

171 FERC ¶ 61,151  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;  
Richard Glick, Bernard L. McNamee,  
and James P. Danly.

Brookfield Energy Marketing LP

Docket No. EL19-34-000

v.

PJM Interconnection, L.L.C.

ORDER DENYING COMPLAINT IN PART AND GRANTING IN PART

(Issued May 21, 2020)

1. On January 18, 2019, Brookfield Energy Marketing LP (Brookfield) filed, pursuant to sections 206, 306, and 309 of the Federal Power Act (FPA),<sup>1</sup> and Rule 206 of the Commission's Rules of Practice and Procedure,<sup>2</sup> a complaint against PJM Interconnection, L.L.C. (PJM) (Complaint). Brookfield alleges that PJM's pseudo-tie rules are unjust, unreasonable, unduly discriminatory and preferential; that PJM has applied its pseudo-tie rules to Brookfield's two hydroelectric generation facilities (Facilities), Calderwood and Cheoah, located in the Tennessee Valley Authority (TVA) and Duke Energy (Duke) Balancing Authorities, in a manner that is inconsistent with its Tariff; and that PJM's administration of its pseudo-tie rules lacks sufficient notice and transparency.

2. We deny the Complaint with respect to Brookfield's argument that PJM's pseudo-tie rules are unjust, unreasonable, unduly discriminatory, and preferential. We also deny the Complaint with respect to whether PJM applied its pseudo-tie rules to the Facilities in a manner that is inconsistent with its Tariff. With respect to Brookfield's concern that PJM's administration of its pseudo-tie tests lacks sufficient notice and transparency, we grant the Complaint in part.

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<sup>1</sup> 16 U.S.C. §§ 824e, 825e, 825h (2018).

<sup>2</sup> 18 C.F.R. § 385.206 (2019).

## I. Background

3. In order for external resources to participate in PJM's capacity auctions, they must be pseudo-tied from their native Balancing Authority Area into PJM.<sup>3</sup> In order to be eligible for a pseudo-tie into PJM, an external resource must meet a set of threshold requirements that the Commission approved in November 2017 in the Pseudo-Tie Enhancement Order.<sup>4</sup>

4. In the Pseudo-Tie Enhancement Filing,<sup>5</sup> PJM sought to require, and the Commission accepted, that a seller of an external resource seeking to participate in PJM's capacity auctions be allowed to submit a Sell Offer only if it demonstrates to PJM, five days prior to the auction, that the external resource: (1) meets the minimum electrical distance requirements; (2) meets a Market-to-Market Flowgate eligibility test (Flowgate Test) that will only require PJM to coordinate a new flowgate with an external Balancing Authority when the flow impact of a PJM internal resource on that flowgate meets a certain threshold; (3) receives approval from an external Balancing Authority that an external Capacity Market Seller's resource does not require NERC tagging and that firm flow allocations associated with any coordinated flowgates applicable to the external resource be allocated to PJM; (4) ensures that each external entity with which PJM may be required to coordinate flowgates maintains a network model that produces results that are within two percent of the results produced by PJM's model; (5) has arranged for long-term firm point-to-point transmission service that is evaluated for deliverability from the

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<sup>3</sup> See *PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,208, at PP 96-97 (2015), *order on reh'g*, 155 FERC ¶ 61,157 (2016). A Balancing Authority Area is "[t]he collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area." Further, a Balancing Authority is "[t]he responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." See *Glossary of Terms Used in NERC Reliability Standards*, North American Electric Reliability Corporation (NERC Glossary), [https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary\\_of\\_Terms.pdf](https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf).

<sup>4</sup> *PJM Interconnection, L.L.C.*, 161 FERC ¶ 61,197 (2017) (Pseudo-Tie Enhancement Order), *order on reh'g*, 170 FERC ¶ 61,217 (2020) (Pseudo-Tie Enhancement Rehearing Order).

<sup>5</sup> *PJM Interconnection, L.L.C.*, Transmittal, Docket No. EL17-1138-000 (filed Mar. 9, 2017) (Pseudo-Tie Enhancement Filing).

unit-specific physical location to PJM load; and (6) retains the same must-offer requirement as required under the Capacity Import Limit exception.<sup>6</sup>

5. In the Pseudo-Tie Enhancement Order, the Commission also approved a five-year transition period for resources that had an existing pseudo-tie, had cleared in a capacity market auction prior to May 9, 2017, and met certain other operational and deliverability requirements.<sup>7</sup> Pseudo-tied resources eligible for the transition period are required to comply with PJM's new pseudo-tie requirements, including the deliverability requirements set forth in section 5.5A of Attachment DD of the PJM Tariff for the 2022/2023 Delivery Year in order to be eligible to offer into the capacity auction.

6. The Commission found in the Pseudo-Tie Enhancement Order that PJM had demonstrated that: (1) the new pseudo-tie requirements are needed to help ensure that external resources are treated comparably to internal resources in PJM; and (2) external resources have operational and deliverability concerns that differ from internal resources.<sup>8</sup> The Commission also found that the pseudo-tie requirements address the operational and deliverability concerns of external resources, and in doing so, do not create unreasonable barriers to entry.<sup>9</sup>

7. On rehearing, the Commission affirmed its finding in the Pseudo-Tie Enhancement Order that PJM's "requirement for long-term firm transmission rights with rollover rights for external resources is just and reasonable because it treats external and internal resources comparably under PJM's Capacity Performance construct, by requiring that these resources be similarly responsible for the delivery of capacity to the PJM market."<sup>10</sup> The Commission found that without firm transmission rights to the PJM

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<sup>6</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 7.

<sup>7</sup> *Id.* PP 119, 134-138.

<sup>8</sup> *Id.* P 27.

<sup>9</sup> *Id.*

<sup>10</sup> Pseudo-Tie Rehearing Order, 170 FERC ¶ 61,217 at P 42 (citing Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 114). The Commission also found on rehearing that requiring that generation used to serve a generator's capacity requirements meet an "Operationally Deliverable" requirement is not a violation of section 217 of the FPA, 16 U.S.C. 824q; and that the Tariff changes accepted by the Commission in the Pseudo-Tie Enhancement Order and in various sections of the PJM *pro forma* agreements did not unlawfully abrogate parties' contract rights under their Network Integrated Transmission Service Agreements or Dynamic Transfer Agreements. *Id.* PP 54, 59.

border, PJM cannot be ensured that the external resource will not be subject to curtailments based on the internal requirements of the other Balancing Authority.

8. One of the requirements the Commission approved in the Pseudo-Tie Enhancements Order, and that is at issue in the Complaint, is PJM's deliverability requirements, which require an external resource that seeks to pseudo-tie into PJM to arrange for the evaluation of long-term firm point-to-point transmission service with rollover rights for deliverability from the unit-specific physical location of the resource to PJM load. Another requirement approved in the Pseudo-Tie Enhancement Order and at issue in the Complaint is the Flowgate Test. These requirements are discussed in turn below.

**A. Deliverability Requirements**

9. PJM's Tariff requires external resources to have "obtained long-term firm point-to-point transmission service (evaluated for deliverability from the unit-specific physical location of the resource to PJM load pursuant to a study that is reviewed and approved by PJM in accordance with PJM deliverability criteria to ensure uniformity for internal and external resource deliverability requirements), with rollover rights for the term of the transmission service that is confirmed by the Balancing Authority for the Balancing Authority Area where such resource is geographically located."<sup>11</sup>

10. PJM applies a certain standard of evaluation when measuring a resource's deliverability which "ensures that, under normal system conditions, if Capacity Resources are available and called on, their ability to provide energy to the system will not be limited by the dispatch of other certified Capacity Resources."<sup>12</sup>

**B. Flowgate Test**

11. Although the Flowgate Test determines the eligibility of an *external* pseudo-tied resource, the test also relies on the availability of *internal* PJM resources, because PJM may need to use a dispatchable internal resource to alleviate the impact of congestion caused by the external pseudo-tied resource. In order for an external resource to pass the Flowgate Test, the pseudo-tied resource must meet the following requirement:

at least one generation resource that has a historic economic minimum offer lower than its historic economic maximum offer, located inside the metered boundaries of the PJM

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<sup>11</sup> PJM Tariff at Attachment DD, § 5.5A(b)(ii).

<sup>12</sup> PJM Manual 14B, Attachment C, § C.1.1,  
<https://www.pjm.com/library/manuals.aspx>.

Region, has a minimum flow distribution impact of 1.5 percent on each eligible coordinated flowgate resulting from such Pseudo-Tie.<sup>13</sup>

12. When PJM proposed the Flowgate Test, PJM explained that its purpose is to prevent “adding new coordinated flowgates unless PJM has adequate options to manage congestion on that flowgate in addition to reducing the output of the pseudo-tied resource itself.”<sup>14</sup>

13. PJM has identified the steps it takes to conduct the Flowgate Test as:

- (1) Compile a list of flowgates that might be affected by a requested Pseudo-Tie using input from affected Balancing Authorities (“BAs”) and review of an authoritative North American flowgate reference, and then determine from that list the flowgates on which the requested Pseudo-Tie would have an impact of five percent or greater, such flowgates being categorized as Eligible Coordinated Flowgates;
- (2) Compile a list of dispatchable generation resources physically located In the PJM Region;
- (3) Calculate the percentage impact generation output changes from the PJM Region dispatchable generation would have for relieving congestion on the Eligible Coordinated Flowgates identified in Step (1); and

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<sup>13</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 79 (directing PJM to revise PJM, Intra-PJM Tariffs, Open Access Transmission Tariff (OATT), Attachment DD, § 5.5A(b)(i)(B), setting forth the Flowgate Test, to include the 1.5 percent impact level, as quoted above); *see also* PJM, Compliance Filing, Docket No. ER17-1138-002 (filed Dec. 15, 2017).

