

130 FERC ¶ 61,230  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;  
Marc Spitzer, Philip D. Moeller,  
and John R. Norris.

PJM Interconnection, L.L.C.

Docket No. EL08-47-004

ORDER ON COMPLIANCE FILING

(Issued March 23, 2010)

1. On July 31, 2009 PJM Interconnection, L.L.C. (PJM) submitted revised sheets to Schedule 1 of the Amended and Restated Operating Agreement of PJM (Operating Agreement), the parallel provisions of Attachment K - Appendix of the PJM Open Access Transmission Tariff (Tariff), and Schedule 2 of the Operating Agreement (Schedule 2), in order to comply with the Commission's February 19, 2009 Initial Order on Market Power Mitigation Provisions and Establishing Procedures. That order found PJM's existing tariff unjust and unreasonable under §206 of the Federal Power Act because it did not recognize opportunity costs in determining mitigated prices and instituted a process by which PJM and other parties could propose just and reasonable tariff provisions for taking opportunity costs into account. In this order we find that PJM's proposed tariff provisions are too incomplete and unspecified and therefore establish further procedures, as discussed below, for determining a just and reasonable tariff provision.

**I. Background**

2. On May 16, 2008, the Commission granted a Maryland Public Service Commission (Maryland PSC) complaint in part, and eliminated market rule provisions that exempted certain generation resources from energy offer price mitigation.<sup>1</sup> On February 19, 2009, the Commission found insufficient evidence to meet the Federal Power Act section 206 burden to show that the three-pivotal-supplier test is unjust and

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<sup>1</sup> *PJM Interconnection, L.L.C.*, 123 FERC ¶ 61,169, *order on reh'g*, 125 FERC ¶ 61,340 (2008).

unreasonable as it relates to assessing the structural competitiveness of the PJM energy market.<sup>2</sup>

3. However, based on the filings in the proceeding, the Commission found, under § 206, that PJM's mitigation procedures were unjust and unreasonable for failing to include opportunity costs in the determination of mitigated prices. The Commission also established procedures to help determine the just and reasonable method for taking opportunity costs into account in setting mitigated rates. The Commission required that on or before July 31, 2009, PJM would make a compliance filing that proposes an approach for addressing the incorporation of opportunity costs in mitigated offers and that within 30 days after that filing, other parties may provide comments on the PJM proposal or submit their own specific proposals for resolving this issue.

## **II. PJM's Proposal**

4. PJM proposes to revise Schedule 2 to clearly and explicitly provide for the inclusion of opportunity costs for energy and environmentally limited resources, as clarified in the May 28 Clarification Order.<sup>3</sup> Specifically, PJM proposes to revise Subsection (a) to include opportunity costs for energy and environmentally limited resources as a sub-component of "other incremental operating costs":

For a resource that is subject to operation limitations due to energy or environmental constraints imposed on the resource by Applicable Laws and Regulation (as defined in the PJM Tariff), the Market Participant may include in the calculation of its other incremental operation costs an amount reflecting the resource's unit-specific opportunity costs incurred during the hour(s) in which such resource is expected to be constrained, in accordance with the procedures prescribed in the PJM Manuals.

In addition, PJM proposes to revise Subsection (b) of Schedule 2 with substantially the same language, as described above, in the determination of costs for Members who are obligated to sell energy on the PJM Interchange Energy Market at cost based rates.

5. PJM states that the specification of exactly what types of energy and environmental constraints that can be taken into account in determining opportunity

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<sup>2</sup> *PJM Interconnection, L.L.C.*, 126 FERC ¶ 61,145 (2009) (February 19 Order), *order on clarification*, 127 FERC ¶ 61,188 (2009) (May 28 Clarification Order).

<sup>3</sup> 127 FERC ¶ 61,188 at P 7. PJM plans to submit a filing for addressing the inclusion of other types of opportunity costs no later than July 1, 2010.

costs, and the calculation thereof, will be delineated in PJM Manual 15 after review by the PJM Markets and Reliability Committee and Members Committee, and approval of the PJM Board of Managers. PJM also states that any unit that is an energy-limited or environmentally-limited resource that makes use of the calculation procedure prescribed in the PJM manuals and runs out of hours in the delivery year, with the resource being self-scheduled 50 percent of the available run hours (or greater) will be considered a forced outage (as defined by NERC),<sup>4</sup> but if the resource was self-scheduled less than 50 percent of the available run hours, PJM will consider the outage as outside of management control. PJM states that this criterion will ensure that a resource that is operated for the majority of its run hours at PJM's direction is not inappropriately penalized via an increased forced outage rate if such unit runs out of available run hours due to PJM's requested operation.

