

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

Potomac Economics, Ltd.,                    )  
    Complainants,                            )  
  )  
                  v.                                )  
  )  
PJM Interconnection, L.L.C.,                )  
    Respondent.                                )

Docket No. EL17-62-000

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**MOTION FOR LEAVE TO ANSWER AND ANSWER  
OF POTOMAC ECONOMICS, LTD.**

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In accordance with Rules 212 and 213 of the Commission’s Rules of Practice and Procedure,<sup>1</sup> Potomac Economics,<sup>2</sup> respectfully requests leave to answer, and answers, the answer filed by PJM Interconnection, L.L.C. (“PJM”), on May 8, 2017 in this docket (“PJM’s Answer”), and certain arguments raised in answers filed by PJM Power Providers Group (“P3”) and the Electric Power Supply Association (“EPSA”), and the PJM Utilities Coalition.<sup>3</sup>

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<sup>1</sup> 18 C.F.R. §§ 385.212, 385.213 (2011).  
<sup>2</sup> Potomac Economics serves as the Independent Market Monitor (“IMM”) for the Midcontinent Independent System Operator, Inc. (“MISO”), the New York ISO (“NYISO”), and ISO New England (“ISO-NE”).  
<sup>3</sup> P3, EPSA, and the Utilities Coalition (“Coalition”) all acknowledge that their interests are partly or entirely related to their interests in the capacity market prices and compensation as generation owners so we refer to them collectively in this answer as the “PJM Suppliers”.

This filing responds to PJM’s motion to dismiss the Complaint that Potomac Economics filed on April 6. It also addresses certain points raised by PJM and the PJM Suppliers regarding the economic efficiency, reliability, and performance incentive effects related to the requirement imposed by PJM that external capacity supplier be pseudo-tied to PJM. Potomac Economics raises these limited points in an effort to clarify the record, and to enable the Commission to make a more informed decision.

## **I. MOTION FOR LEAVE TO ANSWER**

Rule 213 authorizes Potomac Economics to answer PJM’s motion to dismiss. The Commission also has discretion<sup>4</sup> to accept answers not otherwise permitted by right, and has done so when they help to clarify complex issues, provide additional information, or are otherwise helpful in the Commission’s decision-making process.<sup>5</sup> Potomac Economics respectfully submits that its answer in this proceeding will aid the Commission’s decision-making process. It will do so by clarifying inaccuracies in PJM’s and the PJM Suppliers’ answers, and by providing additional information relevant to the evaluation of the justness and reasonableness of requiring resources located in other control areas to be under the physical commitment and dispatch control of PJM.

This answer also reiterates that the purpose of the “Capacity Delivery Procedures” described in the Complaint was to demonstrate that viable alternatives to PJM’s pseudo-tie

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<sup>4</sup> See 18 C.F.R. § 385.213(a)(2).

<sup>5</sup> See *Black Oak Energy, L.L.C. v. PJM Interconnection, L.L.C.*, 125 FERC ¶ 61,042 at P 14 (2008) (accepting answer to rehearing request because the Commission determined that it has “assisted us in our decision-making process.”); *FPL Energy Marcus Hook, L.P. v. PJM Interconnection, L.L.C.*, 123 FERC ¶ 61,289 at P 12 (2008) (accepting “PJM’s and FPL’s answers [to rehearing requests], because they have provided information that assisted us in our decision-making process”); *New York Independent System Operator, Inc.*, 123 FERC ¶ 61,044 at P 39 (2008) (accepting answers to answers because they provided information that aided the Commission’s decision-making process); *Morgan Stanley Capital Group, Inc. v. New York Independent System Operator, Inc.*, 93 FERC ¶ 61,017 at 61,036 (2000) (accepting an answer that was “helpful in the development of the record. . .”).

requirement exist, not to impose those procedures on PJM. This was clearly articulated in the Complaint but has been distorted by PJM and the PJM Suppliers.

For these reasons, we submit that this answer satisfies the Commission's standards for discretionary answers, and respectfully request that the Commission allow this answer to be considered as part of the record in this proceeding. The fact that Potomac Economics has limited the scope of this answer to the most serious defects in the PJM and PJM Suppliers' filings should not be construed as agreement with, or acquiescence to, any other argument made by those pleadings.

## **II. NOTICE AND COMMUNICATIONS**

All correspondence and communications in this matter should be addressed to:

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## **III. ANSWER TO PROCEDURAL ARGUMENTS**

### **A. PJM's Motion to Dismiss Should Be Denied**

PJM's motion to dismiss would rewrite the Commission's procedural rules to strip Potomac Economics of its right to file a complaint under the Federal Power Act ("FPA"). PJM's request has no basis in the FPA or the Commission's regulations and precedent. It is also contrary to the public interest for PJM to try to create impediments to Potomac Economics' raising concerns with the Commission regarding the severe adverse impacts PJM's pseudo-tie requirements are increasingly having in the MISO and threaten to have in the NYISO. A similar PJM effort to eliminate its own market monitor's ability to file complaints was strongly opposed

by every state regulator in PJM's region just a few weeks ago.<sup>6</sup> PJM's attempt to prevent Potomac Economics from filing a complaint to prevent PJM from harming the markets that Potomac Economics monitors is every bit as problematic and ill-conceived as PJM preventing its own independent market monitor from doing so.

Commission Rule 206, which implements the complaint provisions of Sections 206 and 306 of the FPA, establishes who may file complaints. It states that:

Any person may file a complaint seeking Commission action against any other person alleged to be in contravention or violation of any statute, rule, order, or other law administered by the Commission, or for any other alleged wrong over which the Commission may have jurisdiction.<sup>7</sup>

Neither the FPA nor Rule 206 establishes or references any restrictions on which "persons" may file complaints. Rule 105(d) broadly defines "person" as follows:

[P]erson means an individual, partnership, corporation, association, joint stock company, public trust, an organized group of persons, whether incorporated or not, a receiver or trustee of the foregoing, a municipality, including a city, county, or any other political subdivision of a State, a State, the District of Columbia, any territory of the United States or any agency of any of the foregoing, any agency, authority, or instrumentality of the United States (other than the Commission), or any corporation which is owned directly or indirectly by the United States, or any officer, agent, or employee of any of the foregoing acting as such in the course of his or her official duty.<sup>8</sup>

In *American Electric Power Service Corporation*,<sup>9</sup> the Commission recently reiterated the traditional understanding that "[t]he plain language of the FPA and the Commission's

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<sup>6</sup> See *Motion for Leave to Answer and Answer of the Organization of PJM States, Inc.*, Dockets Nos. ER16-372-004 (May 9, 2017) ("OPSI Answer") at 8 ("OPSI now unanimously reasserts the position that an external and independent IMM must continue to have the ability to file complaints and express views before FERC on market issues and market designs, both current and proposed by PJM, to ensure public confidence in the legitimacy and competitiveness of the wholesale market.")