<sup>14</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 63; *see also* PJM, Pseudo-Tie Enhancement Filing at 14-15, Docket No. ER17-1138-000 (filed Mar. 9, 2017) (Pseudo-Tie Enhancement Filing).

- (4) Determine whether each Eligible Coordinated Flowgate has at least one PJM Region dispatchable generation resource with an impact of at least 1.5 percent on the flowgate.<sup>15</sup>

## II. Complaint

14. Brookfield explains that the Facilities have maintained firm point-to-point service over the complete path from TVA into PJM, enabling them to participate in the PJM capacity market and that the Facilities have held capacity supply obligations in PJM since 2014.<sup>16</sup> Brookfield explains that the Facilities obtained an exception to PJM's Capacity Import Limit on capacity imports by committing to become pseudo-tied, having firm point-to-point service from TVA into PJM (at a cost of approximately \$5 million/year) and agreeing to be subject to the same must-offer requirements as PJM's internal resources.<sup>17</sup> Brookfield states that on March 26, 2018, PJM informed it that the Facilities failed the Flowgate Test for 38 flowgates and that, pursuant to a June 18, 2018 re-test, the Facilities had failed for 19 "transmission elements."<sup>18</sup>

15. Brookfield asserts PJM's application of its eligibility rules, including the deliverability requirements and Flowgate Test, discriminates against external resources, particularly those in non-market Balancing Authority Areas, without improving efficiency, competitiveness, or reliability within PJM, and further creates an arbitrary barrier to entry for external resources.<sup>19</sup> Brookfield asserts that the new pseudo-tie requirements contravene open access principles established in Order Nos. 888 and 890 and disregard NERC-compliant planning criteria by considering firm point-to-point service from neighboring Balancing Authority Areas to be inadequate and instead imposing PJM's own internal deliverability rules on external Balancing Authority Areas.<sup>20</sup>

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<sup>15</sup> PJM, Response to Paper Hearing Order, Docket No. EL18-145, at 9-10 (filed Nov. 5, 2018).

<sup>16</sup> Complaint at 2-3. The Facilities had originally obtained a pseudo-tie into PJM to comply with the 2015 Capacity Import Limit Order. *See PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,041 (2015).

<sup>17</sup> *Id.* at 8-9.

<sup>18</sup> *Id.* at 14-15.

<sup>19</sup> *Id.* at 4.

<sup>20</sup> *Id.* Brookfield asserts that PJM's deliverability requirements require a pseudo-tied external capacity resource to fund network upgrades required by its host Balancing

16. Brookfield requests the Commission grandfather existing pseudo-ties for external resources in non-market Balancing Authority Areas, including the Facilities, that can demonstrate continued firm point-to-point service. Alternatively, Brookfield requests the Commission extend the transition period an additional three years, or longer, and order PJM to “work with stakeholders to redesign its capacity import rules in a just and reasonable and not unduly discriminatory or preferential manner.”<sup>21</sup>

### **III. Notice of Filing, Responsive Pleadings and Paper Hearing**

17. The Notice of Complaint was published in the *Federal Register*, 84 Fed. Reg. 699 (Jan.31, 2019), with answers, interventions and protests due on or before February 7, 2019. The following parties filed timely motions to intervene: Monitoring Analytics, LLC, in its capacity as the Independent Market Monitor for PJM (IMM); Electric Power Supply Association; NRG Power Marketing LLC, American Municipal Power, Inc.; New York Transmission Owners;<sup>22</sup> Tilton Energy LLC (Tilton); North Carolina Electric Membership Corporation; Tatanka Wind Power, LLC; and Cube Yadkin Generation LLC. Exelon Corporation and Potomac Economics, Ltd. submitted motions to intervene out of time. On February 7, 2019, Tilton Energy LLC filed comments.

18. On February 6, 2019, PJM filed an unopposed motion for extension of time and on February 7, 2019, PJM filed an errata to its February 6, 2019 unopposed motion for extension of time. On February 11, 2019, PJM filed a motion for leave to file answer one day out-of-time.

19. On February 8, 2019, PJM filed an answer (PJM First Answer). On February 25, 2019, Brookfield filed an answer to PJM’s answer (Brookfield First Answer). On March 22, 2019, PJM filed a second answer (PJM Second Answer). On April 4, 2019, Brookfield filed a second answer (Brookfield Second Answer). On April 12, 2019, the IMM filed an answer (PJM IMM Answer). On April 19, 2019, PJM filed a third answer (PJM Third Answer). On April 26, 2019, Brookfield filed a third answer (Brookfield Third Answer). On May 22, 2019, PJM filed a fourth answer (PJM Fourth Answer). On

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Authority and potentially additional upgrades to satisfy PJM’s deliverability requirements. *Id.* at 5.

<sup>21</sup> *Id.* at 6, 41, 44, 46.

<sup>22</sup> New York Transmission Owners consist of: Central Hudson Gas & Electric Corporation; Consolidated Edison Company of New York, Inc.; Orange and Rockland Utilities, Inc.; New York Power Authority; Niagara Mohawk d/b/a/ National Grid; Rochester Gas and Electric Corporation; New York State Electric & Gas Corporation; Power Supply Long Island.

June 28, 2019, Brookfield filed a motion for prompt Commission action. On July 8, 2019, PJM filed an answer to Brookfield's motion for prompt Commission action.

20. On August 26, 2019 the Commission issued an order instituting paper hearing proceedings and directing PJM to further explain how it administers its deliverability requirements and Flowgate Test.<sup>23</sup>

21. On September 25, 2019, PJM submitted a response (PJM Paper Hearing Response) to the Paper Hearing Order. On October 10, 2019, Brookfield filed a reply to the PJM Paper Hearing Response (Brookfield Paper Hearing Reply). On October 29, 2019, PJM filed an answer to Brookfield's Paper Hearing Reply (PJM Paper Hearing Answer). On November 13, 2019, Brookfield filed a second reply to PJM's Paper Hearing Answer (Brookfield Second Paper Hearing Reply).

#### **IV. Discussion**

##### **A. Procedural Matters**

22. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2019), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding. We also grant Exelon Corporation's and Potomac Economics, Ltd.'s late-filed motions to intervene given their interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

23. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2019), we grant PJM's unopposed motion for extension of time, PJM's errata to its unopposed motion for extension of time, and PJM's motion for leave to file answer one day out-of-time.

24. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2019), prohibits an answer to an answer unless otherwise ordered by the decisional authority. We accept the answers and answers to answers of the IMM, PJM, and Brookfield because they have provided information that assisted us in our decision-making process.

##### **B. Substantive Matters**

25. The parties have exchanged numerous pleadings, answers and rebuttals. As the answers and comments to the Complaint were summarized in detail in the Paper Hearing

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<sup>23</sup> *Brookfield Energy Mktg. LP v. PJM Interconnection, L.L.C.*, 168 FERC 61,112 (2019) (Paper Hearing Order).



Order, we will not repeat those detailed summaries here.<sup>24</sup> Further, as noted above, the parties have exchanged numerous answers and replies to the Paper Hearing Order. We summarize below the final positions of the parties with regard to the three major issues in this case: (1) whether PJM's pseudo-tie rules are unjust and unreasonable; (2) whether PJM's application of its deliverability requirements and Flowgate Test is inconsistent with its Tariff; and (3) whether PJM's administration of its pseudo-tie tests lacks transparency.

1. **Whether Brookfield Demonstrated that PJM's Deliverability Requirements Are Unjust and Unreasonable and Unduly Discriminatory and Preferential**

a. **Complaint, PJM's and Brookfield Answers**

26. Brookfield contends that PJM's deliverability requirements are unjust and unreasonable. Brookfield states that the deliverability requirements violate Order No. 890's principle that a transmission provider that has granted firm point-to-point service to an external resource must not impose additional costs on that external transmission customer.<sup>25</sup> Brookfield asserts that the Commission has long required that transmission customers have the right without exception to purchase firm transmission service to transport and sell capacity in or between Balancing Authority Areas.<sup>26</sup> Brookfield also argues that Order No. 890 bars a host Balancing Authority Area from restricting long-term firm point-to-point service for those customers who pay for it.<sup>27</sup>

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<sup>24</sup> *Id.* PP 7-25.

<sup>25</sup> Complaint at 20.

