

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

|                                     |   |                        |
|-------------------------------------|---|------------------------|
| LS Power Development, LLC,          | ) |                        |
| Complainant,                        | ) |                        |
|                                     | ) |                        |
| v.                                  | ) | Docket No. EL24-91-000 |
|                                     | ) |                        |
| PJM Interconnection, L.L.C., and    | ) |                        |
| Monitoring Analytics, as the        | ) |                        |
| Independent Market Monitor for PJM, | ) |                        |
| Respondent.                         | ) |                        |

**ANSWER OF PJM INTERCONNECTION, L.L.C.**

PJM Interconnection, L.L.C. (“PJM”), pursuant to Rule 213 of the Federal Energy Regulatory Commission (“Commission”) Rules of Practice and Procedure,<sup>1</sup> respectfully submits this Answer in response to the March 20, 2024 complaint (“Complaint”)<sup>2</sup> of LS Power Development, LLC (“LS Power”), alleging that the implementation of provisions related to the determination of Energy Market Opportunity Cost<sup>3</sup> adders for use in certain energy market offers by PJM and the Independent Market Monitor for PJM (“Market Monitor”) is unjust and unreasonable. Specifically, the Complaint seeks “prospective improvements” to the implementation of the Market Monitor’s opportunity cost adder calculator (“IMM Calculator”), primarily greater transparency and detail surrounding how the IMM Calculator works.

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<sup>1</sup> 18 C.F.R. § 385.213.

<sup>2</sup> *LS Power Development, LLC v. PJM Interconnection, L.L.C.*, Complaint of LS Power Development, LLC, Docket No. EL24-91-000 (Mar. 20, 2024) (“Complaint”).

<sup>3</sup> While the exact meaning of Energy Market Opportunity Cost is discussed in this answer, for the purpose of this filing, capitalized terms not defined herein shall have the meaning as contained in the PJM Open Access Transmission Tariff (“Tariff”), Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”), or the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region.

The Commission should find that PJM and the Market Monitor are in compliance with their respective obligations. However, PJM acknowledges and agrees with certain concerns raised in the Complaint regarding the benefits of increased transparency in the opportunity cost adder determination—including a requirement, given the existing PJM Manual provisions that specifically reference use of the IMM Calculator, that the Market Monitor share the IMM Calculator with PJM and provide further detail on the IMM Calculator in the PJM Manuals. Such an order would be consistent with the PJM Board’s obligation to provide a robust, competitive, and non-discriminatory wholesale energy market,<sup>4</sup> as well as PJM’s obligation as a regional transmission organization to perform appropriate market monitoring.<sup>5</sup>

## **I. BACKGROUND**

### ***A. The Energy Market Rules Allow Run-Limited Resources to Include Associated Opportunity Costs in Their Cost-Based Offers.***

In the PJM energy market, Market Sellers may make their resources available on either a “market-based” offer or a “cost-based” offer.<sup>6</sup> While Market Sellers are afforded a large degree of freedom in developing their market-based offers, their cost-based offers must be constructed in accordance with various energy market rules, because they are considered when mitigating a potential exercise of market power.<sup>7</sup>

Many of the rules for constructing a cost-based offer are set forth in Operating Agreement, Schedule 2. As relevant to this proceeding, Operating Agreement, Schedule 2,

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<sup>4</sup> Operating Agreement, section 7.7(i).

<sup>5</sup> See e.g., 18 C.F.R. § 35.34(k)(6).

<sup>6</sup> See Operating Agreement, Schedule 1, section 1.10.1A.

<sup>7</sup> See Operating Agreement, Schedule 1, section 6.4.1 (requiring resources to be evaluated based on their cost-based offers when the Market Seller fails the three-pivotal supplier test).

section 5(a) provides that resources “subject to operational limitations due to energy or environmental limitations imposed on the generating unit by Applicable Laws and Regulations” may include “a calculation of its . . . unit-specific Energy Market Opportunity Costs,” i.e., an opportunity cost adder. Opportunity cost adders are “a legitimate cost that should be taken into account” in developing a cost-based offer<sup>8</sup> and enhance market efficiency and accuracy when an offer is mitigated to protect against the potential exercise of market power.

