM determines that Market Sellers do not comply with the Tariff or when the IMM determines that the level of cost-based offers raise market power concerns.¹²⁸

85. P3 also adds that the Office of Enforcement does not handle disputes, and that it is the Office of Administrative Law Judges or the Alternative Dispute Resolution process that would be appropriate for resolving a matter outside of a formal process.¹²⁹

ii. Commission Determination

86. We require PJM to remove its proposed Tariff revisions that would refer disputes between PJM and the IMM relating to PJM's approval of a generator's Fuel Cost Policy to the Commission's Office of Enforcement. Resolution of such disputes between an RTO and its market monitor is not the role of the Office of Enforcement. Instead, such disputes are the province of the Commission and its Administrative Law Judges to address in response to a complaint when appropriate, or for its Administrative Dispute Resolution process to resolve outside of formal processes. Accordingly, we require PJM to remove the proposed Tariff revisions regarding referrals to the Office of Enforcement on compliance, within 30 days of the date of this order.

4. Cost-Based Incremental Offer Threshold

87. Under PJM's hourly offers proposal, a Market Seller will be able to update its existing cost-based or market-based offer any time after the close of the Day-ahead Energy Market. In its November 20, 2015 compliance filing, PJM proposed that if a resource's available cost-based offer is not compliant with Schedule 2 of the Operating Agreement or the PJM manuals at the time that a resource submits a market-based real-time offer for an applicable clock hour and the current price of the resource's available cost-based offer for an applicable clock hour exceeds the Market Seller's estimation of its new cost-based offer for the applicable hour by more than \$5/MWh, the resource must submit an updated cost-based real-time offer for that clock hour that is compliant with both Schedule 2 of the Operating Agreement and the PJM manuals. In the June 2016 Order, the Commission found that it is critical for the Market Sellers of resources to make accurate and timely updates to their cost-based offers, and it directed PJM to explain, in

¹²⁸ *Id.* at 34-35. See IMM's proposed Attachment A (proposed clarifying language for Schedule 2 of the Operating Agreement and Attachment M-Appendix).

¹²⁹ P3 Comments at 9-10.

detail and to include examples in its compliance filing, as to why the \$5/MWh threshold is a reasonable and not arbitrary figure, or alternatively choose an alternative threshold that is sufficiently explained. The Commission also directed PJM to explain how it proposes to use this threshold in conjunction with the ten percent adder that is currently allowed in cost-based offers.¹³⁰

a. PJM's Filing

88. In response to the Commission's directive, PJM states that it has conducted a more exhaustive analysis on the cost-based incremental offer threshold and has concluded that \$5/MWh is a reasonable and justifiable amount that should be adopted. PJM explains that it based its evaluation on a combination of publicly available and confidential data applicable to the natural gas market. PJM states that it examined data related to the natural gas trading hubs used by Market Sellers in the PJM region.¹³¹ PJM examined how often a cost-based offer, using an index price at each respective hub, would need to be updated at different applicable \$/MWh thresholds under PJM's proposed rule, while also accounting for various heat rates that may be used by a Market Seller. PJM states that the results showed that by using a \$5/MWh threshold, at TETCO M3, a cost-based offer using an average heat rate would need to be updated 10 percent of the time in 2015 and 5 percent of the time in 2016.

89. PJM also found that in most years and on most of the hubs it examined, a \$5/MWh threshold would result in Market Sellers needing to adjust their cost-based offers downward between 5 percent and 10 percent of the time when they also submit a market-based real-time offer. PJM contends that this is an acceptable level of accuracy, which will minimize the administrative burden on resources associated with small changes in a resource's costs, and will simultaneously result in just and reasonable rates.¹³²

90. With respect to how PJM plans to use the \$5/MWh threshold in conjunction with the ten percent adder that can currently be included in cost-based offers, PJM states that the 10 percent adder will be allowed in any cost-based offer that is subject to the \$5/MWh threshold. PJM further explains that the actual applicability of the cost-based adder to this threshold will depend on the specifications of each Market Seller's approved

¹³⁰ June 2016 Order, 155 FERC ¶ 61,282 at P 71.

¹³¹ PJM states that it examined data from TETCO M3, TRANSCO Zone 5, TRANSCO Zone 6 NY, and HENRY Hub for calendar years 2013, 2014, 2015, and 2016. PJM states that it chose these particular natural gas trading hubs because they are generally liquid, and with the exception of HENRY Hub, are all located within the PJM Region. PJM Transmittal at n.145.

¹³² PJM Transmittal at 60-61.