6. PJM also proposes revisions to clarify what information market sellers must include in their offers, including but not limited to opportunity costs for energy and environmentally limited resources. Specifically, PJM proposes to revise Section 1.10.1A(d) of Schedule 1 of the PJM Operating Agreement and Section 1.10.1A(d) of Attachment K-Appendix of the Tariff to include a reference to Schedule 2 of the Operating Agreement and the PJM Manuals, in addition to the other information specified in Section 1.10.1A(d).

### **III. Notice of Filing and Responsive Pleadings**

7. Notice of this proceeding was published in the *Federal Register*, 74 Fed. Reg. 40180 (2009), with intervention, comments or protests due on August 21, 2009.<sup>5</sup> Comments generally supportive of the Compliance Filing were filed by Mirant Parties (Mirant);<sup>6</sup> American Electric Power Service Corporation (AEP);<sup>7</sup> and PJM Industrial Customer Coalition (PJM ICC).<sup>8</sup> Protests were filed by Monitoring Analytics,

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<sup>4</sup> See [http://www.nerc.com/files/Glossary\\_2009April20.pdf](http://www.nerc.com/files/Glossary_2009April20.pdf).

<sup>5</sup> On August 5, 2009, the Commission issued an errata notice, extending the comment deadline to August 31, 2009, as provided in the February 19, 2009 Order.

<sup>6</sup> Mirant Energy Trading, LLC; Mirant Potomac River, LLC; Mirant Chalk Point, LLC; and Mirant Mid-Atlantic, LLC.

<sup>7</sup> Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company.

<sup>8</sup> Mirant and PJM ICC also filed motions to intervene with their comments.

LLC,<sup>9</sup> and the Maryland Public Service Commission (Maryland PSC). An out-of-time motion to intervene was filed by Dayton Power and Light Company (Dayton). PJM filed a reply to the protests and comments.

#### **IV. Comments**

8. In response to PJM's compliance filing, PJM IMM and Maryland PSC raise concerns that the scope of the compliance filing goes beyond what is required by the Commission's February 19 Order, and that the language of the compliance filing is vague and unclear, but neither submitted specific proposals.

9. Maryland PSC contends that the February 19 Order and May 28 Clarification Order neither state nor imply that the current three-pivotal-supplier test mitigation measures do not account for opportunity costs, but simply require PJM to develop a mechanism to ensure systematic accounting for legitimate and verifiable opportunity costs in mitigated offer prices. As a result, Maryland PSC contends that the compliance filing goes beyond the scope of what is required. In response, PJM contends that Maryland PSC misinterprets the Commission's February 19 Order.

10. Both Maryland PSC and PJM IMM contend that the proposed revisions referencing "energy *or* environmental constraints" is inconsistent with the Commission's orders, is vague and unclear, and would introduce confusion into the cost development. Both Maryland PSC and PJM IMM also contend that inclusion of energy costs circumvents the further development of these costs within the stakeholder process because "other types of resources" could be included within this category without having to file any additional revisions to its Operating Agreement; thereby limiting the Commission's ability to review these changes. PJM IMM contends that the stakeholders only voted on rules to cover inclusion of environmental costs. In response, PJM points out that the Commission orders reference both energy and environmental limitations, and that the May 28 Clarification Order clearly indicates two separate types of limitations.

11. Both Maryland PSC and PJM IMM raise concerns with the specific language in the proposed revisions to Schedule 2, which provide for inclusion of an amount reflecting the resource's unit-specific opportunity costs during the hour(s) in which such resource is "expected to be constrained." Maryland PSC contends the language is vague and ambiguous. PJM IMM states that this language is inaccurate and should not be accepted. Maryland PSC also states that the term "energy constraint" is not currently defined. PJM acknowledges that the term "energy constraint" is not currently defined in either the

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<sup>9</sup> Monitoring Analytics, LLC filing in its capacity as PJM's independent market monitor (PJM IMM).

Operating Agreement, Tariff, or Manual 35 (Definitions and Acronyms) but states that it has provided examples of energy constraints at stakeholder meetings and in proposed revisions to Manual 15, which are subject to review through the PJM committee process and approval by the PJM Board of Managers.

12. AEP emphasizes that, while understanding the objective of the limitation on the number of self-scheduled hours, PJM should take into consideration the unique characteristics of the various units and the specific emission rules that may be applicable to each individual owner. PJM states that it understands AEP's concerns and that the proposed revisions to Manual 15 allow for the use of other methods of calculating opportunity costs, as approved by the PJM IMM. This should also be clarified in the Tariff.