An Energy Market Opportunity Cost adder “is the value associated with a specific generating unit’s lost opportunity to produce energy during a higher valued period,” i.e., when the energy price is higher.<sup>9</sup> The energy market rules prescribed that such opportunity costs shall be determined based on the forecasted difference between (a) the cost to operate the resource when it “has a limited number of available run hours” due to energy or environmental run-time limitations imposed by law or permit and (b) “the forecasted future Locational Marginal Price [(“LMP”)] at which the generating unit could run while not violating such limitations.”<sup>10</sup> This is appropriate because an economically rational Market Seller generally will want to operate its run-limited resource during the hours with the highest LMP, the opportunity cost adder is designed to capture the missed energy market margin (LMP minus cost) associated with running such resource when the LMP is lower than any higher LMPs forecasted for the resource’s run-limited compliance period.

While the Operating Agreement sets forth the methodology for determining a resource’s specific opportunity cost adders for any given Operating Day’s cost-based offer,

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<sup>8</sup> *PJM Interconnection, L.L.C.*, 130 FERC ¶ 61,230, at P 23 (2010).

<sup>9</sup> Operating Agreement, Definitions E-F (Definition of Energy Market Opportunity Cost).

<sup>10</sup> *Id.*

the details for implementing the Operating Agreement’s methodology are described in PJM Manual 15.<sup>11</sup> Specifically, PJM Manual 15, section 12 provides much detail about the opportunity cost adder determination.

***B. While Market Participants Initially Relied on the PJM Calculator, After a Stakeholder Process and Cooperative Discussions Between PJM and the Market Monitor, PJM’s Calculator Was Retired and the IMM Calculator Became the Sole Approved Approach.***

In 2010, as part of the compliance filing proposing the above-described Operating Agreement provision setting forth the methodology for determining Energy Market Opportunity Costs, PJM informed the Commission that it had “designed a computer based calculator” “[t]o assist Market Participants in calculating Energy Market Opportunity Costs.”<sup>12</sup> PJM also included, for informational purposes, Manual provisions detailing how PJM intended to implement the methodology, including detailed formulae for how the PJM Calculator actually calculated the opportunity cost adder.<sup>13</sup> These provisions are currently contained in PJM Manual 15, sections 12.3 through 12.6. Around the same time PJM developed the PJM Calculator, the Market Monitor developed the IMM Calculator. However, the IMM Calculator was not initially documented in PJM Manual 15.

*1. As the calculators’ results diverged and comparability issues arose, a stakeholder process into the calculators was initiated.*

From then through about 2016, both calculators produced similar results. However, at some point in 2016, the Market Monitor made changes to its calculator causing diverging

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<sup>11</sup> Cost Development Subcommittee, *PJM Manual 15: Cost Development Guidelines*, PJM Interconnection, L.L.C. (Aug. 1, 2023), <https://www.pjm.com/-/media/documents/manuals/m15.ashx> (stating that the IMM Calculator is “a constrained optimization software application independently developed and owned by Monitoring Analytics, LLC”) (“PJM Manual 15”).

<sup>12</sup> *PJM Interconnection, L.L.C.*, Compliance Filing of PJM Interconnection, L.L.C., Docket No. EL08-47-005, at 13 (Apr. 23, 2010).

<sup>13</sup> *PJM Interconnection, L.L.C.*, Compliance Filing of PJM Interconnection, L.L.C., Docket No. EL08-47-005, at Attachment C (Apr. 23, 2010).

results and comparability issues. In May 2017, the PJM Markets and Reliability Committee approved a Problem Statement and Issue Charge<sup>14</sup> to evaluate “whether the two different opportunity cost calculators produce the same or comparable results and whether either calculator captures all scenarios.”<sup>15</sup> Over ten special sessions of the Markets Implementation Commission from May 2017 through June 2019, PJM, the Market Monitor, and stakeholders evaluated the two calculators.

As part of this evaluation, stakeholders identified a few concerns with the Market Monitor’s methodology and with certain changes made to the pre-existing IMM Calculator. The most significant issue was that the IMM Calculator frequently resulted in a significantly different value that was calculated from the PJM Calculator.<sup>16</sup> After consideration and review, on August 7, 2018, PJM notified Market Participants that the Market Monitor’s then-new optimization methodology utilized by the IMM Calculator was not an “approved” method for calculating opportunity cost adders, and that only the PJM Calculator or other PJM-approved method could be used to approve an opportunity cost adder higher than the one calculated by PJM.<sup>17</sup> PJM also issued a letter, dated August 29, 2018, to the Market Monitor asking for the Market Monitor to either share the

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<sup>14</sup> Market and Reliability Committee, *Minutes*, PJM Interconnection, L.L.C. (Mar. 23, 2017), <https://www.pjm.com/-/media/committees-groups/committees/mrc/20170427/20170427-item-01-draft-minutes-mrc-20170323.ashx>.