Fuel Cost Policy and whether the Market Seller elects to utilize the 10 percent adder as part of its cost-based offer.

b. Comments and Protests

91. The IMM argues that based on its review of the data and methodology used in PJM's analysis, the \$5/MWh threshold is inappropriate. The IMM asserts that PJM's analysis does not support PJM's conclusions on the percent of time when cost-based offer updates would be triggered. The IMM explains that, in order to estimate the percent of time a cost-based offer update is triggered using PJM's defined triggers, one must estimate how many times a market-based offer is updated, and then for those instances, estimate how many times the intraday fuel price decreases from the previous estimate to result in at least a \$5/MWh decrease to a resource's offer. The IMM contends that PJM's analysis does neither.¹³³ The IMM proposes that Market Sellers be required to update cost-based offers when the Operating Rate at economic maximum MW level decreases by at least \$1/MWh.

c. PJM's Answer

92. PJM states that it disagrees with the IMM's offhand dismissal of its approach comparing day-ahead gas prices against real-time gas prices to determine how often a Market Seller's fuel costs would change by \$5/MWh. PJM argues that its analysis appropriately sought to mimic the circumstances faced by natural gas generators and to establish a threshold that provides an acceptable level of accuracy while minimizing the administrative burden on Market Sellers associated with small changes in a resource's fuel costs.¹³⁴

¹³³ The IMM also states that PJM assumes that Market Sellers use a known gas price index for the day-ahead offer and update it once the next day's gas price index is published. However, a Market Seller's estimate of the cost of gas for the day-ahead offer is based on the day-ahead offer deadline for gas consumed the next electric Operating Day, which spans two gas days. Thus, Market Sellers have a better idea on the cost of gas for the next gas day once the gas market price indices for the next gas day are published. IMM Protest at 53-54.

¹³⁴ PJM Answer at 37.

d. Commission Determination

93. We find that PJM has failed to justify the \$5/MWh threshold and that the Tariff is just and reasonable without any threshold being applied. PJM's justification lacks in-depth analysis that (i) justifies the need for the threshold and (ii) examines the potential impacts of inaccurate cost-based offers on market clearing prices that could result from using the threshold. We find that PJM's analysis of the data related to the natural gas trading hubs used by Market Sellers does not adequately support its contention that the \$5/MWh threshold is a just and reasonable amount. We note that PJM's analysis only examined the frequency that a cost-based offer, using an index price, would need to be updated. PJM did not provide any analysis to show how it initially arrived at the \$5/MWh threshold in the first place¹³⁵ and only provided its after-the-fact justification in response to the Commission's directive in the June 2016 Order. The IMM also failed to support its proposal for a \$1/MWh threshold. While PJM indicates that the proposed threshold was put into place because Market Sellers thought they would be exposed to price uncertainty, PJM does not adequately justify how the proposed threshold would interact with the existing 10 percent adder or how the threshold could potentially affect market clearing prices.

94. Accordingly, we require PJM to submit revisions to its Tariff and Operating Agreement to remove the threshold provision entirely and to require that Market Sellers update their cost-based offers whenever they update their market-based offers, within 30 days of the date of this order. While we find PJM and the IMM failed to justify either of their proposed thresholds in this proceeding, we recognize that a threshold may be just and reasonable, and we do not preclude PJM from submitting such a filing, under section 205 of the FPA, with adequate support for a proposed threshold.

5. Operating Parameters

95. In the June 2016 Order, the Commission found that PJM's proposed Tariff and Operating Agreement revisions associated with implementing the flexible offer proposal did not include key provisions that significantly affect rates, terms, and conditions. The Commission found that three key offer parameters, Incremental Energy Offer, Start-Up Costs, and No-load Costs, and the term "Flexible Resources," were not defined in the Tariff and Operating Agreement, despite being referenced throughout the Tariff and Operating Agreement. The Commission found that providing these definitions more formally in the Tariff and Operating Agreement will benefit market participants by

¹³⁵ According to PJM, the \$5/MWh threshold "was decided upon based primarily on qualitative feedback received from stakeholders, rather than in-depth quantitative analysis." PJM Transmittal at 59.

ensuring clarity and consistent application, and directed PJM to include the missing definitions of offer parameters and terms in the Tariff and Operating Agreement.¹³⁶

96. The June 2016 Order also directed PJM to submit Tariff and Operating Agreement revisions to provide a general rules framework for offer parameters, including a specification of what limitations, if any, PJM proposed for these parameters and when these parameters can or cannot be changed. The Commission further directed PJM to clarify provisions relating to the Minimum Run Time offer parameter and indicate whether a resource will be permitted to submit day-ahead offers with Minimum Run Times that vary by hour and whether a resource can change its Minimum Run Time between the day-ahead and real-time markets.¹³⁷

a. PJM's Filing

97. In response to the Commission's directive, PJM includes the terms Incremental Energy Offer, Start-Up Costs, No-load Cost, and Flexible Resources into its Tariff and Operating Agreement. PJM states that the proposed definitions for Start-Up Costs and No-load Costs are nearly verbatim with the definitions as they currently appear in PJM Manual 15¹³⁸ and are the result of recent stakeholder discussions. PJM states that the definition for Incremental Energy Offer is also derived from its Manual 15.¹³⁹ PJM proposes to define Incremental Energy Offer as "bid/offer segments comprised of a pairing of price (in dollars per MWh) and megawatt quantities, which taken together produce all of the energy segments above a resource's Economic Minimum." PJM asserts that this definition accurately captures the set of megawatt-price points at which the Market Seller is willing to provide energy or load reduction above the lowest incremental megawatt output level that the resource can achieve while following PJM's economic dispatch.¹⁴⁰

¹³⁶ June 2016 Order, 155 FERC ¶ 61,282 at P 80.