<sup>7</sup> 18 CFR § 385.206 (2016).

<sup>8</sup> 18 CFR § 385.102(d). See *Competitive Transmission Developers v. New York Indep. Sys. Operator, Inc.*, 156 FERC ¶ 61,164 at P 31 n. 80 (2016) ("A "person" is broadly defined as "an individual . . . an organized group of persons, whether incorporated or not . . .").

<sup>9</sup> 153 FERC ¶ 61,167 at P 13 (2015).

implementing regulations allow broad participation in proceedings before the Commission” including complaint proceedings. In that case, the Commission affirmed that retail electric customers of Commission-jurisdictional public utilities may file complaints addressing Commission-jurisdictional transmission rates despite the indirect and relatively remote nature of their interest.<sup>10</sup> The Commission’s order cited a statement by the United States Supreme Court that numerous entities without a direct financial interest in a dispute may nevertheless file complaints.<sup>11</sup> It also indicated that there is no difference between the types of “persons” who may file complaints and those who may file protests.<sup>12</sup>

To the best of Potomac Economics knowledge, the Commission has never before taken the position that market monitors are not permitted to file complaints. The Commission has previously denied market monitor complaints on the merits but not based on the novel procedural theories advanced by PJM in this proceeding.<sup>13</sup> Indeed, PJM’s tariff expressly specifies that market monitors may file complaints against market participants in certain instances.<sup>14</sup> The Commission itself recently suggested that it expected PJM’s market monitor to file complaints

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<sup>10</sup> 153 FERC ¶ 61,167 at P 15.

<sup>11</sup> 153 FERC ¶ 61,167 at n. 44, *citing NRG Power Mktg. v. Me. Pub. Utils. Comm’n*, 558 U.S. 165, 176 & n.5 (2010) for the proposition that “complainants may include consumers, advocacy groups, state utility commissions, and elected officials acting *parens patrie*.”)

<sup>12</sup> 153 FERC ¶ 61,167 at P 13 and n. 42 (equating the eligibility requirement for filing a complaint with the requirement for filing a protest). This is directly contrary to PJM’s view that a market monitor may file a protest but is somehow barred from filing a complaint. *See PJM Answer* at 18 (“PJM does not contest Potomac’s right to file comments or protests in Commission proceedings to apprise the Commission of its views. Any person—market monitor or not--may do so”).

<sup>13</sup> *See Independent Market Monitor for PJM v. PJM Interconnection, LLC*, 155 FERC ¶ 61,059 (2016) (denying IMM complaint on substantive grounds but giving no indication that market monitors were precluded from filing complaints in the first place).

<sup>14</sup> *See PJM Interconnection, L.L.C., Request for Clarification*, Docket No. ER16-372-002 (March 6, 2017) (“PJM Clarification”) at 5 (“For market power concerns ‘related to a Sell Offer submitted in an RPM auction,’ the IMM is authorized to file a complaint with the Commission”).

against PJM under certain circumstances.<sup>15</sup> This statement prompted PJM to seek clarification regarding its market monitor's authority to file complaints against it,<sup>16</sup> which in turn resulted in the strong objections by PJM state regulators, and other parties, that were noted above.

Simply stated, Potomac Economics is a "person" for purposes of the Commission's complaint regulations. Consistent with Rule 206 it is "seeking Commission action" against another "person" in this instance PJM, that is in "contravention or violation of" Section 205's prohibitions against unjust, unreasonable, and unduly discriminatory rules (*i.e.*, the existing PJM pseudo-tie requirements). Potomac Economics is uniquely well-positioned to identify and substantiate the adverse effects that these requirements are increasingly having within the MISO,<sup>17</sup> and threaten to have in the NYISO. The issues raised by the Complaint are "directly relevant to Potomac Economics' responsibility to monitor the performance of the Commission-jurisdictional markets in . . ." the MISO and NYISO and that "PJM's pseudo-tie requirement therefore has a fundamental impact on Potomac Economics' core mission as a market monitor . . ."<sup>18</sup> Thus, the Commission's rules clearly allow Potomac Economics to express these concerns by filing a complaint.

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<sup>15</sup> See *PJM Interconnection, L.L.C.*, 158 FERC ¶ 61,133 (2017) at P 86 (stating that disputes between PJM and its market monitor regarding generators' fuel cost policies should not be referred to the Office of Enforcement but should instead be addressed through complaint or alternative dispute resolution procedures).

<sup>16</sup> PJM expressly did not ask the Commission to address market monitors' right to file complaints against market participant in that proceeding but argued only that market monitors were prohibited from filing complaints against PJM itself. See *PJM Clarification* at 3.

<sup>17</sup> This is especially true with respect to the MISO given that it does not have an internal market monitoring function and depends on Potomac Economics for all market monitoring activities.

<sup>18</sup> Complaint at 47.

Nothing in PJM’s motion to dismiss provides a rationale that could plausibly justify the proposition that the Complaint was prohibited under the Commission’s rules. Nor has PJM shown that it would be good policy to reinterpret those rules to prohibit Potomac Economics from filing complaints pertaining to its core monitoring responsibilities.

First, PJM’s observation that Order No. 719 did not expressly empower market monitors to file complaints<sup>19</sup> is irrelevant. As noted above, Potomac Economics is a “person” under the Commission’s regulations whose filing rights are clearly established by those rules. There was thus no more need for Order No. 719 to specify that market monitors could file complaints than there was for it to declare that they could file protests (which PJM concedes they may do).<sup>20</sup> The only way that Order No. 719 could have possibly taken away market monitors’ existing right to file complaints would have been to expressly deny them that right.<sup>21</sup> But Order No. 719 did no such thing. Similarly, it is not at all surprising that the MISO and NYISO tariffs do not explicitly address Potomac Economics’ filing rights. There was no need for them to repeat widely-understood filing-eligibility requirements that were already expressed in the Commission’s rules at the time that the tariffs were written. The mere fact that PJM’s tariff expressly identifies one circumstance in which the PJM IMM may file a complaint does not mean that Potomac Economics may not file complaints in the absence of such language in the MISO and NYISO tariffs.