<sup>15</sup> *Problem Statement and Issue Charge Opportunity Cost Calculator*, PJM Interconnection, L.L.C., 1 (May 23, 2017), <https://pjm.com/-/media/committees-groups/committees/mic/20170523-special/20170523-item-02-opportunity-cost-calculator-problem-statement-issue-charge.ashx>. This method was first presented to stakeholders on May 23, 2017 at a Special MIC meeting.

<sup>16</sup> *See id.*

<sup>17</sup> *See Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers (Aug. 7, 2018) (on file with PJM Interconnection, L.L.C., <https://pjm.com/-/media/committees-groups/committees/mic/20180824-special-occ/20180824-item-02-opc-calculator-market-seller-notice.ashx>).*

IMM Calculator or provide “sufficient information around” the IMM Calculator so that PJM can evaluate whether it is “consistent with the provisions of [PJM] Manual 15.”<sup>18</sup> PJM noted that the Market Monitor “has not provided enough detail around [the IMM Calculator] for PJM to fulfill its obligation to ensure that the [IMM Calculator] is producing results in accordance with Schedule 2 of the Operating Agreement and [PJM] Manual 15.”<sup>19</sup>

The Market Monitor responded to PJM’s advisory notice and letter, asserting that the IMM Calculator is consistent with Operating Agreement, Schedule 2 and that PJM lacks authority to approve it or not.<sup>20</sup> The Market Monitor also stated that, while it “does not have the authority to require a market participant” to modify its cost-based offers, it “routinely informs market participants that if its use of the PJM calculator results in an opportunity cost greater than that calculated by the [Market Monitor] that the [Market Monitor] is required by the tariff to raise the issue with [the Commission].”<sup>21</sup> The Market Monitor’s statement placed Market Sellers at risk of being referred to the Commission’s Office of Enforcement if they used the PJM Calculator instead of the IMM Calculator.

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<sup>18</sup> Letter from Stu Bresler, PJM Interconnection, L.L.C., to Dr. Joseph Bowring, Monitoring Analytics, LLC (Aug. 29, 2018) (on file with PJM Interconnection, L.L.C., <https://pjm.com/-/media/committees-groups/committees/mic/20180925-special-occ/20180925-item-02a-20180823-pjm-opportunity-cost-calculator-letter-to-ma-20180829.ashx>).

<sup>19</sup> *Id.* at 1.

<sup>20</sup> *See* Letter from PJM Interconnection, L.L.C., to Independent Market Monitor, 4-5 (Sept. 16, 2018) (on file with PJM Interconnection, L.L.C., <https://pjm.com/-/media/committees-groups/committees/mic/20180925-special-occ/20180925-item-02b-imm-response-to-pjm-re-opportunity-cost-20180916.ashx>).

<sup>21</sup> *Id.* at 5.

2. *A compromise package is endorsed, retiring the PJM Calculator and leaving the IMM Calculator as the sole approved approach.*

On October 24, 2018, following PJM’s extensive review of the IMM Calculator and in cooperation with the Market Monitor, PJM approved the use of the IMM Calculator in determining opportunity cost adders.<sup>22</sup> PJM conditioned the use of the IMM Calculator on (1) Market Sellers keeping PJM apprised of requests to use the IMM Calculator; (2) the Market Monitor providing PJM the results provided to the Market Seller; and (3) the Market Monitor “alert[ing] PJM of any and all pending changes to the IMM [C]alculator prior to implementation to allow PJM sufficient time to review the impact and results of such changes.”<sup>23</sup> Afterwards, the detail regarding the IMM Calculator was added to PJM Manual 15, in revision 31, effective on February 15, 2019.