¹³⁷ *Id.* at P 81.

¹³⁸ See PJM Manual 15, sections 1.7.2 (definition of Start-Up Costs) and 1.7.3 (definition of No-load Cost).

¹³⁹ See PJM Manual 15, sections 1.7.4 (definition of Incremental Energy Cost).

¹⁴⁰ PJM Transmittal at 56. PJM argues that since Incremental Energy Offers are relevant only above a resource's Economic Minimum, No-load Costs are properly excluded from the proposed definition, as such costs inherently apply only to resources

98. PJM proposes to include the definition of No-load Cost as “the hourly cost required to create the starting point of a monotonically increasing incremental offer curve for a generating unit.” PJM proposes to include the definition of Start-Up Costs as “the unit costs to bring the boiler, turbine and generator from shutdown conditions to the point after breaker closure which is typically indicated by telemetered or aggregated state estimator megawatts greater than zero and is determined based on the cost of start fuel, total fuel-related cost, performance factor, electrical costs (station service), start maintenance adder, and additional labor cost if required above normal station manning. Start-Up Costs can vary with the unit offline time being categorized in three unit temperature conditions: hot, intermediate and cold.”¹⁴¹

99. PJM also proposes to define a Flexible Resource as “a generating resource that must have a combined Start-up Time and Notification Time of less than or equal to two hours; and a Minimum Run Time of less than or equal to two hours.”¹⁴² PJM states that generation resources with the foregoing operational characteristics are the types of generation resources that PJM in practice commits in the day-ahead market but only operate during the Operating Day if further instructed by the Office of the Interconnection. Moreover, PJM believes the proposed definition is clearer, more explicit, and not discriminatory by or against a resource type.¹⁴³

100. With respect to general rules for offer parameter flexibility, PJM proposes to revise section 1.10.1A(d) and to add a new section, 1.10.9B, to the Tariff and Operating Agreement.¹⁴⁴ Section 1.10.1A(d) provides details regarding energy offers in the day-ahead market and PJM proposes to revise subsection (iii) to state broadly the offer parameters a Market Seller may choose to specify for its generation resource or demand resource. PJM explains that for generation resources, an offer may specify the following offer parameters: (1) Minimum Run Time; (2) Maximum Run Time; (3) Start-Up Costs; (4) No-load Costs; (5) Incremental Energy Offer; (6) Notification Time; (7) Availability;

that are not operating.

¹⁴¹ Proposed Operating Agreement, Definitions.

¹⁴² *Id.*

¹⁴³ PJM Transmittal at 54-55.

¹⁴⁴ PJM states that in the filing it submitted in November 20, 2015, it proposed new Operating Agreement, Schedule 1, section 1.10.9B to provide details regarding real-time offers. But in this compliance filing, PJM is renumbering that section as Operating Agreement, Schedule 1, section 1.10.9A. PJM Transmittal at 51, n.126.

(8) Ramp Rate; (9) Economic Minimum; (10) Economic Maximum; (11) Emergency Minimum MW; and (12) Emergency Maximum MW. For demand resources, a Market Seller may specify: (1) Minimum Down Time; (2) Shutdown Costs; (3) Incremental Energy Offer; (4) Notification Time; (5) Economic Minimum; and (6) Economic Maximum.¹⁴⁵

101. PJM states that proposed section 1.10.9B contains the general rules for offer parameter flexibility, which detail the parameters that may vary by hour and when updates they may be submitted. PJM explains that this section provides that Market Sellers may update their offers at any time, up to 65 minutes before the applicable clock hour, except during the period in which PJM is clearing the day-ahead market or the period between the close of the re-bidding process and announcement of the results of the re-bidding process under section 1.10.9(d).¹⁴⁶

102. PJM states that because Notification Times and Minimum Run Times are factors known at the time Market Sellers submit offers into the day-ahead market, there is no valid reason for these parameters to vary by hour. However, because unexpected operational issues may arise in real-time, PJM proposes to allow these parameters to be updated by Market Sellers on an hourly-basis in real-time offers outside of a Market Seller's commitment period.¹⁴⁷

b. Comments and Protests

103. The IMM states that PJM's proposed definition for Incremental Energy Offer described above needs clarification because it overly restricts the price and quantities that may be included in the Incremental Energy Offer. For example, in the case of block-loaded units, Market Sellers frequently and appropriately include no-load costs in incremental energy prices. The IMM also contends that the proposed definition lacks a key characteristic of incremental offers, i.e., that all incremental offers must be a non-decreasing function. The IMM further notes that the proposed definition should also refer to "offers" rather than "bids," as this could be misinterpreted.¹⁴⁸

104. The IMM states that PJM's proposed definition of a Flexible Resource is a step forward but argues that this definition does not require as much flexibility as the actual

¹⁴⁵ *Id.* at 51.

¹⁴⁶ *Id.* at 52. PJM explains that Start-Up Costs and No-load Costs are not eligible to vary by hour because they can only be changed once every six months.