<sup>26</sup> *Id.* at 17-18 (citing *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Servs. by Pub. Utils. & Recovery of Stranded Costs by Pub. Utils. & Transmitting Utils.*, Order No. 888, FERC Stats. & Regs. ¶ 31,036, at 21,605 (1996) (Order No. 888) (cross-referenced at 75 FERC ¶ 61,080) (“[A]n essential element of non-discriminatory transmission access is the right of transmission customers to reserve and purchase transmission service that is of the same quality as that used by the transmission provider in serving its wholesale requirements customers and retail load.”).

<sup>27</sup> *Preventing Undue Discrimination & Preference in Transmission Serv.*, Order No. 890, 118 FERC ¶ 61,119 (Order No. 890), *order on reh'g*, Order No. 890-A, 121 FERC ¶ 61,297 (2007) (Order No. 890-A), *order on reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228, *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

27. Brookfield argues that PJM should not have such “unbridled” authority over neighboring Balancing Authority Areas and rather, PJM should resolve concerns about deliverability from external Balancing Authority Areas by filing a complaint before the Commission directed at that Balancing Authority Area.<sup>28</sup> Brookfield adds that allowing PJM such authority invites transmission providers to engage in economic protectionism and balkanize bulk power markets contrary to the Commission’s fundamental open access rules, policies and precedent designed to increase competition and promote reliability.<sup>29</sup>

28. Further, Brookfield asserts that the deliverability requirements are unduly discriminatory against external resources and preferential in favor of internal resources. It argues that internal resources, once interconnected, are not subject to further requirements to fund additional upgrades to maintain their capacity interconnection rights (CIRs)<sup>30</sup> whereas external resources must perpetually demonstrate that their long-term firm point-to-point service under an external Balancing Authority’s tariff satisfies PJM’s deliverability standards.<sup>31</sup>

29. Brookfield states that on February 27, 2018, it presented PJM a report by Quanta Technology explaining how Brookfield’s firm point-to-point service complies with PJM’s deliverability requirements.<sup>32</sup> Brookfield states that on March 15, 2018, PJM informed Brookfield that its existing firm point-to-point service (and Quanta’s analysis thereof) “was not sufficient to satisfy PJM’s deliverability requirements and that further testing was necessary.”<sup>33</sup>

30. According to Brookfield affiant Mr. Aleksandar Mitreski, due in part to the lack of clarity of how to arrange for payment and construction of upgrades to satisfy PJM’s

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<sup>28</sup> Complaint at 19.

<sup>29</sup> Brookfield First Answer at 13.

<sup>30</sup> CIRs are defined as the “rights to input generation as a Generation Capacity Resource into the Transmission System at the point of Interconnection where the generating facilities connect to the Transmission System.” *See* PJM, OATT, C-D, OATT Definitions – C-D, (17.0.0).

<sup>31</sup> Complaint at 22. Brookfield adds that it is concerned about perpetually finding transmission upgrades even if it satisfied the pseudo-tie enhancements. Brookfield First Answer at 14

<sup>32</sup> Complaint at 15.

<sup>33</sup> *Id.*

deliverability requirements in external Balancing Authority Areas, Brookfield has not pursued further testing to attempt to satisfy these requirements.<sup>34</sup> Mr. Mitreski indicates that PJM made clear in a phone call discussing the Facilities' failure of the deliverability requirement that none of the external entities (TVA or Duke) conducted studies when granting the Facilities firm point-to-point service that included the dispatch requirements that PJM uses.<sup>35</sup>

31. In response to Brookfield's arguments that PJM's new pseudo-tie rules violate open access principles embedded in Commission Order Nos. 888 and 890, PJM states that its deliverability requirements serve the same comparability objective as the Commission's open access transmission policies.<sup>36</sup> For example, PJM explains that just as the Commission requires fair access to transmission wires for independent generators competing against vertically-integrated transmission owners, the Extraterritorial Deliverability Requirements likewise ensure that all generators meet the same generator-to-load deliverability criteria whether they are located inside or outside PJM.<sup>37</sup>

32. PJM also asserts that the fact that the deliverability requirements are ongoing does not make them unduly discriminatory. Rather, PJM explains that ongoing testing is required to ensure continued deliverability, as topology or system condition changes may occur or external Balancing Authority Area planning requirements may impact an external resource's ability to satisfy its capacity obligation in PJM.<sup>38</sup>

33. PJM states that no generator has an entitlement to qualify as a generation capacity resource and that the deliverability requirements present reasonable solutions to challenges that can arise when loads in one Balancing Authority Area rely on generation

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<sup>34</sup> *Id.* at 16-17 and Exhibit B (Affidavit of Aleksandar Mitreski at 13-15 (Mitreski Aff.))

<sup>35</sup> *Id.*

<sup>36</sup> PJM First Answer at 25-26.

<sup>37</sup> *Id.* PJM adds that if an external resource cannot meet requirements comparable to those for internal resources, then it simply will not qualify as a capacity resource for participation in PJM's capacity market, however such resources can still participate in PJM's energy and ancillary services markets. *Id.*

<sup>38</sup> *Id.* at 27.

physically located in another Balancing Authority Area that have different planning, operating and market rules and practices.<sup>39</sup>

34. In response to the Paper Hearing Order,<sup>40</sup> PJM further clarified that “deliverability criteria,” as used in Section 5.5A(b)(ii) of the Tariff, are further defined in RAA Schedule 10 and Manual 14B, Attachment C, and that certification of deliverability requires that PJM has tested the physical capability of the transmission network and is found to provide service consistent with transfer capability requirements internal to PJM.<sup>41</sup> PJM states that while the analysis in Manual 14B focuses on deliverability of internal resources, Manual 12 “is incorporated into PJM’s planning eligibility requirements for external Generation Capacity Resources” to ensure comparability between internal and external resources.<sup>42</sup> PJM explains that it will assess transmission planning studies for external facilities for consistency with the deliverability procedure contained in Manual 14B, Attachment C, Section C.3.1.3.<sup>43</sup>

35. PJM further explains that “generators with the greatest electrical impact on the flowgate will be dispatched at their full installed capacity to ensure there are no transmission constraints when all of those units generate simultaneously at their full

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<sup>39</sup> *Id.* at 23.

<sup>40</sup> In the Paper Hearing Order, the Commission found that Brookfield had raised questions of material fact about the manner in which PJM administers its deliverability requirements stated that the Tariff and Manuals do not specify the “deliverability criteria” PJM must use for its evaluation. The Commission also found the record is not clear as to what deliverability criteria PJM uses to determine whether pseudo-tied resources can participate in the auctions, whether it uses those deliverability criteria consistently for all projects, or how PJM evaluated the Facilities. Paper Hearing Order at 30.

<sup>41</sup> PJM Paper Hearing Response at 3. According to PJM Manual 14B, deliverability “ensures that, under normal system conditions, if Capacity Resources are available and called on, their ability to provide energy to the system will not be limited by the dispatch of other certified Capacity Resources.” PJM Manual 14B, Attachment C, Section C.1.1

<sup>42</sup> PJM Paper Hearing Response at 5. PJM Manual 12, Attachment F provides that any entity seeking to pseudo-tie to PJM “may consult with PJM to review the criteria to be utilized in the transmission planning studies which may be performed, by entities outside of PJM...in order to allow PJM to provide comment as to the potential need for additional study beyond those transmission service studies.” PJM Manual 12, Attachment F, Section F.2.

<sup>43</sup> PJM Paper Hearing Response at 6.

installed capacity.”<sup>44</sup> By contrast, Brookfield’s study (performed by Quanta Technology) assumed a fixed pattern of dispatch rather than the “more severe” dispatch patterns per PJM’s deliverability requirements, and such an approach could hide a limitation to deliverability to PJM load. PJM states it communicated this concern to Brookfield in March 2018.<sup>45</sup> According to Ms. McGill, in addition to failing to utilize the severe dispatch scenarios required under PJM’s Generator Deliverability test, Brookfield’s studies utilized redispatch to relieve constraints rather than aggravating constraints to identify delivery-preventative conditions, and failed to evaluate the Louisville Gas & Electric system which could have been affected by the pseudo-tie.<sup>46</sup>

36. PJM also describes the communications and interactions with Brookfield by which PJM delineated the deficiencies in the Quanta Study. PJM lists a timeline of communications in which it reviewed Brookfield’s studies and identified deficiencies; met with Brookfield to discuss the deficiencies and asked follow-up questions; advised Brookfield that the Quanta Study remained deficient; and held a conference call to discuss PJM’s responses.

37. Brookfield responded that PJM’s explanation of its deliverability requirements fails to address how PJM Manual 14B, Attachment C, which focuses on deliverability within PJM, is applied to a single external generation resource.<sup>47</sup> Brookfield further argues that PJM ignores Manual 12, which requires only that the transmission study of an external firm be “similar to” PJM’s requirements; and that neither Manual 12 nor PJM’s Tariff requires that the Quanta Study rely on the unique dispatch patterns PJM used or that the transmission studies conducted by an external Balancing Authority Area be identical to PJM’s studies.<sup>48</sup>

**b. Other Answers**

38. Cube Yadkin asserts that although PJM can determine an external resource fails its deliverability requirements and require additional testing, the PJM Tariff does not provide a requirement or process for the external resource to arrange for payment and

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<sup>44</sup> *Id.* at 6-7 (citing Affidavit of Susan McGill at P 10) (McGill Aff.).