13. Maryland PSC contends that because capacity costs are fully recovered in PJM's resource procurement model (RPM), no opportunity costs should be calculated for capacity or operating capacity constraints. PJM believes that Maryland PSC misunderstands the proposed revisions in connection with assigning opportunity costs to cost of operating capacity supplied. PJM states that the intent of the proposed revision is to make clear that even if a resource is receiving RPM revenues, it is still entitled to incorporate its opportunity costs into its cost-based offer in the energy market and whether a resource does or does not receive RPM revenue is irrelevant to the discussion of recovery of opportunity costs. PJM contends that there is no justification for not allowing resources that commit to provide capacity through RPM to recover their opportunity costs in their cost-based bids as proposed.

14. PJM IMM also contends that proposed revisions allowing recovery of opportunity costs under Section (a) and (b) of Schedule 2 requires a difficult allocation of costs and may result in double-counting. PJM IMM states that costs under Section (a) are the same regardless of how the unit is run, and recommends adding opportunity costs only to the costs of energy that a member is obligated to supply to the PJM Interchange Energy Market, Section (b). PJM maintains that both provisions are necessary to be clear that opportunity costs can be included in the cost-based offers of generation owners who are obligated to sell energy as well as those who are obligated to commit to provide capacity. PJM also states that during continued stakeholder discussion, it expects to consider whether it is advisable to combine these revisions.

**V. Discussion****A. Procedural Matters**

15. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure,<sup>10</sup> the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.<sup>11</sup> Given the early stage of the proceeding, its interests, and the absence of undue prejudice or delay, we will grant the late-filed motion to intervene of Dayton. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure,<sup>12</sup> prohibits an answer to a protest unless otherwise ordered by the decisional authority. We will accept the reply of PJM because it provides information assisting us in our decision making process.

**B. Commission Determination**

16. As discussed below, we find that PJM's tariff proposal fails to provide sufficient detail to establish a just and reasonable methodology for including opportunity costs in mitigated rates, nor did other parties submit acceptable alternatives. We therefore cannot accept PJM's proposal and will establish an additional time period for PJM and other parties to submit tariff provisions that disclose the methodology to be followed in determining opportunity costs for energy and environmentally limited resources as well as other resources.

17. PJM's proposed tariff provision provides only for inclusion of a resource's unit-specific opportunity costs, "in accordance with the procedures prescribed in the PJM Manuals." But PJM's Tariff does not describe the methodology for calculating opportunity costs, and the Manuals were not completed at the time of the filing. While relying on Manuals to develop implementation details and mechanics of implementation may be acceptable, the methodology to be applied in determining the relevant opportunity costs needs to be sufficiently described in the tariff.

18. PJM has apparently been working on specific methodologies for making this calculation. For example, PJM's July 13, 2009 document titled "Unit-Specific

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<sup>10</sup> 18 C.F.R. § 385.214 (2009).

<sup>11</sup> Both Mirant and PJM ICC had intervened in a previous subdocket of this proceeding. Other commenters and protesters had also intervened in a previous subdocket of this proceeding.

<sup>12</sup> 18 C.F.R. § 385.213(a)(2) (2009).

Opportunity Cost Calculation Proposal”<sup>13</sup> provides that the opportunity cost for a run-time restricted unit is the difference between the lowest expected margin the unit would earn in running up to its run-time limit and zero, assuming the unit runs in only its highest expected margin hours.<sup>14</sup> However, the Commission has no way of knowing if this document forms the substance of PJM’s proposal. The proposed tariff provision does not provide any description of the methodology.

19. Based on the tariff provisions filed by PJM, we do not understand the methodology it proposes to employ in determining the relevant opportunity costs. For that reason, we will provide PJM and the parties with an additional opportunity to file appropriate tariff provisions. Within 30 days of the date of this order, PJM or parties to the proceeding may submit revisions to address the concerns discussed above. Responses may be filed within 30 days of any such revisions.