¹⁴⁷ *Id.* at 53. *See* proposed section 1.10.9B(d).

¹⁴⁸ IMM Protest at 56-57.

capability of unit types typically considered flexible (combustion turbines and diesel engines) and that it is not based on actual physical operational characteristics. The IMM further argues that the definition of a Flexible Resource should be refined to include only resources with a combined Start-up Time and Notification Time equal or less than 30 minutes and a Minimum Run Time equal or less than 60 minutes on all of the resource's cost-based and market-based offers. The IMM believes that the last requirement is important because a resource could meet the flexible parameter requirement on its cost-based offer but not in its market-based offer. The IMM contends 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 market-based offers.¹⁴⁹

105. The IMM agrees with PJM that there is no valid reason for offering Minimum Run Time and Notification Time that vary by hour in the day-ahead market because resources should be allowed to update their Minimum Run Times and Notification Times in real-time to reflect operational issues that may arise during the operating day. However, the IMM notes, PJM's proposed language goes beyond what is necessary by letting resources update these parameters in real-time in response to operational issues. The IMM argues that PJM changed its proposal from what it provided in the matrix of the deficiency letter response of March 7, 2016. There, according to the IMM, PJM proposed to allow Minimum Run Times to be updated hourly in real-time but only daily for each committed schedule. The IMM argues that PJM should have filed Tariff revisions consistent with this proposal, but instead, the current language suggests that resources can offer Minimum Run Times that vary by hour for the rest of the operating day in their real-time offers, with no operational justification.¹⁵⁰

c. PJM's Answer

106. With respect to the IMM's argument that a resource could meet the flexible parameter requirement on its cost-based offer but not in its market-based offer, PJM argues that there is no need to distinguish between market-based offers and cost-based offers because Market Sellers submit offers that are made up of the same components (i.e., Incremental Energy Offers, Start-Up and No-load Costs). PJM states that each component represents the price at which the Market Seller is willing to operate or the cost to operate the unit when mitigated. PJM argues that its proposed definition properly focuses on items that *must* comprise a proper Incremental Energy Offer, i.e., offer segments of price/megawatt pairings to produce all of the energy segments above a

¹⁴⁹ *Id.* at 59.

¹⁵⁰ *Id.* at 61.

resource's Economic Minimum, and if a Market Seller wants to specify segments below the resource's Economic Minimum it would be voluntary.¹⁵¹

107. PJM states that while it is theoretically true that all incremental offers must be a non-decreasing function, there is no real value in stating that all incremental offers must be non-decreasing in function. PJM states that it is not opposed to adding that it enforces the requirement through its market tools to the definition of Incremental Energy Offer, should the Commission desire the additional clarity. PJM states that it agrees with the IMM that the definition of Incremental Energy Offer should refer to "offers" and not refer to "bids" and would therefore be willing to make the clarification between the two on compliance.¹⁵²

108. PJM states that the IMM's proposed definition of a Flexible Resource does not appear to be based on any operational need and is unnecessarily restrictive and unsupported. PJM argues that its proposal properly focused on a resource's flexibility rather than on the resource's actual physical capability. PJM argues that the proposed two-hour Start-Up and Notification Time and two-hour Minimum Run Time were developed based on how PJM's dispatch tools work in real-time. Furthermore, PJM states that implementation of the IMM's proposal would require the use of a parameter-limited schedule even when the resource is committed on its market-based offer.¹⁵³

109. The IMM states that PJM's proposal providing that the Minimum Run Times may vary by hour and differs from the daily granularity indicated in its response to the Commission's deficiency letter. PJM states that it agrees with the IMM and it's willing to submit Tariff revisions that would allow Market Sellers to only update Minimum Run Times for uncommitted hours and state that a Market Seller's make-whole payment would be based on the Minimum Run Time specified at the time of commitment, should the Commission direct it to do so.¹⁵⁴

d. Commission Determination

110. We accept PJM's proposal as it relates to the definitions and proposed limitations for certain operating parameters specified in the previous paragraphs. The proposed definitions are consistent with those noted in Manual 15. However, as discussed above, PJM and the IMM note that the definition of Incremental Energy Offers should be revised

¹⁵¹ PJM Answer at 38.

¹⁵² *Id.* at 38-39.

¹⁵³ *Id.* at 41-42.

¹⁵⁴ *Id.* at 42-43.

to refer to “offers” and not “bids” to avoid confusion. We agree and direct PJM to revise the definition of Incremental Energy Offer to refer only to “offers” and exclude the word “bids” to avoid any misinterpretation. The IMM notes that all incremental offers must be a non-decreasing function and PJM agrees that this is theoretically true. We direct PJM to add the statement that offers “must be a non-decreasing function” in the definition in order to provide greater clarity on a key characteristic of incremental offers. We require PJM to make these revisions on compliance, within 30 days of the date of this order.