Second, PJM’s assertion that Potomac Economics lacks standing to submit the Complaint because it has supposedly not shown the kind of direct harm to itself that PJM alleges

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<sup>19</sup> See PJM Answer at 15-17.

<sup>20</sup> See *supra* at n. 6.

<sup>21</sup> Potomac Economics takes no position at this time on the hypothetical question of whether it would have been impermissible under the Federal Power Act if Order No. 719 had attempted to deprive market monitors of their right to file complaints.

is a necessary prerequisite<sup>22</sup> is simply absurd. As an initial matter, PJM's position is belied by its own tariff's authorization of market monitor complaints. Beyond that, independent market monitors have a unique perspective as entities responsible for monitoring RTO-administered markets under the Commission's regulations. They also have unique expertise, developed in the course of fulfilling those responsibilities, regarding the impacts of market rules on the markets that they oversee. This includes the adverse impacts of inter-regional rules that one RTO imposes on its neighbors. The Commission frequently looks to market monitors for assistance in identifying and addressing market problems. Market monitors' independence and effectiveness is a prerequisite to a transmission operator's ability to qualify as an RTO in the first place.<sup>23</sup> Effective market monitoring is also a foundational component of the legal framework that allows market-based pricing in RTO-administered markets to be just and reasonable.<sup>24</sup>

Given all of this, it is astonishing that PJM would suggest that Potomac Economics lacks standing to ask the Commission to stop PJM from implementing rules that are harming the markets Potomac Economics is responsible for monitoring under the Commission's

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<sup>22</sup> PJM Answer at 18-19.

<sup>23</sup> See 18 C.F.R. § 35.34(k)(6) (2016). See also *Regional Transmission Organizations*, Order No. 2000, FERC Stats. & Regs. ¶ 31,089 (1999), *order on reh'g*, Order No. 2000-A, FERC Stats. & Regs. ¶ 31,092 (2000), *aff'd sub nom. Pub. Util. Dist. No. 1 of Snohomish County, Washington v. FERC*, 272 F.3d 607 (D.C. Cir. 2001).

<sup>24</sup> See *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 697, FERC Stats. & Regs. ¶ 31,252, at P 235, *clarified*, 121 FERC ¶ 61,260 (2007), *order on reh'g*, Order No. 697-A, FERC Stats. & Regs. ¶ 31,268, *clarified*, 124 FERC ¶ 61,055, *order on reh'g*, Order No. 697-B, FERC Stats. & Regs. ¶ 31,285 (2008), *order on reh'g*, Order No. 697-C, FERC Stats. & Regs. ¶ 31,291 (2009), *order on reh'g*, Order No. 697-D, FERC Stats. & Regs. ¶ 31,305 (2010), *aff'd sub nom. Mont. Consumer Counsel v. FERC*, 659 F.3d 910 (9th Cir. 2011), cert. denied, 133 S. Ct. 26 (2012) ("With regard to RTO/ISO markets, we agree with many commenters that RTOs/ISOs with a sufficient market structure and a single energy market with Commission-approved market monitoring and mitigation provide strong market protections. As a general matter, sellers located in and members of the RTO/ISO may consider the geographic region under the control of the RTO/ISO as the default relevant geographic market for purposes of completing their horizontal analyses, unless the Commission already has found the existence of a submarket.")

regulations.<sup>25</sup> It is not tenable to suggest that Potomac Economics' interest is too limited for it to file a complaint when Supreme Court precedent is clear that consumers and advocacy groups may do so. PJM's willingness to make such a suggestion is evidence of a lack of regard for the impacts its rules are having on neighboring systems that ought itself to raise serious concerns.

Finally, PJM's miscellaneous attempts to suggest that the Complaint should be dismissed because it is somehow unnecessary or misplaced are totally without merit. PJM's assertion that the Complaint "is not alleging any violation of any tariff or rule or any exercise of market power"<sup>26</sup> plainly ignores the fact that the Complaint alleged that the pseudo-tie requirements in PJM's tariffs are unjust, unreasonable, and unduly discriminatory.<sup>27</sup> It is not accurate for PJM to claim that Potomac Economics already provided its "advice" on pseudo-tie matters in Docket No. ER17-1138-000 or that the issues raised by the Complaint are already before the Commission in other dockets.<sup>28</sup> As the Complaint noted, there is no pending Commission proceeding addressing the fundamental question of whether PJM's pseudo-tie requirement has proven to be unjust and unreasonable.<sup>29</sup> Finally, PJM's claim that Potomac Economics has somehow impermissibly "become involved in implementing rule and tariff changes" has no merit.<sup>30</sup> Among other things, the Complaint was perfectly clear that Potomac Economics was not

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<sup>25</sup> PJM's position is especially absurd given that retail ratepayers have standing to file complaints in Commission proceedings. *See supra* n. 10. PJM therefore presumably would not claim that Potomac Economics was prohibited from filing a complaint against PJM in its capacity as a retail customer of a utility (Virginia Power) in the PJM region yet it would deny Potomac Economics the right to do so in its far more important role as the market monitor for MISO or New York.

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

<sup>27</sup> *See, e.g.*, Complaint at 3, 9.

<sup>28</sup> PJM Answer at 17 (inaccurately stating that the Complaint raises "substantially the same issues" as Potomac Economics' protest in that docket.)

<sup>29</sup> *See Complaint* at 48.

<sup>30</sup> PJM Answer at 16.

asking the Commission to impose the alternative Capacity Delivery Procedures on PJM but was presenting them as an example of a viable alternative to pseudo-tie requirements to emphasize that those requirements were not necessary.<sup>31</sup>

In the alternative, even if the Commission were to embrace PJM's restrictive interpretation of the procedural rules, the Complaint should not be dismissed. Instead, the Commission could exercise its discretion<sup>32</sup> to treat the filing as a petition asking that it initiate a Section 206 investigation of its own or, at a minimum, as a request for a technical conference. The Complaint raised serious and well-substantiated concerns regarding the impacts of PJM's pseudo-tie requirements. Among other things, the Complaint has caused the Organization of MISO States to respond by collectively asking the Commission to hold a technical conference to "examine the impact of the PJM pseudo-tie requirement on MISO and whether and what remedies may be appropriate."<sup>33</sup> A clear majority of MISO state regulators, and various other MISO stakeholders, have gone further and endorsed the Complaint on the merits.<sup>34</sup> Accordingly, even if the Commission accepts PJM's reinterpretation of the procedural rules it

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<sup>31</sup> See, e.g., Complaint at 3 and 12 ("Potomac Economics is not proposing that the Commission compel PJM to adopt any specific alternative mechanism at this time.") In addition, Potomac Economics does not concede that filing a complaint asking the Commission to impose a specific market design on PJM would be an impermissible violation of Order No. 719. Potomac Economics does not address this point further at this time because the Complaint did not in fact ask the Commission to take such action.)