The stakeholder process culminated in the approval of a compromise package at the March 26, 2020 Members Committee meeting,<sup>24</sup> which was endorsed with no objections and two abstentions.<sup>25</sup> The package called for retirement of the PJM Calculator due to “very little usage” and adoption of the IMM Calculator as “the required tool for

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<sup>22</sup> See Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers (Aug. 27, 2019) (on file with PJM Interconnection, L.L.C., <https://pjm.com/-/media/etools/markets-gateway/pjm-approval-of-imm-opportunity-cost-calculator-as-an-alternative-method.ashx>). For the sake of clarity, PJM later issued a version of the letter stating that this “approval is retroactive to the inception of the IMM [Calculator].” *Id.* at 1.

<sup>23</sup> *Id.* at 2.

<sup>24</sup> See Glen Boyle, *Opportunity Cost Calculator*, PJM Interconnection, L.L.C. (Mar. 26, 2020), <https://pjm.com/-/media/committees-groups/committees/mc/2020/20200326/20200326-item-01-1-opportunity-cost-calculator-presentation.ashx>.

<sup>25</sup> See Members Committee, *Minutes*, PJM Interconnection, L.L.C. (Mar. 26, 2020), <https://pjm.com/-/media/committees-groups/committees/mc/2020/20200504/20200504-item-06a-draft-minutes-mc-20200326.ashx>.

[calculating] opportunity cost.”<sup>26</sup> The package also required expansion of the description of the IMM Calculator in PJM Manual 15 to match the then-current version, and that future changes must be documented in PJM Manual 15. These updates were added in revision 35 of PJM Manual 15 on April 24, 2020. PJM stakeholders later agreed to include additional detail in sections 12.7.8 and 12.7.9 of PJM Manual 15 on August 1, 2023, to reflect changes to the IMM Calculator with respect to minimum run time logic.

As part of the compromise package memorialized in PJM Manual 15, section 12.7, PJM is required to perform, with the IMM, an annual review of the IMM Calculator “to ensure compliance with” the Operating Agreement and PJM Manual 15.<sup>27</sup>

## II. ANSWER

### A. *In Accordance with Order No. 719, PJM Exercises Its Responsibility for Prospective Market Mitigation by Continuously Monitoring Its Results, Working with Market Sellers, and Annually Reviewing the IMM Calculator.*

The Complaint alleges that PJM and the Market Monitor have “given the IMM sole discretion to determine” opportunity cost adders “in violation of the Commission’s regulations and Order No. 719.”<sup>28</sup> To the contrary, PJM retains the authority granted under the Commission’s regulations and Order No. 719 to be the final arbiter of the opportunity cost adder included in a resource’s cost-based offer.

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<sup>26</sup> See Glen Boyle, *Opportunity Cost Calculator*, PJM Interconnection, L.L.C., 5 (Mar. 26, 2020), <https://pjm.com/-/media/committees-groups/committees/mc/2020/20200326/20200326-item-01-1-opportunity-cost-calculator-presentation.ashx>.

<sup>27</sup> See Glen Boyle, *Opportunity Cost Calculator*, PJM Interconnection, L.L.C., 5 (Mar. 26, 2020), <https://pjm.com/-/media/committees-groups/committees/mc/2020/20200326/20200326-item-01-1-opportunity-cost-calculator-presentation.ashx>; see PJM Manual 15, section 12.7 (“On an annual basis, PJM will review the inputs and results of the IMM Opportunity Cost Calculator in consultation with the IMM to verify that the IMM Opportunity Cost Calculator continues to meet the documented requirements.”).

<sup>28</sup> Complaint at 36 (citing 18 C.F.R. § 35.28(g)(3)(iii)(A)-(B)).



The Commission’s regulations and Order No. 719 require PJM to be the entity in charge of prospective mitigation, which “include[s] only mitigation that can affect market outcomes on a forward-going basis, such as altering the prices of offers [e.g., opportunity cost adders used in constructing a cost-based offer] . . . at or before the time they are considered in a market solution.”<sup>29</sup> PJM has long utilized, with stakeholder support, defined processes by which the mitigation is performed based on specified inputs. For example, PJM follows this approach in approving each generation resource’s Fuel Cost Policy used to determine each resource’s cost-based offers. Operating Agreement, Schedule 2 sets forth the detail for how a Market Seller must set up its Fuel Cost Policy, and then submit it to the PJM and Market Monitor for review—and PJM approval.