111. With respect to the IMM’s proposed definition of Flexible Resources described above, we accept PJM’s proposal to define a Flexible Resource as “a generating resource that must have a combined Start-up Time and Notification Time of less than or equal to two hours; and a Minimum Run Time of less than or equal to two hours.”¹⁵⁵ As PJM explains, these default requirements for Start-Up Time and Notification Time, and Minimum Run Time are based on how PJM’s dispatch tools work in real-time. We are not convinced by the IMM’s argument that a Flexible Resource should be defined as a resource with a combined Start-up Time and Notification Time equal or less than 30 minutes and a Minimum Run Time equal to or less than 60 minutes on all of the resource’s cost-based and market-based offers. We find that PJM should have the discretion to determine what the requirements for resources that offer flexibility should be. With regard to the IMM’s concern that the definition of Flexible Resources should apply to both a resource’s cost-based and market-based offers, we find that the definition should apply to both types of offers.

112. For Minimum Run Times, we note that PJM is willing to submit revisions on compliance that would allow a Market Seller to only update its Minimum Run Time for uncommitted hours and state that a Market Seller’s make-whole payment would be based on the Minimum Run Time specified at the time of commitment.¹⁵⁶ We find this revision to be appropriate given that, for uncommitted hours, a resource may experience changes in operational conditions, such as procuring fuel, and may need to operate beyond the initial Minimum Run Time that it had specified when it submitted its offers in the day-ahead market. The revisions should specify that a Market Seller may only update its Minimum Run Time for the uncommitted hours in real-time and that a Market Seller’s make-whole payment be based on the Minimum Run Time specified at the time of commitment. We direct PJM to submit Tariff and Operating Agreement revisions addressing these changes, within 30 days of the date of this order.

¹⁵⁵ Proposed Operating Agreement, Definitions.

¹⁵⁶ *Id.*

6. Lost Opportunity Cost Deviation

113. In response to PJM's November 2015 proposal, the IMM stated that PJM's proposal to base the Lost Opportunity Cost Deviation value on a resource's Final Offer will give a resource the ability to increase its Lost Opportunity Cost credits by simply reducing its offer in real-time. According to the IMM, the Lost Opportunity Cost Deviation should be based on a resource's Committed Offer and not its Final Offer.¹⁵⁷ In the June 2016 Order, PJM explained that as a resource's Lost Opportunity Cost Deviation increases, so does its Lost Opportunity Offer. PJM states that this is because PJM uses the greater of the Final Offer or Committed Offer to determine the Total Lost Opportunity Offer. PJM further argues that in most scenarios, the Lost Opportunity Cost credits will be the same or less than if a resource had not increased its Lost Opportunity Cost Deviation. PJM further contends that while it is theoretically possible for a resource to increase its Lost Opportunity Cost credits by increasing the Lost Opportunity Cost Deviation, the amounts would be *de minimus*.¹⁵⁸ In the June 2016 Order, the Commission directed PJM to clarify whether resources would be under-compensated for Lost Opportunity Cost credits in situations when the real-time price falls between the Final Offer and Committed Offer,¹⁵⁹ as it was not addressed by PJM in its November Filing.¹⁶⁰

a. PJM's Filing

114. In its response to the Commission's directive, PJM provided two examples demonstrating why Lost Opportunity Cost credits are properly calculated when real-time prices fall between the applicable Final Offer and Committed Offer. PJM concluded that

¹⁵⁷ June 2016 Order, 155 FERC ¶ 61,282 at P 87.

¹⁵⁸ *Id.* at P 88.

¹⁵⁹ PJM defines "Final Offer" as "the offer on which a resource was dispatched by the Office of the Interconnection for a particular clock hour for the Operating Day." Committed Offer "shall mean 1) for pool-scheduled resources, an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day, and 2) for self-scheduled resources, either the offer on which the Market Seller has elected to schedule the resource or the applicable offer for the resource determined pursuant to Operating Agreement, Schedule 1, section 6.4, or Operating Agreement, Schedule 1, section 6.6 for a particular clock hour for an Operating Day. Proposed Operating Agreement, Definitions.

¹⁶⁰ June 2016 Order, 155 FERC ¶ 61,282 at P 90.

under its proposed design, a Market Seller would be correctly compensated for Lost Opportunity Cost credits in such a scenario. PJM explained that, under its proposed rules, the Final Offer is used to determine the Lost Opportunity Cost Deviation, and the higher of the Final Offer or Committed Offer is used to determine the Total Lost Opportunity Offer. PJM further noted that the IMM's alternative proposal of using the Committed Offer in determining the Lost Opportunity Cost Deviation would result in over-compensation of Lost Opportunity Cost credits.¹⁶¹

b. Comments and Protests

115. The IMM provided various examples, using different clearing prices, of circumstances when a Market Seller would be allocated Lost Opportunity Cost credits. The IMM also calculated the amount of the Lost Opportunity Cost credits under each scenario, using the various methods (using the Committed Offer or Final Offer). The IMM states that it deduced that there would be certain situations, using the IMM's original proposal, which would result in over-compensation of Lost Opportunity Cost credits, but also that there would be a few specific situations where PJM's proposal would lead to under-compensation of Lost Opportunity Cost credits. The IMM argues that neither was correct and that PJM should use two different Lost Opportunity Cost calculations depending on whether the Committed Offer or Final Offer is higher. The IMM argues that when the Committed Offer is higher, the Lost Opportunity Cost Deviation should be calculated using the Committed Offer and when the Final Offer is higher, the Lost Opportunity Cost Deviation should be calculated using the Final Offer.¹⁶²