<sup>32</sup> See, e.g., *Blumenthal v. ISO New England, Inc., et al.*, 128 FERC ¶ 61,182 (2009) (although complainant alleging market manipulation in organized markets invoked FPA Section 206, the Commission treated the complaint as one under FPA Section 306); *Seminole Elec. Coop., Inc. v. Florida Power & Light Co.*, 153 FERC ¶ 61,037, at P 11 & n.16 (2015) (exercising discretion to treat filing as a request for rehearing); *Stowers Gas & Oil Co.*, 27 FERC ¶ 61,001, at n.3 (1984) (holding same).

<sup>33</sup> See Notice of Intervention and Comments of Organization of the Organization of MISO States, Docket No. EL17-62-000, filed May 8, 2017 ("OMS Comments"), at 8.

<sup>34</sup> See OMS Comments at 2.

should move promptly to address the issues presented by the Complaint instead of needlessly forcing Potomac Economics and other parties that share its concerns to start over.

**B. P3’s “Collateral Attack” Argument Should Be Rejected**

P3 is wrong to contend that the Complaint is barred under the judicial doctrine of collateral estoppel.<sup>35</sup> As P3 acknowledges, there can be no impermissible collateral attack when there are new or changed circumstances in a proceeding.<sup>36</sup> The Complaint was quite clear that it was challenging PJM’s pseudo-tie requirement based on substantial new evidence and extensive analysis that was not before the Commission, and that did not exist, at the time that the Capacity Performance Order was issued.<sup>37</sup> The Complaint emphasized that new and changed circumstances had arisen in the two years since the issuance of the Capacity Performance Order, most notably the increasingly harmful proliferation of pseudo-ties to MISO generators.<sup>38</sup> Indeed, the Complaint is based, in large measure, on the substantial adverse impacts that the pseudo-ties addressed in the Capacity Performance Order have caused in neighboring regions, the details of which were not (and indeed, could not have been) before the Commission at the time that order was issued. There is thus no merit to P3’s claim that “the Complaint has presented no new evidence or new circumstances . . . .”<sup>39</sup> and no basis for rejecting the Complaint on collateral attack grounds. The fact that a tariff rule has previously been accepted as just and reasonable does not, and should not, prevent future challenges to that rule based on new information regarding its implications and costs.

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<sup>35</sup> See P3 at 3-6.

<sup>36</sup> *Id.*

<sup>37</sup> See Complaint at 11-12.

<sup>38</sup> *Id.* at 15-18.

<sup>39</sup> See P3 at 5.

### **C. The Complaint Fully Satisfied the Applicable Burden of Proof**

PJM alleges that the Complaint “offers little” to justify its requested relief and “does not define or support, operational or reliability harms to the host region” from pseudo-ties.<sup>40</sup> As noted above, P3 also suggests that the Complaint did not provide new evidence or arguments. These are plainly invalid assertions. The Complaint included extensive evidence and analysis demonstrating the harm that PJM’s rules are increasingly causing in MISO and could cause in NYISO. It also showed in detail that these harms could not possibly be justified by the benefits to PJM and that alternative mechanisms that would avoid harm to both PJM and its neighbors could be adopted. The entire complaint was developed by Potomac Economics based on its expertise and perspective as the market monitor for MISO and PJM and is verified by the sworn testimony by Dr. David B. Patton. The Complaint clearly satisfies the Commission’s requirement that complaints make showings by a preponderance of the evidence.<sup>41</sup> Indeed, as is highlighted multiple times in Section IV below, it is the parties opposed to the Complaint that have failed to provide reasoned arguments or evidence to substantiate their claims.

### **IV. ANSWER TO ARGUMENTS CONCERNING THE COSTS AND BENEFITS OF PSEUDO-TIES**

The substance of the Complaint and all of the opposition to it essentially amounts to a fundamental disagreement over the costs and benefits of requiring external capacity resources to pseudo-tie to PJM in order to deliver the resources’ capacity obligations. We demonstrated in the Complaint that the costs of this requirement are very large and the benefits (that could not

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<sup>40</sup> See *PJM* Complaint at 4.

<sup>41</sup> See, e.g., *Sunflower Electric Power Corporation v. Kansas Municipal Power Agency and Southwest Power Pool, Inc.*, 152 FERC ¶ 61,217 at P 15 (2015) (“The Commission has held that the party with the burden of proof must meet its burden by a preponderance of the evidence.”).

otherwise be achieved by other means) are small or non-existent. In the answers cited above, PJM and PJM Suppliers incorrectly argue that the costs of pseudo-tying are overstated or unsubstantiated, and that the benefits are substantial. In this section, we answer each of these arguments. Because the issue of whether pseudo-ties deliver benefits to PJM that cannot be achieved through alternative means partly depends on the viability of the available alternatives, the final subsection addresses arguments that the Capacity Delivery Procedures described in the Complaint are unreasonable or impracticable.

#### **A. Comments on the Inefficiencies Caused by Pseudo-Ties**

PJM offers the affidavits of Mr. Adam Keech and Dr. Hung-Po Chao to provide opinions on, among other things, the efficiency analysis that was presented in the Complaint. The efficiency analysis showed the dispatch inefficiencies that arise due to PJM dispatch of existing pseudo-tied units. While PJM does not dispute that MISO may incur higher cost due to pseudo-ties,<sup>42</sup> the witnesses claim that the efficiency analysis ignored the benefits that PJM receives from pseudo-tying.<sup>43</sup> This is not a meaningful criticism. It is undoubtedly the case that were one to pluck a generator from one RTO and allow the neighboring RTO to dispatch it, that neighboring RTO may derive some benefit from the output of the unit in relieving one or more of its constraints. However, this “benefit” will be dwarfed by the benefits to the host RTO in dispatching the unit, as we describe below.