Likewise, PJM’s approach of employing the IMM Calculator to determine a resource’s opportunity cost adder for a specific cost-based offer is compliant with PJM’s obligations under the Operating Agreement, Schedule 2. To verify that IMM Calculator is accomplishing its prospective mitigation objective, PJM annually reviews “the inputs and results” of the IMM Calculator to verify that it continues to follow the methodology stated in the Operating Agreement, Schedule 2, section 5(a) and PJM Manual 15, section 12.7. Additionally, PJM periodically reviews the adders and reviews the trends of the adders over time to identify individual adders that appear abnormally high or low. Adders that do not appear to be trending in a way that is consistent with the unit’s remaining run hours or commodity forward prices may be flagged for additional analysis. Where PJM has identified issues warranting further review, PJM then requests from the Market Monitor

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<sup>29</sup> *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, 125 FERC ¶ 61,071, at P 375 (2008), *as amended*, 126 FERC ¶ 61,261, *order on reh’g*, Order No. 719-A, 128 FERC ¶ 61,059, *reh’g denied*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

case data for the units and weeks in question, before and after the abnormality occurred. PJM examines the inputs and outputs for such units and weeks, and then meets with the Market Monitor to go over any questions raised by of PJM’s examination.<sup>30</sup> PJM documents the annual review<sup>31</sup> and posts it to PJM’s “Opportunity Cost Calculator” webpage.<sup>32</sup>

Further, consistent with PJM’s conditions on accepting the IMM Calculator as an approved approach for determining opportunity cost adders,<sup>33</sup> PJM continuously acts to safeguard that the IMM Calculator functions properly. For instance, PJM plays an active role in disputes between Market Sellers and the Market Monitor (as in the LS Power case here). If PJM becomes aware of a Market Seller’s concern regarding the IMM Calculator, PJM works with the Market Monitor to validate or correct any errors, as PJM did with LS Power’s Rockford Energy Center.<sup>34</sup> Also, to the extent the Market Monitor makes changes to the calculation methodology, PJM documents such changes and works with the Market Monitor and stakeholders to update PJM Manual 15, section 12.7 accordingly. Finally,

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<sup>30</sup> See Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers (Dec. 12, 2023) (on file with PJM Interconnection, L.L.C., <https://www.pjm.com/-/media/etools/markets-gateway/2023-annual-review-of-imm-opportunity-cost-calculator-methodology.ashx>) (“Throughout the course of 2023, PJM monitored the level of units’ OCC adders as calculated by Monitoring Analytics. The trending of adder values corresponded to what one would expect to see based on the units’ remaining run hours as well as natural gas and electricity forward prices.”).

<sup>31</sup> See, e.g., Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers (Dec. 12, 2023) (on file with PJM Interconnection, L.L.C., <https://www.pjm.com/-/media/etools/markets-gateway/2023-annual-review-of-imm-opportunity-cost-calculator-methodology.ashx>).

<sup>32</sup> See *Opportunity Cost Calculator*, PJM Interconnection, L.L.C., <https://www.pjm.com/markets-and-operations/etools/markets-gateway/opp-cost-calculator> (last visited Apr. 19, 2024).

<sup>33</sup> See Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers (Aug. 27, 2019) (on file with PJM Interconnection, L.L.C., <https://pjm.com/-/media/etools/markets-gateway/pjm-approval-of-imm-opportunity-cost-calculator-as-an-alternative-method.ashx>).

<sup>34</sup> See Complaint at 16.

PJM Manual 15, section 12.7 requires the Market Monitor to keep PJM informed and abreast of any significant changes to the IMM Calculator, enabling PJM to be monitor whether it continues to meet its prospective mitigation objective.<sup>35</sup>

The fact that the Market Monitor actually operates the IMM Calculator does not make it unreasonable for PJM to voluntarily rely on it as part of PJM’s prospective mitigation scheme. As discussed above, PJM agreed, as part of a compromise with stakeholders to retire the PJM Calculator and rely solely on the IMM Calculator. As the Commission-approved regional transmission organization, PJM is responsible for market monitoring, but can engage a contractor, as it has done here.<sup>36</sup> Indeed, Order No. 719 provides that, in conducting prospective mitigation, PJM can rely on the “software capabilities developed by [the Market Monitor], [] reduc[ing] wasteful duplication.”<sup>37</sup> Moreover, the Commission’s regulation explicitly permit the Market Monitor “to provide the inputs required for the Commission-approved . . . regional transmission organization to conduct prospective mitigation, including, but not limited to, reference levels, identification of system constraints, *and cost calculations*.”<sup>38</sup> Regardless, PJM could choose to re-establish a PJM Calculator as an approved approach under Operating Agreement, Schedule 2, section 5(a).<sup>39</sup>

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<sup>35</sup> Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers (Dec. 12, 2023) (on file with PJM Interconnection, L.L.C., <https://www.pjm.com/-/media/etools/markets-gateway/2023-annual-review-of-imm-opportunity-cost-calculator-methodology.ashx>).