<sup>45</sup> *Id.* at 3.

<sup>46</sup> *Id.* at 9.

<sup>47</sup> Brookfield Paper Hearing Reply at 4-6.

<sup>48</sup> *Id.* at 6-8.

construction of additional upgrades in the relevant Balancing Authority Area.<sup>49</sup> Cube Yadkin also agrees with Brookfield that PJM's implementation of the deliverability requirements results in external resources being held to a far higher standard than PJM internal resources, even though those resources have been deemed deliverable by its own NERC-compliant Balancing Area Authority.<sup>50</sup>

**c. Commission Determination**

39. We determine that Brookfield has not demonstrated that PJM's deliverability requirements are unjust and unreasonable or unduly discriminatory or preferential. As a threshold matter, the Commission has found that the use of certain tests to ensure that external resources seeking to pseudo-tie do not cause reliability concerns or undue congestion costs to PJM to be just and reasonable.<sup>51</sup> The crux of Brookfield's argument is that, as long as it maintains long term firm service on Duke's system, it should be entitled to a pseudo-tie because that service sufficiently guarantees delivery to PJM. As the Commission recently found in the Pseudo-Tie Enhancement Order and in a recent order denying a complaint,<sup>52</sup> firm transmission service by itself is insufficient to ensure that an external resource, even one that PJM can dispatch under a pseudo-tie, will be available and deliverable to PJM. Because PJM's dispatch software does not include full visibility into all aspects of the external system, PJM cannot be sure of the factors that may affect whether the external resource's generation will be deliverable inside of PJM. PJM therefore has adopted additional tests to help ensure deliverability and manage possible congestion affecting the external resource occurring on external systems. Brookfield has not provided sufficient evidence to depart from those findings.

40. Brookfield has not demonstrated that PJM's pseudo-tie requirements unduly discriminate against external resources in favor of internal resources. As the Commission stated in the Pseudo-Tie Enhancement Order, these requirements reasonably address the operational and deliverability differences between internal and external resources by detailing "the requirements for external resources that seek to pseudo-tie into PJM and hold those resources which have become pseudo-tied to PJM to equivalent standards as internal resources in PJM."<sup>53</sup> The Commission further stated that "the additional

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<sup>49</sup> Cube Yadkin Comments at 8.

<sup>50</sup> *Id.*

<sup>51</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 76.

<sup>52</sup> *Potomac Economics., Ltd. v. PJM Interconnection, L.L.C.*, 171 FERC ¶ 61,039, at P 88 (Apr. 17, 2020) (*Potomac Economics*).

<sup>53</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 27.

proposed pseudo-tie requirements would apply equally to all external resources that wish to pseudo-tie into PJM and . . . [w]e therefore reject arguments that PJM's proposal is unduly discriminatory or creates unreasonable barriers to entry."<sup>54</sup> Brookfield has not demonstrated otherwise.

41. Brookfield argues that the deliverability requirements violate long-standing principles of open access embedded in Commission Order Nos. 888 and 890. As a general matter, the Commission has declined to impose unlimited planning, reliability and ancillary service requirements on transmission providers by forcing them to accept any load or generator that seeks to move to their systems through the use of pseudo-ties.<sup>55</sup> With respect to these arguments, the Commission finds that nothing in Order Nos. 888 and 890 provides an external resource a guaranteed right to qualify as a capacity resource to serve loads in PJM.

42. Brookfield argues that reliable delivery of capacity from the Facilities demonstrates that PJM's concerns about the inadequacy of firm point-to-point transmission service are unfounded. We disagree and find, as argued by PJM, that the performance history of the Facilities should not excuse them from compliance with the pseudo-tie requirements applied to all external resources.<sup>56</sup> As the Commission found in the Pseudo-Tie Enhancement Order, transmission topology may change such that an external pseudo-tied resource on which PJM could previously rely may no longer be reliable. The deliverability requirements are not unjust and unreasonable simply because the change in transmission topology may be beyond the control of the external resource.<sup>57</sup>

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<sup>54</sup> *Id.* P 28.

<sup>55</sup> *See* Order No. 890-A, 121 FERC ¶ 61,297 at P 631. In Order No. 890-A, the Commission declined to mandate provision of pseudo-ties in the Commission's *pro forma* OATT, explaining that it was concerned that this could allow transmission customers to cherry-pick among transmission providers based on differences in service, including ancillary service costs, and could cause insurmountable planning and reliability problems for transmission providers. The Commission further explained that, under a pseudo-tie, the control area receiving the new load or generation signal assumes responsibility for ensuring that the load is properly balanced moment-to-moment, for planning for the load, and for providing other ancillary services including energy or generator balancing service. *Id.*

<sup>56</sup> PJM First Answer at 16-17.

<sup>57</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 77. We note that Brookfield has stated that it has not attempted to satisfy the deliverability requirements, asserting that there is a lack of clear tariff provisions for the construction of any upgrades PJM may deem as necessary. Brookfield Complaint at 17.

The Commission also found that “to continue to meet the must-offer obligation, it is just and reasonable to require an external resource to provide assurance to PJM that the resource is deliverable to PJM in a manner comparable to that of an internal resource’s deliverability to PJM.”<sup>58</sup> It is therefore reasonable for PJM to continue to require external resources to meet PJM’s deliverability criteria as transmission topography regularly changes. The Facilities’ performance history does not justify departure from these requirements.

43. Brookfield raises the concern that its firm point-to-point service was renewed for a five-year period to June 2024, giving the Facilities rollover rights for future years, and obligating Duke as Balancing Authority to plan and operate its transmission system in a manner that guarantees the Facilities continue to have use of Brookfield’s firm point-to-point service to deliver capacity into PJM.<sup>59</sup> However, we find that simply having firm service with rollover rights is insufficient to ensure that Brookfield can provide reliable service to PJM if it fails the other pseudo-tie requirements.

44. Brookfield argues that PJM’s deliverability requirements impose undue costs on external resources,<sup>60</sup> and impose PJM’s rules on external Balancing Authorities. As we have explained, external Balancing Authorities may not approve the resource’s request to pseudo-tie if its reliability or economic concerns are not addressed.<sup>61</sup> We agree with PJM that no Balancing Authority purports to determine another Balancing Authority’s rules for capacity needed to serve their loads.<sup>62</sup> PJM’s pseudo-tie requirements provide

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<sup>58</sup> *Id.* P 116.

<sup>59</sup> *Id.* at 25.

<sup>60</sup> According to Brookfield, these additional costs stem from non-comparable treatment by PJM of external and internal generators. For example, internal and external resources are not subject to the same testing or requirements even though internal resources may create similar congestion issues (Complaint at 6); internal resources are not subject to analyses of whether there are internal PJM resources available to manage congestion resulting from flows (Complaint at 34); external resources cannot be redispatched down whereas internal resources can be without being subject to capacity non-performance penalties (Complaint at 34); and external resources located in non-market Balancing Authority Areas cannot resell their capacity to their host Balancing Authority Areas whereas external resources located in other market Balancing Authority Areas can re-sell their capacity to their host Balancing Authority Areas (Complaint at 35).

<sup>61</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 45.

<sup>62</sup> PJM First Answer at 24.



reasonable solutions to challenges that can arise when loads in one Balancing Authority Area rely on generation physically located in another Balancing Authority Area that have different planning, operating, and market rules and practices.

45. We also find, contrary to Brookfield's arguments that PJM has not adequately explained how the deliverability requirements are applied to a single resource and that its explanations are contrary to its manuals, that PJM provided a detailed explanation of the steps it takes in evaluating external generator transmission and deliverability studies in response to our Paper Hearing Order, including dispatch scenarios and their level of strenuousness, and that its explanation was consistent with its Tariff and manuals. Specifically, we find that PJM's responses to the paper hearing questions regarding the deliverability requirements offer a reasonable explanation of the term "deliverability criteria" consistent with its use in Section 5.5A(b)(ii) of the Tariff and Manual 14B.

46. Finally, Brookfield contends section 13.7 of the Commission's *pro forma* tariff defining "Firm Point-to-Point Transmission Service" as enabling sales of capacity and energy requires PJM to permit external sales of capacity on its system. Section 13.7 states in relevant part: "The Transmission Customer may purchase transmission service to make sales of capacity and energy from multiple generating units that are on the Transmission Provider's Transmission System." This provision specifically addresses only sales of capacity and energy from generation "that are on the Transmission Provider's Transmission System."<sup>63</sup> It therefore does not address any obligation to allow sales of capacity from generation on other systems when that generation cannot be shown to be deliverable to the PJM system. We therefore find that Brookfield's reference to the *pro forma* tariff does not support its argument because the section of the Commission's *pro forma* tariff that Brookfield references pertains to transmission provider obligations within its own transmission system.

## 2. Whether Brookfield Demonstrated that PJM's Flowgate Test Is Unjust and Unreasonable

### a. Complaint, PJM and Brookfield Answers

47. Brookfield asserts that PJM's Flowgate Test should not apply to non-market Balancing Authority Areas, as there are no market-to-market coordinated flowgates in non-market Balancing Authority Areas and PJM has no obligation to pay for congestion in non-market Balancing Authority Areas.<sup>64</sup> Brookfield further argues that PJM has not

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<sup>63</sup> Brookfield Complaint at 18, n. 49 (citing Commission *pro forma* OATT, section 13.7); *see also* PJM, OATT, 13.7, OATT 13.7 Classification of Firm Transmission Service (1.0.0).