The alleged benefits to PJM of dispatching the pseudo-tied units located on the MISO system can only fall in one of two areas: overall energy benefits or congestion management benefits. The energy benefits would arise if the unit offers at prices less than the PJM-wide system marginal price. Hence, 100 MW produced from a pseudo-tied unit could displace 100

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<sup>42</sup> Keech at ¶17.

<sup>43</sup> Keech at ¶¶16-20, Chao at ¶¶6-15.

MW of higher cost energy from an internal PJM unit. This benefit is not relevant because capturing these benefits is the function of the imports and exports between MISO and PJM. If MISO's prices are lower than PJM's, participants will be incented to schedule exports to PJM to displace the higher-cost PJM resources.

Therefore, the most relevant alleged benefit to PJM from pseudo tying would be a congestion management benefit to PJM, which the PJM witnesses argue our analysis ignores.<sup>44</sup> Essentially, the PJM witness are arguing that the pseudo-tied resources may affect the flows on some PJM constraints and, therefore, PJM may benefit by dispatching them to help manage the flows when those constraints bind. This is neither relevant nor important for two reasons.

First, the market-to-market coordination process exists to identify and coordinate the dispatch on these constraints. To the extent that the market-to-market process is effective, these benefits are non-existent. Although we recognize that the market-to-market process is not fully effective, the PJM constraints at issue are likely to be far fewer and less affected than the MISO constraints that are proximate to the pseudo-tied units.

Second, to the extent that the effects on some PJM constraints are too small to warrant being defined as market-to-market constraints, the alleged benefits are also likely to be very small. Additionally, there are generally many more of these marginally affected constraints on the MISO system because the pseudo-tied resources are directly connected to the MISO system.

Therefore, while it is possible that there are some congestion benefits on PJM constraints from dispatching the pseudo-tied MISO units, it is inconceivable that such benefits would provide a meaningful offset to the sizable inefficiencies that we quantified in the Complaint.

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<sup>44</sup> Keech at ¶18 and Chao at ¶¶11-12.

Furthermore, the PJM witnesses provide no evidence or analysis that would substantiate any of the alleged congestion benefits to PJM.

Dr. Chao claims the analysis of congestion cost is not relevant: “the impact of Pseudo-Ties on congestion...is not the appropriate measure of costs of Pseudo Ties....”<sup>45</sup> He goes on to assert the reason congestion costs arise is due to need to redispatch generation to avoid overloading transmission facilities and this cost may increase if a unit exports from MISO to PJM. He concludes that these congestion costs are not necessarily indicative of inefficiencies. This argument is simply erroneous. The congestion value we calculate is based on the shadow price of each affected constraint, which indicates the marginal cost incurred to manage the flow over the constraint. Therefore, the increase in congestion value shown in the Complaint does accurately indicate a substantial increase in production costs and associated loss in efficiency. Therefore, the sizable increase in congestion on MISO’s constraints that are affected by the pseudo-tied units cannot be dismissed or downplayed as suggested by Dr. Chao.

Dr. Chao also argues that the efficiency analysis is flawed because it is focused entirely on congestion from MISO’s perspective only. This is not a flaw as asserted by Dr. Chao. In reality, the pseudo-tied units are on the MISO system and the constraints affected by these units are generally on the MISO system. Most of the congestion priced by PJM at these locations are likely an imperfect reflection of the binding constraints in MISO (through the market-to-market coordination process). If there are PJM constraints affected by the pseudo-tied resources, the effects are likely much smaller because they more are electrically distant. Therefore, it is reasonable and sufficient to focus the dispatch efficiency analysis on the MISO prices and congestion.

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<sup>45</sup> Chao at ¶13.

Dr. Chao also comments on the capacity price analysis in Dr. Patton’s affidavit that was attached to the Complaint. Dr. Patton has explained that the additional costs to PJM loads could be as high as \$4 billion annually as a result of the pseudo-tie restrictions on external resources. The pseudo-tie restrictions are a substantial uneconomic barrier to entry that will restrict efficient capacity imports into the PJM market. Dr. Chao does not deny that the restrictions will bar certain resources from participating in the PJM markets. Instead, he explains the relationship between capacity prices and spot market revenues and how any costs from pseudo-tying would be reflected in the resources’ capacity offers. His basic conclusion seems to be that the market will continue to clear with competition causing the offer prices of the external resources to reflect the pseudo-tie costs and restrictions.<sup>46</sup> Again, Dr. Chao argument is not relevant to the concern raised in the Complaint. The fact that the market will adjust to the pseudo-tie costs and restrictions is not the point. Instead, if one concludes that the pseudo-tie costs and restrictions are uneconomic or inefficient, then any corresponding change in capacity market outcomes is likewise inefficient. Further, the Complaint explains that the restrictions proposed by PJM are absolute barriers that cannot reflected in the pseudo-tied unit’s offer prices. Therefore, like Dr. Chao’s arguments on the energy market inefficiencies, his attempted rebuttal of the capacity market inefficiencies is equally without merit.

### **B. Comments on the Operational and Reliability Effects of Pseudo-Ties**

PJM asserts that the Complaint did not “define or support, operational or reliability harms to the host region from the PJM dispatch.”<sup>47</sup> The support for these reliability concerns is fully-established in Section II.C of the Complaint, which PJM does not mention or rebut in any meaningful way.

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<sup>46</sup> *Id.* at ¶15.

<sup>47</sup> PJM Answer at 4.

Section II.C of the Complaint provides summaries of direct evidence from confidential MISO Operator Logs, to which we have access and routinely review as the IMM for MISO.<sup>48</sup> These log entries are a direct account of actions taken to secure reliability and address operational issues. Additionally, we reviewed the information from the operator logs with MISO operations staff who confirmed the accuracy of the logs. The log entries describe events when MISO had to take extraordinary actions to manage the MISO constraints due to the lack of commitment and dispatch control of pseudo-tied units. The PJM Answer does not explain its unsubstantiated assertion that the pseudo-ties have not produced reliability or operational harm. Additionally, the Complaint discusses information derived from the IMM's real-time monitoring of MISO operations and the operations of pseudo-tied units.

Taken together, this evidence confirms that the reliability risks and concerns that were predicted from pseudo-tying a large number of MISO units to PJM have actually been manifested in actual operational and reliability problems.