c. Answers

116. In its response to the IMM's comments, PJM argues that no changes are warranted because the IMM's suggestion would use two different Lost Opportunity Cost Deviation calculations, which is inconsistent with the offer on which PJM would have actually dispatched a resource (i.e., a resource's Final Offer). PJM reiterates that its proposal appropriately compensates a resource for Lost Opportunity Cost credits.¹⁶³ In its answer, the IMM reiterated that the Lost Opportunity Cost Deviation should be calculated based

¹⁶¹ PJM Transmittal at 69-72.

¹⁶² IMM Protest at 69-73.

¹⁶³ PJM Answer at 48.

on two different methods; otherwise, PJM's proposal would result in improper compensation of Lost Opportunity Cost credits.¹⁶⁴

d. Commission Determination

117. We accept PJM's proposal to use the Final Offer in determining the Lost Opportunity Cost Deviation for calculating Lost Opportunity Cost credits because, under PJM's proposal, a Market Seller will be properly compensated for Lost Opportunity Cost credits in situations when the real-time price is between the Final Offer and the Committed Offer. The IMM argues that the Lost Opportunity Cost Deviation should be calculated based on two different methods: (1) when the Committed Offer is higher, the Lost Opportunity Cost Deviation should be calculated using the Committed Offer; and (2) when the Final Offer is higher, the Lost Opportunity Cost Deviation should be calculated using the Final Offer. We are not convinced by the IMM's argument because its analysis has not adequately justified its proposed approach and, as PJM explains, the approach is inconsistent with the offer on which PJM would have actually dispatched a resource (i.e., its Final Offer).¹⁶⁵ Further, PJM explains that, while it is theoretically possible for a resource to increase its Lost Opportunity Cost payment by increasing the Lost Opportunity Cost Deviation in rare circumstances, any such increases in Lost Opportunity Cost payments would be *de minimus* amounts.¹⁶⁶ Therefore, we encourage PJM and the IMM to monitor actual market performance in order to determine whether, and the extent to which, such scenarios and payments occur, and to address the issue accordingly in the PJM stakeholder process, if necessary, based on the market data obtained on Lost Opportunity Cost payments.

7. Regulations and Synchronized Reserve Offers

118. In the June 2016 Order, the Commission found that PJM's proposal to allow for Regulation and Synchronized Reserves offers that vary by hour was consistent with the scope of the Commission directive and should not be limited to changes in a resource's underlying fuel costs. Thus, the compliance filing that PJM must submit, within 30 days

¹⁶⁴ IMM Answer at 39.

¹⁶⁵ PJM Answer at 48. As noted above, the Final Offer is "the offer on which a resource was dispatched by the Office of the Interconnection for a particular clock hour for the Operating Day."

¹⁶⁶ PJM January 8, 2016 Answer at 29-30.

of the date of the June 2016 Order, should not limit offer flexibility for Regulation and Synchronized Reserves.¹⁶⁷

a. PJM's Filing

119. PJM proposes to allow Market Sellers to submit real-time offers for energy, Regulation, Synchronized Reserve, and economic load reductions and to allow such offers to be updated hourly, up to 65 minutes before the applicable clock hour during the Operating Day. PJM states that in the November 20, 2015 filing, it proposed that all real-time offers must be submitted at least 60 minutes prior to the applicable clock hour. However, based on additional technical implementation discussions, PJM identified that a 65 minute cut off would be more appropriate because its Ancillary Service Optimization (ASO) engine, which conducts a joint optimization of energy and reserves, runs at 60 minutes prior to the top of the clock hour and makes commitments for regulation and inflexible reserves for the top of the hour. PJM believes that setting the deadline for submission of hourly updates into its Markets Gateway system at 60 minutes prior to the applicable clock hour, as PJM initially proposed, would likely result in last minute offer updates for a given hour failing to get into the ASO case on time.¹⁶⁸

b. Comments and Protests

120. The IMM notes that the first paragraph of the Operating Agreement, Schedule 1, section 1.10.9A should specify 65 minutes, not 60 minutes. The IMM also notes that the third paragraph of section 6.4.1 (a) should specify "offer capped" not "offered capped."¹⁶⁹

c. Commission Determination

121. We accept PJM's proposal to allow Market Sellers to submit real-time offers for energy, Regulation, Synchronized Reserve, and economic load reductions and to allow such offers to be updated hourly, up to 65 minutes before the applicable clock hour during the Operating Day. We direct PJM to correct the typographical errors and submit revisions to sections 1.10.9A and 6.4.1 (a) of Schedule 1 of the Operating Agreement, as noted by the IMM, within 30 days of the date of this order.

¹⁶⁷ June 2016 Order, 155 FERC ¶ 61,282 at P 97.