<sup>64</sup> Complaint at 27.

identified any congestion costs attributable to external resources pseudo-tied from non-market Balancing Authority Areas into PJM. According to Brookfield, PJM and its affiant Mr. Horger offer up a new *post hoc* rationale for the application of the Flowgate Test to resources in non-market Balancing Authority Areas that relies on what are “at best hypothetical and loosely described operational risks that PJM asserts it could have to bear as a result of [pseudo-ties] in Non-Market BAAs under its coordination agreements with Non-Market BAAs.”<sup>65</sup>

48. Brookfield asserts that PJM informed it that pursuant to a preliminary analysis, the Facilities passed the Flowgate Test, but that the Facilities failed 38 flowgates in an updated test and a distinct set of 19 “transmission elements,” some of which are flowgates, in a subsequent reassessment.<sup>66</sup>

49. According to Brookfield, the Facilities failed the Flowgate Test because they naturally have a greater flow impact on the external “transmission elements” close to them and there are no flexible resources internal to PJM that have a 1.5 percent flow impact on the same external “transmission elements.”<sup>67</sup> Brookfield argues that PJM’s application of the Flowgate Test makes it almost impossible for any external resource not located immediately adjacent to the PJM border to pass the Flowgate Test. Brookfield asserts that an external resource is likely to have a large flow distribution impact on transmission elements close to that external resource because the electricity generated by the external resource has to flow over those transmission elements. Thus, when PJM applies the Flowgate Test to all uncoordinated transmission elements, according to Brookfield, it will most certainly find a number of such elements in proximity to that external resource for which that resource has a greater than five percent flow distribution impact. Conversely, internal resources are unlikely to have any meaningful flow distribution impact on the same external transmission elements because they would be electrically distant.<sup>68</sup>

50. Specifically, as Brookfield’s affiants Messrs. Pfeifenberger and Sheilendranath explain in the Reply Affidavit, several of the external generation resources associated with the generator buses included in the PJM 2019 Flowgate Test Results have a five percent or greater flow impact on at least one of the flowgates that PJM reported in its

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<sup>65</sup> Brookfield First Answer at 9 (citing Horger Aff at PP 7-9).

<sup>66</sup> Complaint at 14.

<sup>67</sup> *Id.* at 32.

<sup>68</sup> *Id.* at 31.

June 2018 Flowgate Test results as causing the Brookfield Facilities to fail the Flowgate Test.<sup>69</sup>

51. Brookfield asserts that PJM fails to acknowledge that non-market Balancing Authority Areas are obligated to accommodate resources pseudo-tied to PJM up to the resources' firm point-to-point service rights, and that non-market Balancing Authority Areas continue to have this obligation even if flowgates become coordinated in the future, as PJM is expected to have "Firm Flow Entitlements" on future coordinated flowgates (if any) that will allow PJM to flow energy up to the firm point-to-point service rights from pseudo-tied resources without having to manage congestion.<sup>70</sup>

52. PJM generally agrees with the timeline of events provided by Brookfield but offers additional explanations. PJM explains that following issuance of the Pseudo-Tie Enhancement Order, PJM applied the Flowgate Test to the Brookfield Pseudo-Tie and notified Brookfield on March 26, 2018, that due to the Brookfield Pseudo-Tie's failure to pass the Flowgate Test, the Facilities will not be eligible to participate in the capacity market auctions for Delivery Years after the end of the transition period.<sup>71</sup> PJM further explains that on June 18, 2018, it issued a revised Flowgate Test analysis confirming that the Facilities had failed the Flowgate Test and identified a list of numerous flowgates for which it failed the test. PJM states that on March 15, 2018, PJM informed Brookfield that PJM had evaluated a report prepared by Quanta Technology on behalf of Brookfield and that the report was insufficient to satisfy PJM's deliverability requirements.<sup>72</sup>

53. PJM asserts that PJM's Flowgate Test were found to be just and reasonable and not unduly discriminatory or preferential in the Pseudo-Tie Enhancement Order.<sup>73</sup> PJM explains that coordination of flowgates between itself and TVA is governed by a Congestion Management Process (CMP) document contained in the Joint Reliability Coordination Agreement (JRCA) between PJM and TVA. PJM explains Section 6 of the CMP states that reciprocal coordination agreements can be executed on "a market-to-

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<sup>69</sup> Brookfield First Answer at 7 (citing Exhibit A, Reply Affidavit of Johannes Pfeifenberger and Akarsh Sheilendranath) at 9 (Brattle Reply Aff.).

<sup>70</sup> Brookfield First Answer at 11 (citing Brattle Reply Aff at 3-4).

<sup>71</sup> PJM First Answer at 5.

<sup>72</sup> *Id.* at 6.

<sup>73</sup> *Id.* at 2.

market basis, a market-to-non-market basis, and a non-market-to-non-market basis.”<sup>74</sup> According to PJM, the CMP further states that the agreement to allocate flowgate capability is not dependent on any entity operating a centralized energy market and only requires that a set of flowgates be defined upon which coordination shall occur and an agreement to perform such coordination.”<sup>75</sup>

54. PJM characterizes Brookfield’s arguments as requiring PJM to become responsible for coordinating an external flowgate even if PJM has no effective options among its internal resources to manage flows on that flowgate solely because the external Balancing Authority Areas will not impose a market-based congestion charge on PJM for PJM flows on that flowgate.<sup>76</sup> PJM explains that the Flowgate Test reasonably determines whether a pseudo-tie will cause PJM to undertake additional coordination obligations that PJM has limited ability to manage with its other resources.<sup>77</sup>

55. PJM further explains the JRCA establishes processes for identifying coordinated flowgates, defining respective allocations, identifying Balancing Authority Area impacts on those flowgates and requiring actions by parties to alleviate flows on those flowgates. PJM explains that when it agrees to a pseudo-tie and includes a generation resource in the PJM region, PJM becomes responsible to TVA or Duke for flow impacts on flowgates in those Balancing Authority Areas resulting from that generator. In such a case, if PJM has no generation with more than a 1.5 percent (non-trivial) impact on that flowgate, then PJM will take on a new coordination obligation that PJM has no good options to manage, beyond dispatching the pseudo-tied generator itself. For example, according to PJM, a pseudo-tie PJM accepts under the PJM-Duke JOA and CMP that causes flow impacts in MISO would make PJM responsible for those flows and resulting congestion management changes under the JOA.<sup>78</sup>

56. PJM further responds that Brookfield’s failure of the Flowgate Test demonstrates the risk of pseudo-tied resources, noting that the Facilities interconnect to a discrete

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<sup>74</sup> *Id.* at 10; Joint Responsibility Coordination Agreement Among and Between PJM Interconnection L.L.C., and Tennessee Valley Authority, PJM Interconnection, L.L.C. (Oct. 15, 2014), Article 1 “Congestion Management Process” (CMP).

<sup>75</sup> *Id.* (citing CMP § 6).

<sup>76</sup> *Id.* at 8-9.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.* at 13.

161 kV tie line between Duke and TVA and contingencies, such as equipment out of service, would isolate those units from the Duke system.<sup>79</sup>

57. In response to Brookfield's arguments that Firm Flow Entitlements will enable PJM to accommodate external flows, PJM states that congestion management risks associated with pseudo-ties are not speculative and not mitigated by Firm Flow Entitlements or congestion management provisions of existing coordination agreements with neighboring Balancing Authority Areas.<sup>80</sup>

58. PJM also responds that Firm Flow Entitlements are inapplicable to non-market flowgates and provide no guarantee of mitigating congestion.<sup>81</sup> This is because in establishing firm and non-firm market flows for use in the transmission loading relief (TLR)<sup>82</sup> process, the CMP does not provide any guarantee of flow or mitigation of coordinating responsibilities (including redispatch) during congestion.<sup>83</sup> According to PJM, on both existing and future flowgates, flows determined to be non-firm and firm alike are subject to curtailment should the TLR process call for it in real-time.<sup>84</sup>

59. PJM further states that Firm Flow Entitlements are utilized in after-the-fact settlements when managing congestion via market-to-market redispatch, and are only applicable on flowgates owned and reciprocally coordinated by PJM and MISO.<sup>85</sup>

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<sup>79</sup> PJM Second Answer at 9-10. PJM provides the following example: if the 161 kV tie line between Duke and TVA were to relay out of service, the Calderwood and Cheoah units would be isolated from the Duke system, requiring the Pseudo-Tie to be taken to zero. PJM also points a December 2018 event, when a line breaker at Cheoah tripped, causing both the Calderwood and Cheoah units to be cut-off from the Duke tie. "The breaker remained open for more than two weeks, resulting in Brookfield having to reduce both Pseudo-Ties to zero and leaving PJM without the committed capacity." *Id.*

<sup>80</sup> *Id.* at 6-7.

<sup>81</sup> *Id.* at 7.