Additionally, the Complaint explained that the market-to-market coordination process may partially mitigate some of the harm caused by the pseudo-tied units, but is not fully effective because it introduces a 20-minute delay in achieving any response from the pseudo-tied resources and because the congestion values between the RTOs frequently do not converge. These market-to-market coordination concerns were not rebutted by PJM or the PJM Suppliers. PJM did assert that the Capacity Delivery Procedures would introduce comparable delays in PJM's calls on the capacity resource's energy. However, this comparison is invalid. The market-to-market delay is an ongoing lag that affects the efficient and reliable coordination of flows over binding transmission constraints. The delay PJM cites is a one-time delay in

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<sup>48</sup> Complaint at 28-29.

scheduling the delivery of aggregate quantities of energy from MISO to PJM. As we discussed above, the scheduling process should not meaningfully affect PJM's ability to satisfy its reliability needs under emergency conditions.

PJM also dismisses the extensive and significant operational and reliability concerns raised by MISO staff as merely "potential" reliability concerns. PJM goes on to report that PJM and MISO advised stakeholders in the Joint and Common Market (JCM) process in November 2016 that "MISO and PJM have implemented pseudo-ties without any reliability issues".<sup>49</sup>

Assessing *potential* risks is the cornerstone of reliable planning and operations. All reliability concerns and issues are "potential" issues that the RTOs operate to avoid. The quote above from the JCM process simply indicates that a serious reliability event has not occurred yet. However, MISO has indicated both privately and publicly that the uncertainties associated with PJM's operation of the pseudo-tied resources has resulted in operational changes by MISO. It has adopted more conservative limits and other operational assumptions to account for the reliability risks caused by the pseudo-ties. Hence, we would agree that a reliability event has not yet occurred, but the fact that the pseudo-ties are creating new reliability risks that must be managed by PJM's neighbors, which increases costs and lowers the utilization of the transmission system, is the very definition of an adverse reliability or operational effect.

PJM also complains that the Complaint ignored all the steps taken by the RTO staffs in addressing the operational reliability issues created by pseudo-ties. In particular, PJM describes steps that they have taken or will take to address the "MISO visibility" issue. PJM suggests that they provide their "day-ahead generation commitment to MISO, including Pseudo-Ties and their expected dispatch for the operating day" and that "MISO uses that PJM commitment information

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<sup>49</sup> PJM Answer at 4-5.

to enhance MISO's reliability analysis". This implies that MISO receives and uses PJM's commitment information on pseudo-ties in their day-ahead or forward reliability assessments, which is not true. MISO is not able to use this data as PJM suggests because it is not timely. Hence, MISO must simply make assumptions regarding the commitment and dispatch of the pseudo-tied units as we describe in the Complaint.

PJM also asserts that "MISO operators have visibility of PJM Pseudo-Ties in their Energy Management System one-line diagrams, and can see the unit's output during real-time." This is true, but is not relevant to any of the visibility issues raised in the Complaint. In fact, this was true before the units were pseudo-tied. Importantly, it would also be true that PJM would have or could have "visibility" in the same way of external capacity resources covered by their EMS without the need for pseudo-tying.

PJM also complains the Complaint did not acknowledge the RTOs' implementation of real-time market-to-market coordination involving pseudo-tied units. However, the Complaint discussed extensively the need for additional market-to-market coordination to reduce the harm caused by the pseudo-ties. However, it also explained that the market-to-market coordination is inadequate to address the harm caused by the pseudo-tied resources for a number of reasons.

Overall, we recognize that both RTOs have expended substantial staff resources in an attempt to mitigate the reliability and operational issues caused by the increasing numbers of pseudo-ties. However, the steps described above only marginally reduce the reliability concerns caused by the pseudo-ties and do little to address the dispatch inefficiencies. Additionally, the fact that both PJM and MISO have made filings to change their respective tariffs to address pseudo-ties is itself a strong indication that there have been problems caused by the pseudo-tied resources that require tariff changes to address. In fact, one of the proposed MISO tariff changes

in ER17-106 regarding dispatch requirements of partially pseudo-tied units was the direct result of *actual* operating issues caused by a partially pseudo-tied resource not following MISO dispatch instructions.<sup>50</sup>

**C. Asserted Benefits of Pseudo-Ties to PJM Relative to the Capacity Delivery Procedure Alternative**

In this section, we address the arguments made by PJM and the PJM Suppliers that pseudo-tied resources provide a more valuable or reliable service to PJM. In many cases, these arguments are cast as assertions that eliminating the requirement would degrade the value or reliability of the capacity purchased from external resources, which is the same as asserting that requiring pseudo-ties provides benefits. Hence, we address both forms of these arguments in this section.

PJM and the PJM Suppliers assert that the pseudo-tie requirement causes external capacity resources to:

- Be available for scheduling and dispatch by PJM;<sup>51</sup>
- Be visible to PJM;<sup>52</sup>
- Be accountable for performance on a unit specific basis;<sup>53</sup>
- Be more reliably available to PJM;<sup>54</sup> and
- Not have a competitive advantage in the PJM capacity market over internal resources.<sup>55</sup>

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<sup>50</sup> The majority of the pseudo-tied resources are “partially” pseudo-tied and many of these resources remain dependent on the MISO for Station Service. Partially pseudo-tying adds extra complexity for both the Generator and the RTOs as the Generator must share one physical resource with two RTOs and determine how to follow what may be conflicting set points.

<sup>51</sup> PJM Answer at 27.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.* at 12-13, Coalition Answer at 7-8. Affidavit of Adam Keech, ¶14 supporting the PJM Answer.

<sup>55</sup> PJM Answer at 13; Coalition Answer at 9-10; P3/EPISA Answer at 6-9; Affidavit of Dr. Hung-Po Chao, ¶8, supporting PJM Answer.

Most of these assertions are presented in the form of criticisms of the alternative Capacity Delivery Procedures that we described in our Complaint. For example, PJM argues that if the requirement is eliminated that it would lose visibility of the external resource and the resource owner would not be accountable for its performance. The Commission should note that neither PJM, nor the PJM Suppliers, explicitly argue that pseudo-ties are the only means to achieve these asserted benefits. If other alternative means to achieve the asserted benefits exist without the attendant harm (whether or not the alternative selected is the Capacity Delivery Procedures we describe in the complaint), then the unnecessary harm caused by the pseudo-tie requirement renders it unjust and unreasonable.