<sup>36</sup> See Rate Schedule FERC No. 46, Market Monitoring Services Agreement by and between PJM Interconnection, L.L.C. and Monitoring Analytics, LLC (“Market Monitoring Services Agreement”).

<sup>37</sup> Order No. 719 at P 375.

<sup>38</sup> 18 C.F.R. § 35.28(g)(3)(iii)(B) (emphasis added).

<sup>39</sup> Recall that the IMM Calculator was not an approved approach until October 2018, and from that time through the end of 2019, there were two approved approaches: the PJM Calculator and the IMM Calculator.

Although the Complaint has not established a tariff violation by PJM, the Complaint does raise legitimate concerns relative to a lack of transparency as to the actual workings of the IMM Calculator—a concern that PJM shares. Notwithstanding that PJM properly exercises its authority and is the entity that conducts the prospective mitigation regarding opportunity cost adder determination, the Market Monitor has declined to grant PJM access to the software *even on a confidential basis*.<sup>40</sup> The Market Monitor’s refusal to provide Market Sellers with the appropriate transparency prevents Market Sellers from having confidence in the model and its results.

For these reasons, PJM concurs with the Complaint that improvements to the transparency as well as the existing process for PJM to review the IMM Calculator are warranted. Enhancements to the existing process could enhance PJM’s ability to help ensure the accuracy of the calculator’s result and provide Market Sellers with greater confidence in the model and results. For example, consistent with Commission-accepted obligations, the Market Monitor could share the IMM Calculator model and all inputs with PJM. Under the Market Monitoring Services Agreement, PJM is presently entitled to this access in connection with PJM’s rights and obligations as a regional transmission organization.<sup>41</sup>

To allow for this, the Commission should require the Market Monitor to provide additional detail and documentation of the methodology underlying the IMM Calculator for inclusion in PJM Manual 15, as such inclusion would provide additional transparency,

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While PJM could re-establish the PJM Calculator, it would take some time for PJM to work with an outside software vendor to revive and test the calculator before it can be used.

<sup>40</sup> PJM Manual 15 at section 12.7.

<sup>41</sup> Market Monitoring Services Agreement at section 21 (Intellectual Property).

improve confidence in market outcomes, and enhance PJM’s oversight of the efficiency of the IMM Calculator. Given that the processes around the use of the IMM Calculator are included in the PJM Manuals, the Commission has clear authority to direct additional transparency and sharing of this information with PJM so as to ensure that the results of the application of the IMM Calculator remain just and reasonable.

***B. PJM Affirms that Market Participants May Seek an Alternative Opportunity Cost Adder Determination in Accordance with the Terms of the Operating Agreement, Schedule 2, Section 5.***

The Complaint alleges that “PJM and the IMM appear to have *sub silentio* eliminated a seller’s right to propose an alternative methodology for calculating [opportunity cost adders].”<sup>42</sup> Not so. The Operating Agreement language is clear: PJM may approve a Market Participant’s “alternative method of calculating its Energy Market Opportunity Cost” but only “if the standard methodology described herein does not accurately represent the Market Participant’s Energy Market Opportunity Cost.”<sup>43</sup> Indeed, PJM has confirmed to stakeholders that the “opportunity cost adder may be calculated by . . . [a] PJM-approved alternative method.”<sup>44</sup> In fact, PJM has received and approved alternative opportunity cost adders in the past.

While there is value in consistency among the opportunity cost adders utilized across resources, as the Commission held, “some resources may have energy and environmental limitations that do not fit into the standard methodology.”<sup>45</sup> Thus, for an

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<sup>42</sup> Complaint at 35.

<sup>43</sup> Operating Agreement, Schedule 2, section 5.