<sup>82</sup> NERC's TLR procedure is defined as "an Eastern Interconnection-wide process that allows Reliability Coordinators to mitigate potential or actual operating security limit violations while respecting transmission service reservation priorities," <https://www.nerc.com/pa/rrm/TLR/Pages/default.aspx>.

<sup>83</sup> PJM Second Answer at 7.

<sup>84</sup> *Id.*

<sup>85</sup> *Id.* at 8.

Should congestion occur, according to PJM, there is no guarantee of flow or avoidance of redispatch should either mechanism (market-to-market redispatch or TLR) call for it.<sup>86</sup> With regard to the PJM deliverability requirements, PJM reiterates its previous argument that it applies to pseudo-tied external generators the same assurance of continued deliverability (notwithstanding changes to the transmission system) that it applies inside the PJM Region.<sup>87</sup>

60. Brookfield takes issue with PJM's characterization of a congestion management gap created by external pseudo-tied resources because such resources are not required to be tagged under the North American Electric Reliability Corporation (NERC) interchange tagging process. Brookfield points out that PJM insisted that pseudo-tied resources not be tagged when proposing the pseudo-tie requirements in the Pseudo-Tie Enhancements Proceeding and in fact stated that such a requirement does not burden external resources because when requested, Balancing Authority Areas must confirm that non-tagged transactions are subject to a congestion management program and registered in the NERC registry.<sup>88</sup>

**b. Other Answers and Comments**

61. Cube Yadkin echoes Brookfield's assertion that the Flowgate Test is inapplicable to resources located in non-market Balancing Areas that do not have organized markets because there are no market-to-market flowgates between PJM and non-market Balancing Authority Areas.<sup>89</sup> Cube Yadkin asserts that there is no risk of increased congestion costs as a result of coordinated flowgates for PJM customers, because neighboring non-market Balancing Authority Areas manage congestion with PJM according to procedures set forth in those Balancing Authority Areas' JOAs.<sup>90</sup>

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<sup>86</sup> *Id.*

<sup>87</sup> *Id.* at 12 (citing Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 115 (stating that PJM is simply seeking to “apply comparable transmission standards to all resources, whether they are internal to PJM or located external in another [Balancing Authority Area].”)).

<sup>88</sup> Brookfield First Answer at 18 (citing Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 97).

<sup>89</sup> Cube Yadkin Comments at 10.

<sup>90</sup> *Id.* (citing Response of PJM Interconnection, L.L.C. to Paper Hearing Order, Docket No. EL18-145-000, Affidavit of Timothy Horger, at 21 (filed Nov. 5, 2018)).

62. Tilton adds that Brookfield's location in a non-market Balancing Authority Area is unique only in how the pseudo-tie criteria impact Brookfield's affiliated resources and the Commission should not limit relief on that basis.<sup>91</sup> Rather, Tilton argues the economic harm suffered by Brookfield is merely symptomatic of the fact that PJM's pseudo-tie criteria are unjust and unreasonable and unduly discriminatory as applied to all external resources regardless of their location.<sup>92</sup>

**c. Commission Determination**

63. We find that Brookfield has not demonstrated that PJM's Flowgate Test is unjust and unreasonable or that it should not apply to resources located in non-market Balancing Authority Areas. This test, as with PJM's deliverability requirements, helps to ensure that external resource qualifying as capacity resources in PJM will be available and dispatchable when PJM needs power from these resources on terms generally equivalent to the service provided by internal resources. We disagree with Brookfield's argument that the Flowgate Test pertains only to pseudo-ties with market Balancing Authorities and not to non-market Balancing Authorities. Under the tariff, this test can be performed for a flowgate on any system regardless of whether the system operates as an RTO or ISO or as a non-market Balancing Authority. The test as set forth in the Tariff requires only that at least one generation resource that has a historic economic minimum offer lower than its historic economic maximum offer, located inside the metered boundaries of the PJM Region, has a minimum flow distribution impact of 1.5 percent on each eligible coordinated flowgate resulting from such Pseudo-Tie.<sup>93</sup> The test as set forth in the Tariff makes no reference to how the external system operates.

64. Moreover, non-market Balancing Authorities often have the same types of reciprocal agreements as do market Balancing Authorities. The PJM-TVA JRCA and CMP include reciprocal coordination agreements that can be executed on a market-to-market basis, a market-to-non-market basis, and a non-market-to-non-market basis, and in fact establish processes for identifying coordinated flowgates, defining respective allocations, identifying Balancing Authority Area impacts on those flowgates and requiring actions by parties to alleviate flows on those flowgates.<sup>94</sup> Similarly, the PJM-Duke JOA contains provisions requiring the equitable and economical management of

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<sup>91</sup> Tilton Comment at 4.

<sup>92</sup> *Id.*

<sup>93</sup> PJM, Intra-PJM Tariffs, OATT, Attachment DD, § 5.5A(b)(i)(B) (2.0.2).

<sup>94</sup> PJM-TVA JRCA, CMP, § 6.

congestion on flowgates between the two regions.<sup>95</sup> While there may be no market-to-market settlements under these arrangements, these provisions do not eliminate the potential that PJM will have to manage significant congestion costs if PJM must redispatch significant amounts of internal generation in order to relieve flows on a non-market flowgate on which no internal generator has a flow distribution impact of 1.5 percent or greater. For this reason, PJM reasonably applies the Flowgate Test in those regions.

65. Brookfield argues that the Facilities failed the Flowgate Test because they naturally have a greater flow impact on the external transmission elements close to them, making it almost impossible for any external resource not immediately adjacent to the PJM border to be able to pass the Flowgate Test.<sup>96</sup> We are not persuaded by Brookfield's arguments on this point. PJM states that the Flowgate Test is applied equally to all external resources that seek to pseudo-tie into PJM.<sup>97</sup> We recognize that there is a relationship between the location of the resource and the impact on the flowgate, but this is largely associated with the topology of the transmission system and is not a flaw in the test. The test is, and continues to be, a means of minimizing congestion costs associated with the proposed pseudo-tie.

66. In this instance, we continue to find that PJM's Flowgate Test requirements are appropriately designed to mitigate its risk of undue congestion costs by ensuring that PJM can dispatch an internal generator to alleviate congestion caused by the pseudo-tied resource.<sup>98</sup> Further, the results posted by PJM indicate that a significant number of other external resources did successfully pass the Flowgate Test, which undermines Brookfield's contention that external resources not located immediately adjacent to the PJM border will automatically fail the Flowgate Test.<sup>99</sup> We continue to agree with PJM that the Flowgate Test affords PJM a reasonable means to guard against taking on additional congestion management costs that can result from acquiring a pseudo-tie

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<sup>95</sup> PJM – TVA JOA, PROGRESS-JOA JOINT OPERATING AGREEMENT AMONG AND BETWEEN PJM (0.0.0).

<sup>96</sup> Brookfield Complaint at 32.

<sup>97</sup> PJM Paper Hearing Answer at 14.

<sup>98</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 76.

<sup>99</sup> Brookfield First Answer, Ex. RA-1 (PJM Pseudo-Tie Flowgate Qualification Preliminary Results).



obligation without a corresponding internal generation resource with at least a 1.5 percent impact on that flowgate that could alleviate the congestion.<sup>100</sup>

67. The Commission previously found that the Flowgate Test provides PJM options to relieve or mitigate congestion “beyond the sole recourse of redispatching a pseudo-tied resource, where the alternative is discontinuation of a coordinated flowgate”<sup>101</sup> Nothing in the record undermines this finding. The Flowgate Test continues to be an important mechanism to ensure that PJM transmission customers are not subjected to unnecessary congestion costs as a result of a proposed pseudo-tie.

68. In response to Brookfield’s argument that Firm Flow Entitlements will enable PJM to accommodate external flows, we agree with PJM that Firm Flow Entitlements provide no guarantee of mitigating congestion even when a CMP is in place. As PJM explains, the CMP does not provide any guarantee of flow or mitigation of coordinating responsibilities (including redispatch) during congestion. Further, while Brookfield maintains that it has firm point-to-point service (in accordance with the rules of the Native Balancing Authority), that does not negate the risk that PJM will assume by taking on a new flowgate coordination obligation that it cannot effectively manage. We note that when PJM accepts a pseudo-tie, it becomes responsible for the flow impacts resulting from that pseudo-tie to the coordinating Balancing Authority. As the Commission previously has explained, because PJM’s current congestion management processes with other external entities treat an external resource’s energy delivery as non-firm transmission service, such processes do not guarantee that Firm Flow Entitlements can be modeled in the PJM market.<sup>102</sup>

**3. Whether PJM Acted Consistently With Its Tariff In Applying The Flowgate Test**

**a. Complaint, PJM and Brookfield Answers**

69. Brookfield contends that PJM’s implementation and application of the Flowgate Test analyzes transmission elements that will never become coordinated in the future,

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<sup>100</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 76.

<sup>101</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 76. *See also* Pseudo-Tie Enhancement Filing, Docket No. ER17-1138-000, at 15 (filed Mar 9, 2017) (“If PJM’s only option was to reduce the Pseudo-Tie flow, that simply may not be enough dispatch control to protect PJM loads from the cost of congestion on that flowgate”).