Although none of the protests argued that pseudo-ties are the only means to achieve PJM's objectives, we have demonstrated that other means exist to achieve those goals, including the Capacity Delivery Procedures. In fact, we demonstrated that the Capacity Delivery Procedures can achieve all of PJM's objectives (*i.e.*, the benefits it perceives from the pseudo-ties). We discuss each of these benefits/objectives below that PJM believes will be lost if the pseudo-tie requirement is eliminated, and show that they could be satisfied by the Capacity Delivery Procedures (or other alternatives).

*Availability for Scheduling and Dispatch.*

PJM argues that the pseudo-ties are valuable because they make the resources available for scheduling and dispatch.<sup>56</sup> Under the Capacity Delivery Procedures, the capacity procured by PJM would be just as available for scheduling as the pseudo-tied capacity because the procedures are designed to replicate pseudo-tie access to the unit. The unit would be required to offer into MISO's day-ahead market and the import could also be required to be offered into the PJM day-

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<sup>56</sup> PJM Answer at 27.

ahead market. PJM could schedule the import as long as the unit is online or is available to be committed, which mimics the scheduling access PJM receives by pseudo-tying. This availability for scheduling is consistent with the planning analysis that determines the capacity requirements. When an RTO performs the planning studies that form the basis of the capacity market requirements, it quantifies the total amount of resources needed to cover the peak demands of the system, given potential contingencies such as forced outages. Hence, it is a resource adequacy requirement, but it does not dictate the amount by which resources should be able to move on a five-minute basis. Under the Capacity Delivery Procedures, the amount of the firm import could be adjusted by PJM every 15 minutes so it will have tremendous flexibility. It is likely that the ability to vary the import quantity during each 15-minute interval will exceed the pseudo-tied resource's ability to move in the same timeframe.

Furthermore, every serious shortage or reliability event we have observed for the four RTOs we monitor was identified or detected by the operators in a timeframe in which they could have scheduled firm capacity imports if they had the Capacity Delivery Procedures we describe in the complaint. Hence, these procedures would provide PJM the full resource adequacy benefits of the external resources.

The ability to “dispatch” the external resources by changing their output every five minutes, rather than every 15 minutes, is not central to PJM's procurement decisions in satisfying its resource adequacy needs. On the contrary, PJM procures a large quantity of capacity from units that have limited ability to alter their output levels on a five-minute basis, including: nuclear resources, demand response resources, slow-ramping old steam units, block-loaded gas turbines, self-scheduled units, run-of-river hydroelectric resources, solar resources, intermittent wind resources, and others. The Capacity Delivery Procedures would provide far

more dispatch flexibility on a 15-minute basis than is provided by any of these classes of internal resources. Therefore, the Capacity Delivery Procedures would improve the ability of external resources to be fully available for scheduling and dispatch, despite the assertions made by PJM and the PJM Suppliers.

#### *Unit-Specific Visibility*

PJM argues that pseudo-ties provide unit-specific visibility that will be lost if the requirement is eliminated.<sup>57</sup> The Complaint indicates that MISO could provide any real-time information that PJM believes is needed to achieve full visibility of the resource.<sup>58</sup> We provided a list of the information that could be provided to PJM, which could include the real-time output of the unit (although this is likely already produced by PJM's state estimator model). In fact, we cannot conceive of information PJM would want from the unit in real-time operations or for purposes of settlements that MISO could not provide. Neither PJM nor the PJM Suppliers rebut this point made in the Complaint by explaining why the provision of such information is not possible or difficult to accomplish. Hence, this assertion by PJM that it would lose unit-specific visibility has no basis.

#### *Unit-Specific Accountability*

PJM also argues that pseudo-ties make external capacity resources accountable for their performance on a unit specific basis.<sup>59</sup> The implication of this argument is that without pseudo-tying suppliers will not be accountable for their performance under PJM's capacity performance procedures, which ignores the explanation provided in the Complaint on this very issue.<sup>60</sup>

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<sup>57</sup> PJM Answer at 27.

<sup>58</sup> Complaint at 40.

<sup>59</sup> *Id.*

<sup>60</sup> Complaint at 38-40.

The provisions of the Capacity Deliverability Procedures were developed with two specific characteristics that together will ensure that the external capacity resource is fully accountable for its performance:

- The firm import will only be available to PJM to the extent that the unit is performing. To the extent that the unit suffers a forced outage, is otherwise unavailable, or is derated, the import will not be available to PJM and the capacity performance settlements should apply just as they do to an internal capacity resource.
- To the extent that any information would be needed from MISO regarding the operating status, dispatch parameters, or other performance characteristics, such information could be provided to ensure that PJM can enforce its capacity performance settlements in a non-discriminatory manner.

The combination of these two characteristics will ensure that full unit-specific accountability will be achieved. Neither PJM nor the PJM suppliers has identified any impediment or other reason why unit-specific accountability could not be achieved under the Capacity Delivery Procedures or a comparable alternative. Therefore, the argument that pseudo-ties are necessary to provide unit-specific accountability is inaccurate and unsubstantiated.

*Availability of External Capacity to PJM*

PJM and the Coalition argue that if the capacity resources are not pseudo-tied to PJM, then they will be less dependably available to PJM to meet its reliability needs.<sup>61</sup> Again, this is an unsubstantiated assertion. As we described in the Complaint, the supply would be provided to PJM whenever they request it under the agreed scheduling provisions in the Capacity Delivery Procedures. In fact, this would substantially increase the availability of the capacity resource to PJM because it virtually eliminates the possibility of transmission-related curtailments. Because

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<sup>61</sup> Id. at 12-13, Coalition Answer at 7-8.

pseudo-tied resources located in MISO or NYISO affect a myriad of transmission constraints, those RTOs could invoke a Level 5 Transmission Line-Loading Relief (TLR) procedure to curtail the pseudo-tied resource if it is contributing to a transmission-facility overload. This is by far the most likely reason why PJM could lose access to an available external capacity resource and is only a risk for the pseudo-tied resource. Under the Capacity Delivery Procedures, this possibility would be virtually eliminated because MISO would redispatch its resource to manage congestion on its constraints while supporting the export.