¹⁶⁸ PJM Transmittal at 58-59.

¹⁶⁹ IMM Protest at 73.

8. Other Concerns

a. PJM's Filing

122. PJM proposes to allow a Fuel Cost Policy to include any applicable Maintenance Adders¹⁷⁰ and Start Additional Labor Cost¹⁷¹. PJM states that Maintenance Adders cannot include any costs that are included in a generation resource's Avoidable Cost Rate.¹⁷²

b. Comments

123. The IMM states that PJM's proposed components of costs in the energy market, "Maintenance Adder" and "Start Additional Labor Costs" are already recovered in the capacity market and should not be recovered again in the energy market.¹⁷³ The IMM explains that these labor costs may also be recovered in the Avoidable Operations and Maintenance Labor costs, as part of the ACR. The IMM explains that the cost of staffing a station for startup is a cost for availability of the unit to provide energy and is therefore not a short run marginal cost. The IMM argues that including these components in cost-based offers could raise market power concerns and create an unreasonable double recovery between the two markets. The Pennsylvania and Delaware Commissions also

¹⁷⁰ See PJM Operating Agreement, Schedule 2(j)(iv). Maintenance Adder is defined as "an adder that may be included to account for variable operation and maintenance expenses in a Market Seller's Fuel Cost Policy. The Maintenance Adder is calculated in accordance with the applicable provisions of PJM Manual 15, and may only include expenses incurred as a result of electric production." See proposed Operating Agreement, Definitions.

¹⁷¹ See PJM Operating Agreement, Schedule 2(j)(vii). "Start Additional Labor Costs shall mean additional labor costs for startup required above normal station manning levels." See Tariff and Operating Agreement, Definitions.

¹⁷² PJM Transmittal at 26.

¹⁷³ The IMM maintains that PJM Manual 15 refers to various FERC accounts that include fixed costs, and that FERC Accounts 512, 513, and 553 "include the cost of labor, materials used and expenses incurred in the maintenance of...plant." The IMM argues that these accounts cover all fixed and variable, short run and long run, maintenance costs. *Id.* at 48.

object to the inclusion of these costs in Fuel Cost Policies for the same reasons stated by the IMM.¹⁷⁴

c. Answers

124. PJM states that excluding these costs from Fuel Cost Policies on the grounds that they are recoverable through the ACR is contrary to the actual language in PJM's proposal as well as the language in the current effective Tariff and Operating Agreement. PJM states that, as an example, its Fuel Cost Policy proposal explicitly provides that Maintenance Adders cannot include any costs that are included in the generation resource's ACR and that Start Additional Labor Costs are "incremental labor costs" recoverable under Schedule 2(a) and therefore are not allowed to be recovered through the ACR, given that the Tariff excludes variable costs recoverable under cost-based offers to sell energy from the determination of an ACR. Direct Energy states that the term "short run replacement costs" is undefined and not based on any PJM's Tariff provisions.¹⁷⁵ The PJM Coalition states that it does not believe that this docket is the appropriate forum to debate the definition of short-run marginal cost in the context of energy production.¹⁷⁶

d. Commission Determination

125. We accept PJM's proposal and find reasonable PJM's clarification that its proposal explicitly provides that Schedule 2((j)(iv)) of the PJM Operating Agreement prohibits market participants from including Maintenance Adders as part of any costs that are included in the generation resource's ACR. We also note that Additional Labor Costs are not allowed to be recovered through the ACR; therefore, we reject the IMM's argument that including these components in cost-based offers could raise market power concerns or create an unreasonable double recovery between the two markets.

IV. Effective Date and Compliance

126. PJM requests that the Commission grant an effective date for the Fuel Cost Policy and the penalty structure 45 days after issuance of an order approving these proposed Tariff provisions. PJM states that such timing will: (1) allow all Market Sellers of generation resources sufficient time to prepare and submit Fuel Cost Policies in accordance with the Commission's order; and (2) provide PJM time to review such policies. With regard to the full implementation of its hourly offers proposal, PJM states

¹⁷⁴ The Pennsylvania and Delaware Commissions Protest at 16-18.

¹⁷⁵ Direct Energy Answer at 11.

¹⁷⁶ Coalition Answer at 2-3.

that within 30 days of the Commission's order, or the date of the submittal of any compliance filing it is required to make in this proceeding, PJM will submit a supplemental filing proposing a preliminary implementation date and a proposed effective date for the governing document revisions. PJM further states that, thereafter, no later than 30 days prior to that preliminary proposed effective date, PJM will make another filing with the Commission proposing a final effective date. PJM hopes that effective date will be on or before November 1, 2017, but states that it is simply impossible to know what the date will be at the time of its August 2016 filing given all the procedural and technical variables involved.¹⁷⁷ PJM is required to make a compliance filing that proposes effective dates for the various Tariff and Operating Agreement provisions, as discussed above, within 30 days of the date of this order.

The Commission orders:

(A) PJM's proposed Tariff and Operating Agreement revisions are hereby accepted, as discussed in the body of this order.