<sup>102</sup> Pseudo-Tie Rehearing Order, 170 FERC ¶ 61,217 at P 32.

contrary to the express language of the PJM Tariff.<sup>103</sup> Brookfield states that PJM's Tariff provides that the Flowgate Test applies to "each eligible coordinated flowgate resulting from the Pseudo-Tie" being analyzed.<sup>104</sup>

70. According to Brookfield, PJM studied the Facilities' pseudo-tie in September 2017, and indicated that the Facilities preliminarily passed the Flowgate Test.<sup>105</sup> Brookfield explains that PJM indicated in subsequent communications in November and December 2017 that the Facilities had preliminarily passed the Flowgate Test and did not expect the results to change.<sup>106</sup> Brookfield explains that in March 2018, PJM informed Brookfield that it had identified 38 flowgates for which the Facilities had failed the Flowgate Test, including several flowgates as distant as Louisiana and Oklahoma.<sup>107</sup> Brookfield states that, after consulting with PJM with respect to the March 2018 Flowgate Test results, PJM reassessed the Flowgate Test again in June 2018 and informed Brookfield that the Facilities had failed the Flowgate Test for a completely new distinct set of 19 transmission facilities, all located in non-market Balancing Authority Areas.<sup>108</sup> According to Brookfield, PJM clarified that none of those 19 transmission facilities is a coordinated flowgate.

71. Brookfield also notes that the Tilton Complaint Proceeding focuses on whether the Flowgate Test and PJM's implementation and application of that test are consistent with the requirements of PJM's Tariff. Brookfield maintains that PJM's implementation and application of the Flowgate Test are contrary to the plain meaning of the language in the PJM Tariff and Manual 12, and incorporates Tilton's arguments from that proceeding by reference.<sup>109</sup>

72. Brookfield states that PJM acted inconsistent with its Tariff in determining that the Facilities will no longer be eligible to participate in PJM's capacity auction starting with

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<sup>103</sup> Complaint at 5-6.

<sup>104</sup> *Id.* at 13.

<sup>105</sup> *Id.* (citing Mitreski Aff. at 8:1-3).

<sup>106</sup> *Id.* Brookfield also represents that PJM stated that the Flowgate Test is a one-time eligibility test that would not be applied again to external resources after they pass.

<sup>107</sup> Complaint at 14.

<sup>108</sup> *Id.*

<sup>109</sup> *Id.* at 26-27.

the 2022/2023 Delivery Year because they failed the Flowgate Test for a number of flowgates, including Flowgate No. 93209.<sup>110</sup>

73. Brookfield asserts that the different results obtained in previous studies involving the Facilities' pseudo-ties demonstrates that PJM continues to conduct the Flowgate Test inconsistently.<sup>111</sup> Brookfield explains that after PJM posted the results of the 2018 Flowgate Test, which identified 203 generators that preliminarily passed the test, several of those passing resources appeared to have flow impacts of greater than 5 percent on at least one of the flowgates that PJM reported as causing Brookfield to fail the test.<sup>112</sup> Brookfield asserts that it is not possible that PJM is applying the test consistently if similarly-situated external resources obtain different test results.<sup>113</sup>

74. In particular, Brookfield states that seven nearby generators linked to generator buses identified by PJM passed the Flowgate Test with respect to Flowgate No. 93209, yet the Facilities failed the Flowgate Test for this same flowgate per PJM's June 2018 results.<sup>114</sup> Brookfield also states that Messrs. Sheilendranath and Pfeiffenberger independently confirmed with PJM on June 21, 2018 that none of the 19 transmission elements for which Brookfield failed the Flowgate Test are coordinated flowgates.<sup>115</sup>

75. Brookfield explains that its consultant, Quanta Technologies, found at least seven external generation resources close to the Facilities that had a 5 percent or greater flow impact on Flowgate No. 93209, but were reported by PJM in the 2019 Flowgate Test Results as passing the Flowgate Test. Thus, Brookfield argues that it has demonstrated that PJM is either inconsistently administering the Flowgate Test or the Flowgate Test produces inconsistent and contradictory results.<sup>116</sup>

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<sup>110</sup> Brookfield Second Answer at 5-6.

<sup>111</sup> Brookfield First Answer at 6.

<sup>112</sup> *Id.* at 7-8.

<sup>113</sup> *Id.* at 8.

<sup>114</sup> Brookfield First Answer, Reply Aff. at 9-10.

<sup>115</sup> *Id.* at 18 (citing Mitreski Aff. at 10:12-14).

<sup>116</sup> Brookfield Second Answer at 5. Brookfield requests that the Commission establish Paper Hearing Procedures to ask PJM to explain, consistent with PJM's explanation of the steps involved in the Flowgate Test, why the Brookfield Pseudo-Tie failed Flowgate No. 93209 while other similarly-situated pseudo-ties passed.

76. Brookfield further responds that the Facilities' failure of the Flowgate Test necessarily means that the Facilities' pseudo-tie had at least a five percent impact on Flowgate No. 93209, and there are no dispatchable generation resources internal to PJM that have a 1.5 percent or greater flow distribution impact on Flowgate No. 93209.<sup>117</sup> According to Brookfield, this also means that any other external generation resource having a five percent or greater flow impact on Flowgate No. 93209 cannot possibly pass the Flowgate Test, since there are no flexible generation resources internal to PJM with the necessary 1.5 percent impact on that flowgate.<sup>118</sup>

77. Brookfield argues that rather than refuting the analysis and conclusions of Messrs. Pfeifenberger and Sheilendranath regarding Flowgate No. 93209,<sup>119</sup> PJM instead attempts to explain the discrepancy by stating that "voltage" is a factor evaluated in determining whether a pseudo-tie satisfies the Flowgate Test.<sup>120</sup> Brookfield explains that the voltage of the transmission line on which an external generation resource is interconnected is irrelevant to the calculation of the flow impact of an internal PJM generation resource on a particular flowgate.<sup>121</sup> Messrs. Pfeifenberger and Sheilendranath explain that the flow impact of an internal PJM generation resource on any particular flowgate remains constant and does not depend on the location of external generation resources or the voltage rating of external transmission for which the Flowgate Test is performed.<sup>122</sup> Brookfield states this is true because the transmission topology and the flow impact of that dispatchable internal resource on that flowgate is unique to that internal generator.<sup>123</sup>

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<sup>117</sup> Brookfield Second Answer at 2-3.

<sup>118</sup> *Id.* at 4-5.

<sup>119</sup> Brookfield First Answer, Reply Aff. at 9 ("For any one of these those 16 generating units to have passed the Flowgate Test, there would have had to be at least one PJM-internal generation resource with a 1.5 percent or greater flow impact on Flowgate No. 93209. But if such a PJM-internal generation resource existed, the BSM Pseudo-Tie should have passed the test for that flowgate as well." (referring to PJM Second Answer at 4)).

<sup>120</sup> Brookfield Second Answer at 4.

<sup>121</sup> Brookfield Third Answer, Exhibit A (Supplemental Affidavit of Pfeifenberger and Sheilendranath) at 3-4 (Supp. Aff.).

<sup>122</sup> *Id.* at 4-6.

<sup>123</sup> *Id.*

78. PJM states that it informed Brookfield at the time that it provided its preliminary results indicating that the Facilities' passed the Flowgate Test that the results were preliminary and subject to change.<sup>124</sup> PJM states that it applied the Flowgate Test after issuance of the Pseudo-Tie Enhancements Order and informed Brookfield in March 2018 that it had failed the Flowgate Test.<sup>125</sup> PJM states that after the Commission accepted the Flowgate Test in November 2017, PJM coordinated with all neighboring Balancing Authority Areas to ensure it had a more complete list of flowgates than it used in PJM's preliminary analysis in September 2017. PJM explains it used this more complete list in determining the Flowgate Test results that it provided to Brookfield on March 26, 2018.

79. PJM states that it explained to Brookfield that numerous flowgates that would become eligible for coordination did not have at least one PJM-internal generation resource that has a minimum flow distribution impact of 1.5 percent on that flowgate.<sup>126</sup> PJM states that, after providing these results to Brookfield, it made "two changes in the application details of that test which resulted, for the Brookfield Pseudo-Tie, in a lower number of flowgates failing the test, but that did not change the overall result that the Brookfield Pseudo-Tie failed the test."<sup>127</sup> PJM states that it provided Brookfield an updated Flowgate Test result in June 2018 confirming that its pseudo-tie failed the Flowgate Test for 19 flowgates, a reduced number of failures from its March 3028 results due to two modeling assumption changes.<sup>128</sup> PJM states that these two changes were made consistently for all pseudo-ties, not just for Brookfield.<sup>129</sup> PJM asserts that this process of updating modeling assumptions for the Flowgate Test shows PJM's commitment to applying the Flowgate Test correctly and reasonably to all external generators.<sup>130</sup>

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<sup>124</sup> PJM First Answer at 5 and 19.

<sup>125</sup> *Id.* at 5.

<sup>126</sup> *Id.* at 5-6.

<sup>127</sup> *Id.* at 19 (citing Horger Aff. at P 13).

<sup>128</sup> *Id.* at 6 and 19-20.