20. Several parties contend that PJM should not have limited its filing only to energy and environmentally limited resources, but should have included a proposal covering the opportunity costs incurred by other resources as well. We agree that PJM and the parties need to try to include a mechanism covering opportunity costs for all types of resources. In the February 19 Order, the Commission referenced energy and environmental costs as examples of opportunity costs,<sup>15</sup> but the Commission noted that the requirement to consider opportunity costs was broader. In the May 28 Clarification Order, the Commission stated:

We will grant Mirant Parties’ request for clarification that the scope of PJM’s compliance filing is not limited to opportunity costs related to energy and environmentally-limited resources. As PJM recognizes, the references to *these two types of cost* in the order were by way of example, and PJM needs to consider

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<sup>13</sup> See <http://www.pjm.com/committees-and-groups/task-forces/~media/committees-groups/task-forces/cdtf/20090713/20090713-item-02b-opportunity-cost-proposal.ashx>, at 4.

<sup>14</sup> The methodology uses monthly forward prices for power and fuels and forward prices of emissions allowances for the relevant vintage year as a proxy for market expectations of power prices and average future fuel costs. Historic monthly average basis differentials serve as a proxy for expected, future basis differentials. The method then applies the monthly forward prices to the historic volatility and basis differentials to derive forward, hourly power and daily fuel prices that reflect the monthly prices in the forward markets with the historic volatility and basis differentials.

<sup>15</sup> 126 FERC ¶ 61,145 at P 42.

all legitimate and verifiable opportunity costs as part of its stakeholder process and its compliance filing. ...<sup>16</sup>

21. However, we recognize the difficulty in determining a measure for opportunity costs for resources beyond energy and environmentally limited resources, and we will provide PJM and the parties with additional time to develop such measures. No later than July 1, 2010, PJM and parties should file specific proposals for including other legitimate and verifiable opportunity costs in the mitigated bids for all resources.

22. Maryland PSC appears to contend that PJM's current mitigation scheme already accounts for opportunity costs and that PJM's proposed tariff changes go beyond the scope of the Commission's order.<sup>17</sup> In the February 19 Order, we specifically found that PJM's tariff is unjust and unreasonable because it fails to include a specific provision relating to the inclusion of opportunity costs:

we find that because opportunity cost are not specifically provided for or clearly defined, the current provisions for including this component of costs are limited to a case-by-case process. Default bids that do not account for opportunity costs can lead to inefficient use of scarce resources and increase costs to customers. We find that, because default bids do not clearly and explicitly provide for the inclusion of opportunity costs, especially for energy and environmentally-limited resources, the mitigation measures related to determining default bids are unjust and unreasonable.<sup>18</sup>

We further set up procedures to establish tariff provisions that provide for systematic inclusion of such costs.<sup>19</sup> While we are not accepting PJM's proposed revisions at this time, we do not find that PJM's proposal went beyond the scope of our § 206 finding. PJM needs to propose tariff provisions that provide a mechanism by which opportunity

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<sup>16</sup> 127 FERC ¶ 61,188 at P 7 (emphasis added).

<sup>17</sup> On the other hand, the Maryland PSC seems to concede that the orders require the development of mechanisms to ensure the "inclusion [of opportunity costs] in cost based bids offers when *ex ante* mitigation is required to remediate cost-based bids." Maryland PSC Comment, at 4.

<sup>18</sup> 126 FERC ¶ 61,145, at P 42.

<sup>19</sup> *Id.*

costs can be included in mitigated bids in order to eliminate the need to evaluate the opportunity cost of resources on a case-by-case basis.

23. The Maryland PSC also suggests that opportunity costs should not be included for what it terms “capacity or operating capacity constraints” because generators receive compensation for capacity in the RPM capacity market. We are not entirely sure what the Maryland PSC means by “capacity or operating capacity constraints.” If the Maryland PSC is referring to language in the proposed tariff provisions, we are providing another opportunity for the parties to make sure the tariff language specifically describes how opportunity costs will be calculated. We agree with PJM that participation in the capacity market should not disqualify a resource from including opportunity costs in a mitigated energy bid. In determining mitigated bids in the energy market, opportunity cost is a legitimate cost that should be taken into account. A generating unit with limited run hours should not be forced to run when prices are low and therefore lose its ability to run during periods of higher prices. Such inefficient dispatch can lead to increased costs to customers.

The Commission orders:

(A) Within 30 days of the date of this order, PJM should submit proposed tariff provisions relating to the inclusion of opportunity costs in the bids of energy and environmentally limited resources, as discussed in the body of this order. Responses may be filed within 30 days of such filings.

(B) No later than July 1, 2010, PJM should submit proposed tariff provisions relating to the inclusion of other legitimate and verifiable opportunity costs in the mitigated bids for all resources, as discussed in the body of this order. Within 30 days after that filing, other parties may provide comments on the PJM proposal or submit their own specific proposals for resolving this issue. PJM will then have 20 days from the date of filing to respond.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.