(B) PJM is hereby directed to submit a compliance filing within 30 days of the date of this order, as discussed in the body of this order.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

¹⁷⁷ PJM Transmittal at 78-80.

Appendix A

Tariff Records Filed PJM Interconnection, L.L.C. FERC FPA Electric Tariff Intra-PJM Tariffs

[C-D, OATT Definitions – C-D, 7.0.0](#)

[E-F, OATT Definitions – E - F, 8.0.0](#)

[G-H, OATT Definitions – G - H, 2.0.0](#)

[I-J-K, OATT Definitions – I – J - K, 5.0.0](#)

[L-M-N, OATT Definitions – L – M - N, 8.0.0](#)

[OATT Definitions – R - S, OATT Definitions – R - S, 8.0.0](#)

[T-U-V, OATT Definitions – T – U - V, 6.0.0](#)

[OATT ATT K APPX Sec 1.2, OATT Attachment K Appendix Sec 1.2 Cost-based Offers, 1.2.0](#)

[OATT Att K Appx Sec 1.9, OATT Attachment K Appendix Sec 1.9 Prescheduling, 4.0.0](#)

[OATT ATT K APPX Sec 1.10, OATT Attachment K Appendix Sec 1.10 - Scheduling, 25.1.0](#)

[OATT ATT K Appx Sec 3.2, OATT Attachment K Appendix Sec 3.2 - Market Buyers, 33.1.0](#)

[OATT ATT K APPX Sec 3.3A, OATT Attachment K Appendix Sec 3.3A Economic Load Response, 8.1.0](#)

[OATT ATT K APPX Sec 6.4, OATT Attachment K Appendix Sec 6.4 Offer Price Caps, 8.1.0](#)

[OATT ATT M – APPENDIX, OATT ATTACHMENT M – APPENDIX, 14.0.0](#)

[C-D, OA Definitions C - D, 9.0.0](#)

[E-F, OA Definitions E - F, 5.0.0](#)

[G-H, OA Definitions G - H, 2.0.0](#)

[I-L, OA Definitions I - L, 9.0.0](#)

[M-N, OA Definitions M - N, 6.0.0](#)

[Q-R, OA Definitions Q - R, 5.0.0](#)

[S–T, OA Definitions S – T, 8.0.0](#)

[OA Schedule 1 Sec 1.2, OA Schedule 1 Sec 1.2 Cost-based Offers, 1.1.0](#)

[OA Sch 1 Sec 1.9, OA Schedule 1 Sec 1.9 Prescheduling, 4.0.0](#)

[OA Schedule 1 Sec 1.10, OA Schedule 1 Sec 1.10 - Scheduling, 26.1.0](#)

[OA Schedule 1 Sec 3.2, OA Schedule 1 Sec 3.2 - Market Buyers, 33.1.0](#)

[OA Schedule 1 Sec 3.3A, OA Schedule 1 Sec 3.3A - Economic Load Response Participants, 8.1.0](#)

[OA Schedule 1 Sec 6.4, OA Schedule 1 Sec 6.4 Offer Price Caps., 8.1.0](#)

[OA SCHEDULE 2, OA SCHEDULE 2, 4.0.0](#)

Appendix B

List of Intervenors

American Electric Power Service Corporation
American Petroleum Institute (API)
Citizens Utility Board of Illinois
Dayton Power and Light Company
Delaware Division of the Public Advocate
Delaware Municipal Electric Corporation (DMEC)
Delaware Public Service Commission (Delaware Commission)
DC Office of the People's Counsel
Direct Energy Business, LLC (Direct Energy)
Dominion Resources Services, Inc. (Dominion)
East Kentucky Power Cooperative
Electric Power Supply Association (EPSA)
Environmental Defense Fund (EDF)
First Energy Service Company
Independent Market Monitor for PJM (IMM)
Indiana Office of Utility Consumer Counselor
Invenergy Thermall, LLC
Joint Protesters
LS Power Associates, L. P.
Maryland Office of People's Counsel
Moxie Freedom, LLC
New Jersey Board of Public Utilities and of Advocates (Joint Consumer Representatives)
New Jersey Division of Rate Counsel
NextEra Energy Resources, LLC
North Carolina Electric Membership Corporation
North Carolina Utilities Commission
NRG Power Marketing LLC and GenOn Energy Management, LLC
Office of the Ohio Consumer's Counsel
Old Dominion Electric Cooperative (ODEC)
Organization of PJM States, Inc. (OPSI)
Panda Power Funds (Panda)
Panda Power Generation Infrastructure Fund, LLC
Pennsylvania Office of Consumer Advocate
Pennsylvania Public Utility Commission (Pennsylvania Commission)
PJM Industrial Customer Coalition
PJM Power Providers Group (P3)
PJM Utilities Coalition (PJM Coalition)
PSEG Companies
Protestors

Public Power Association of New Jersey (PPANJ)
Public Utilities Commission of Ohio (Ohio Commission)
Rockland Electric Company
Southern Maryland Electric Cooperative, Inc.
Talen Energy Marketing, LLC
West Virginia Consumer Advocate Division