<sup>44</sup> See Letter from Glen Boyle, Manager, Operations Analysis and Compliance, PJM Interconnection, L.L.C., to Market Sellers Using an Opportunity Cost Adder in Cost-Based Energy Market Offers, 1 (Aug. 27, 2019) (on file with PJM Interconnection, L.L.C., <https://pjm.com/-/media/etools/markets-gateway/pjm-approval-of-imm-opportunity-cost-calculator-as-an-alternative-method.ashx>).

<sup>45</sup> *PJM Interconnection, L.L.C.*, 133 FERC ¶ 61,081, at P 22 (2010).

alternative approach to be reasonable, the Market Seller would need to demonstrate how and why the current standard methodology, as set forth in the Operating Agreement and PJM Manuals, does not accurately capture their resource's true opportunity cost. PJM, as administrator of the Operating Agreement, is responsible for applying this provision if any Market Participant requests an alternative approach.

***C. As the Commission Has Already Determined, PJM's Tariff Language Is Sufficiently Detailed to Meet the Rule of Reason Test.***

LS Power questions whether PJM's Operating Agreement, Schedule 2, section 5 contains sufficient detail and description regarding the IMM's opportunity cost adder approach to meet the Commission's rule of reason.<sup>46</sup> However, the Commission has already addressed this question and held that the current language includes sufficient detail regarding the methodology and inputs to satisfy the rule of reason, with the implementation details have been appropriately left to PJM Manual 15.<sup>47</sup> Indeed, as discussed in the Complaint, the Commission rejected PJM's initial compliance filing to provide that a mitigated offer may include an opportunity cost adder, finding that it "fail[ed] to provide sufficient detail to establish a just and reasonable methodology."<sup>48</sup> In its second compliance filing, PJM proposed what is now the language in Operating Agreement, Schedule 2, section 5(a). The Commission held that that language "establishes a just and reasonable methodology for including opportunity costs in mitigated offer prices."<sup>49</sup> Given that this language is unchanged since then, the Complaint's challenge in this regard is a collateral attack on the Commission's prior order and should be rejected as such.

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<sup>46</sup> Complaint at 2, 30-32.

<sup>47</sup> See *PJM Interconnection, L.L.C.*, 133 FERC ¶ 61,081, at P 20.

<sup>48</sup> *PJM Interconnection, L.L.C.*, 130 FERC ¶ 61,230, at P 16.

<sup>49</sup> *PJM Interconnection, L.L.C.*, 133 FERC ¶ 61,081, at P 20.

1. *PJM agrees additional detail in PJM Manual 15 on the IMM's Calculator would provide further clarity.*

Notwithstanding that the Operating Agreement and PJM Manual 15 contain sufficient detail on the IMM's Calculator approach, additional detail on the IMM's Calculator in PJM Manual 15 would provide further clarity and transparency into the opportunity cost calculation methodologies. PJM Manual 15, section 12.7 currently describes the IMM's Calculator methodology. PJM recognizes that more detail and description could be provided.<sup>50</sup> In order to provide additional clarity for entities calculating opportunity costs, the Commission should exercise its authority to ensure just and reasonable rates (which includes the application of the IMM Calculator) by directing PJM and its Market Monitor to make available additional detail of the IMM Calculator model, with examples and equations such that outcomes can be easily replicated. The Commission can issue such an order in accordance with PJM's general obligation to ensure a robust, competitive, and non-discriminatory wholesale market, as well as PJM's obligation as a regional transmission organization to provide market monitoring services, which is fulfilled by a jurisdictional contract.<sup>51</sup>

### **III. ADMISSIONS AND DENIALS**

Pursuant to Rule 213(c)(2) of the Commission's Rules,<sup>52</sup> except as stated in this Answer, PJM admits to no facts in the form and manner stated in the Complaint. Any fact or allegation in the Complaint is not explicitly admitted in this answer is denied.

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<sup>50</sup> See PJM Manual 15 at sections 12.3-12.6, 12.7.

<sup>51</sup> See Market Monitoring Services Agreement.

<sup>52</sup> 18 C.F.R. § 385.213(c)(2).

#### IV. NOTICES AND COMMUNICATIONS

All correspondence and other communications regarding this proceeding should be directed to:

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**V. CONCLUSION**

For the reasons provided herein, the Commission should deny the Complaint.

Respectfully submitted,

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April 19, 2024

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 19th day of April 2024.

/s/ Ryan J. Collins  
Ryan J. Collins