The only legitimate argument raised by PJM and the Coalition is that MISO would curtail the export if it found itself in a load-shedding emergency. This provision was included in an early version of capacity delivery procedures developed by the MISO. We agree that this would be unreasonable because it would imply that both MISO and PJM are relying on the same resource to satisfy their reliability needs. However, this is not an inherent component of the Capacity Delivery Procedures and is, therefore, not a concern since that provision can simply not be included in the filed version of such procedures. For example, the Capacity Delivery Procedures that we describe in the complaint do not include this provision.

#### *Comparability and Competition in the PJM Capacity Market*

Both PJM and the PJM Suppliers raise concerns that external resources will enjoy a competitive advantage over PJM's internal resources under the Capacity Delivery Procedures.<sup>62</sup> They assert that this competitive advantage derives from the fact that MISO (or NYISO) would be using internal dispatch to assist the external resource to satisfy PJM's capacity performance obligations. In doing so, PJM argues that the capacity obligations would be lessened for external resources and that the Complaint is seeking to establish a different capacity product.

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<sup>62</sup> PJM Answer at 13, Coalition Answer at 9-10, P3/EPSC Answer at 6-9.

These assertions are simply not true. Since the import will only be delivered to the extent that the external capacity resource is available and performing in the neighboring RTO area, the resource would not enjoy a competitive advantage over an internal capacity resource. There is nothing that MISO would be doing in delivering the firm import to PJM that would assist the capacity resource to be available and to perform. Therefore, the full-performance obligations would remain with the resource. If the unit is derated, it would be penalized under PJM's capacity performance settlements in a comparable manner to the internal resources. If the unit fails to respond to dispatch, the unit would be placed "off control", which essentially derates the unit and, again, it would bear the same capacity performance penalties as the internal PJM resources.

If anything, the Capacity Delivery Procedures would simply level the playing field with the internal PJM capacity. In fact, under the current pseudo-tie requirement, external resources are clearly at a substantial competitive disadvantage. The Capacity Delivery Procedures would create a level playing field by:

- Mitigating the risk that only external resources face that MISO or NYISO may curtail them due to an affected local transmission constraint, which may result in substantial capacity performance penalties that internal capacity does not face.
- Eliminating the additional congestion charges external resources currently incur between their location and the interface, which internal PJM suppliers do not bear.

Additionally, the doomsday scenario described in the PJM Answer, that external resources would displace needed internal resources,<sup>63</sup> is not a substantial concern for two reasons. First, the external resources would have no competitive advantage over internal

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<sup>63</sup> PJM Answer at 29-30.

resources as described above. Second, PJM can establish capacity import limits that will ensure that it does not rely excessively on external resources.

Finally, if any potential competitive advantage were established in favor of the external resources or the internal resources, the Capacity Delivery Procedures and associated settlements are flexible and could be adjusted to eliminate any possible advantages (although we do not believe such advantages exist).

Therefore, despite the assertions raised to the contrary, the Capacity Delivery Procedures would not provide a competitive advantage to external suppliers. Like the other asserted claims offered to try to justify the current pseudo-tie requirement, it cannot be substantiated and provides no basis for maintaining a tariff requirement that the Complaint demonstrates is unjust and unreasonable.

#### **D. Concerns Raised Regarding the Capacity Delivery Procedure Alternative**

In subsection IV.C. above we address assertions by PJM and the PJM Suppliers that the pseudo-ties provide benefits to PJM that will be lost if the requirement is eliminated and capacity delivery procedures or some other alternative is implemented. In this subsection, we provide an answer to the other criticisms or concerns regarding the Capacity Delivery Procedure alternative that we describe in the complaint.

In its answer, PJM claims that the capacity deliverability procedures described in the Complaint are “extreme and unreasonable.”<sup>64</sup> Before addressing the specific assertions in PJM’s Answer, we would note that the Capacity Delivery Procedures are comparable to the procedures that NYISO and ISO New England use to deliver capacity to one another, which is instructive because ISO New England has capacity performance rules that are comparable to PJM’s rules.

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<sup>64</sup> PJM Answer at 6-7.

None of the litany of objections given by PJM are legitimate concerns. PJM objects to (1) imposing “lesser” obligations on external resources; (2) “interposing” an external market operator between PJM and the external supplier; (3) placing external capacity in a pool or portfolio that “shields them from individual accountability” and (4) denying loads the full attributes of capacity purchased on their behalf.

As we explain in subsection IV.C., adopting the Capacity Delivery Procedure does not reduce the capacity obligations facing external capacity resources or shield the suppliers from individual accountability. As we explain above, these putative concerns are based entirely on unsubstantiated assertions that can be shown to be false.

PJM’s concern about “interposing” an external market operator between PJM and the external supplier is completely without merit. If the supplier is accountable for its performance and PJM will reliably receive the capacity it has procured, the fact that an external market operator is involved in facilitating the delivery of the capacity should not matter. This is particularly true if the external market operator in question is otherwise substantially harmed economically and operationally by turning the dispatch of selected resources on its system over to PJM.

Furthermore, PJM’s assertion that its loads would be denied the “full attributes” of capacity procured on their behalf is equally without substance. As we show in subsection IV.C. above, the Capacity Delivery Procedures would likely provide more dispatch availability and flexibility on a 15-minute basis than PJM receives from a large share of its capacity resources. Nonetheless, the PJM capacity market is not an attribute market. Rather, it is a resource adequacy market that is designed to ensure that sufficient resources are available to fully satisfy PJM’s energy and ancillary service needs under peak demand conditions. Since the capacity

delivery procedures will provide greater assurance that PJM will receive the capacity it has procured whenever it is needed, the loads in PJM will receive greater reliability value from the external resources than they currently receive from the pseudo-tied resources.

Lastly, if any of these concerns were legitimate, one must ask why no other RTO in the country requires that external capacity resources be pseudo-tied, even ISO New England that has a closely comparable capacity performance regime to PJM's. The most reasonable answer to this question is that PJM stands alone in requiring pseudo-ties because the requirement is actually unnecessary.

## **V. CONCLUSION**

For the reasons set forth above, Potomac Economics respectfully requests that the Commission accept this answer, and renews its request that the Commission grant the relief requested in its Complaint.

Respectfully submitted,

*/s/ David B. Patton*

David Patton  
President  
Potomac Economics, Ltd.

May 26, 2017

## CERTIFICATE OF SERVICE

I hereby certify that I have this day e-served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C. F. R. § 385. 2010).

Dated this 26<sup>th</sup> day of May, 2017 in Fairfax, VA.

*/s/ David B. Patton*

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