<sup>129</sup> *Id.* at 20. PJM states two changes were: (1) dropping Study 4 (Control Area to Control Area) prescribed by the CMP for identification of flowgates because Study 4 was inapplicable for the purposes of the Flowgate Test; and (2) correcting a detail in PJM's identification of relevant PJM internal resources with a historic economic minimum offer lower than its economic maximum offer. PJM Answer at 20 (citing Horger Aff. at P 14).

<sup>130</sup> *Id.* at 21.

80. PJM also explains that it identifies flowgates that have sufficient flows from the pseudo-tie to become coordinated flowgates under PJM's JOAs/JRCAs and the CMP, and that the other party to the relevant agreement has the right to add that flowgate to the list of coordinated flowgates.<sup>131</sup> Addressing Brookfield's incorporation of related arguments raised in the Tilton Complaint proceeding, PJM states that it similarly incorporates its responses there by reference in which it states it has demonstrated that its implementation of the Flowgate Test is consistent with the terms of its Tariff, Attachment DD, Section 5.5.(i)(b)(ii).<sup>132</sup>

81. PJM asserts that the failure of a single flowgate results in failure of the Flowgate Test and the Facilities failed numerous flowgates and therefore do not qualify as pseudo-ties under PJM's Tariff.<sup>133</sup>

82. While PJM initially indicated that voltage played a factor in the Facilities' failure of the Flowgate Test (stating the Brookfield Pseudo-Tie is interconnected to a discrete 161 kV transmission system with limited, lower voltage access to PJM and that one of the factors evaluated in determining eligibility under the Flowgate Test is voltage),<sup>134</sup> PJM ultimately agreed with Brookfield that for a single flowgate, the impacts of an existing internal PJM resource on that single flowgate "are indeed the same" regardless of the location of the requested pseudo-tie resource.<sup>135</sup>

83. PJM argues that, nonetheless, "the set of eligible flowgates" determined as a result of any given external pseudo-tie resource will be different.<sup>136</sup> Therefore, each requested pseudo-tie will have a different set of eligible flowgates that is used as part of the

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<sup>131</sup> *Id.* at 22 (citing Horger Aff. at P 17).

<sup>132</sup> *Id.* at 28 n.93.

<sup>133</sup> *Id.* at 18.

<sup>134</sup> PJM Second Answer at 4. PJM had also incorrectly stated that system topology and facility voltage still matter, and can, and will, result in different impacts of a flowgate from different dispatch scenarios of different generators. PJM Third Answer at 5. PJM went even farther arguing that it is expected that "a PJM-internal generator located on the extension of a 500 kV transmission line into the PJM region would be more capable of pushing back on flows from other generators on that 500 kV system than it would as to flow from the 161 kV lines interconnected to that transformer." *Id.* at 5-6.

<sup>135</sup> PJM Fourth Answer at 3-4.

<sup>136</sup> *Id.* at 4.

Flowgate Test and each one of these eligible flowgates will have different impacts from existing internal PJM resources.<sup>137</sup>

84. PJM also explains that different external generators can affect the eligible set of flowgates used in the Flowgate Test because of system topology differences. PJM asserts that this explains the differences in results for the Facilities and other generators located in the same Balancing Authority Area.<sup>138</sup> PJM asserts that one of the topology differences that result in different results is the lower voltage of the lines to which the Brookfield generators are interconnected, compared to the higher voltage lines to which generators passing the test are connected.<sup>139</sup>

85. In response to the Paper Hearing Order,<sup>140</sup> PJM further explained that every generator at issue except one, and including Brookfield's resources, had at least one unit with a Generation to Load Distribution Factor (GLDF) value of 5 percent or greater with respect to Flowgate No. 93209.<sup>141</sup>

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<sup>137</sup> *Id.*

<sup>138</sup> PJM Fourth Answer at 3.

<sup>139</sup> *Id.*

<sup>140</sup> As to the Flowgate Test, the Commission stated that PJM had not sufficiently explained why the Facilities failed the Flowgate Test while other external generators affecting the same flowgate (Flowgate No. 93209) had not, even though the Flowgate Test depends not on the location of the generator, but on whether a generator located inside the metered boundaries of the PJM Region has a minimum flow distribution impact of 1.5 percent on each eligible coordinated flowgate resulting from such pseudo-tie. This concern was driven by seemingly competing statements in PJM's Third Answer and Fourth Answer indicating first, that voltage affected the ability of an internal generator to "push back" and second, that the impacts of the internal PJM generator would be the same regardless of the location of the pseudo-tie applicant resources. See PJM Third Answer at 5-6; PJM Fourth Answer at 3-4. The Commission also stated that the record in this proceeding is unclear as to whether the Flowgate Test was applied correctly to the Facilities with respect to Flowgate No. 93209. Paper Hearing Order, 168 FERC ¶ 61,112 at P 31.

<sup>141</sup> PJM Paper Hearing Response 12. PJM notes that it uses the Interchange Distribution Calculator (IDC) model to calculate GLDF values, and the only assumptions PJM added to the IDC model was that the source was each unit's generator bus and the sink was AEP. According to PJM Mr. Horger, IDC is an operational planning model that contains the most up-to-date set of topology; is used by PJM to facilitate many functions; and is repeatedly referenced in the Joint Operating Agreement (JOA) between MISO and

86. PJM explains that there is one existing internal PJM generator with at least a 1.5 percent GLDF on Flowgate No. 93209 and the reason for this is that PJM changed its assumption regarding how the sink is defined in the GLDF calculation after June 2018.<sup>142</sup> Under PJM's pre-June 2018 approach, the PJM internal generator was the source and the historic PJM control area in which the generator is located was the sink. Post-June 2018, PJM explains that it used the entire PJM region as the sink. Mr. Horger explains that "assuming the entire PJM RTO is the sink correctly reflects that PJM will dispatch an internal generator to serve PJM load, and not just historic control area load."<sup>143</sup>

87. Thus, according to PJM, while Brookfield's Facilities would have passed the Flowgate Test with respect to Flowgate No. 93209 under PJM's current modeling assumptions, it would have still failed the Flowgate Test as to twenty-three other flowgates, thus, Brookfield would still fail the Flowgate Test.<sup>144</sup>

88. Brookfield argues that PJM's responses to the Paper Hearing Order demonstrate a discrepancy in PJM's application of the Flowgate Test with respect to Flowgate No. 93209 and that PJM's repeated technical arguments about the importance of the interconnection voltages of external generation resources with respect to Flowgate No. 93209 were erroneous.<sup>145</sup> Brookfield argues that given the way the Flowgate Test is structured, it is not unreasonable to think that not all generation resources internal to PJM can satisfy the PJM pseudo-tie requirements. Therefore, Brookfield states that the Commission should require PJM to confirm or deny that all internal generation resources can satisfy each element of the pseudo-tie requirements as exactly applied to external generation resources.<sup>146</sup>

89. PJM replies to Brookfield's criticism of PJM's oft-changing approach to the Flowgate Test by arguing that its uniformly applied changes to the modeling assumption is not a discrepancy and that Brookfield would have failed the test regardless. PJM

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PJM. PJM Response, Attachment 2 (Second Affidavit of Timothy Horger at P 6 (Horger Second Aff.))

<sup>142</sup> PJM Paper Hearing Response at 13-14.

<sup>143</sup> Horger Second Aff. at P 10.

<sup>144</sup> PJM Paper Hearing Response at 13.

<sup>145</sup> Brookfield Paper Hearing Reply at 14-15.

<sup>146</sup> *Id.* at 18.



asserts that the changes it has made to the Flowgate Test ensure non-discriminatory treatment of internal and external resources.<sup>147</sup>

90. Brookfield maintains that PJM has never fully explained, and neither the Commission nor stakeholders could have understood the specific aspects of the new requirements or how PJM would implement and apply them.<sup>148</sup> Brookfield adds that given PJM's admitted changes to the Flowgate Test, PJM itself did not fully understand how it would implement and apply the new pseudo-tie requirements.<sup>149</sup>

**b. Other Answers**

91. PJM IMM states that PJM correctly explains that units similarly situated geographically to PJM cannot be assumed to be similarly situated electrically to PJM. PJM IMM asserts that PJM conducted the Flowgate Test in a just and reasonable manner that was not unduly discriminatory.<sup>150</sup>

**c. Commission Determination**

92. We deny Brookfield's Complaint with respect to its assertions that PJM violated its Tariff in implementing the Flowgate Test for the Facilities. We find that Brookfield has not demonstrated that PJM applied the Flowgate Test in a manner inconsistent with its Tariff and further find that PJM made reasonable engineering judgements when determining the criteria for evaluating the Facilities. Our conclusion here is consistent with our finding in *Tilton Energy* that PJM's interpretation of "eligible coordinated flowgate" is reasonable and its conduct of the Flowgate Test as to Brookfield's Facilities using this interpretation does not conflict with its Tariff.<sup>151</sup>

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<sup>147</sup> These changes have included: (1) dropping a sensitivity study from application of the Flowgate Test; (2) changing the list of internal resources assessed in the Flowgate Test to align with the Tariff requirement to consider internal resources with "a historic economic minimum offer lower than its historic economic maximum offer"; and (3) changing how a sink is defined in the GLDF for internal resources. PJM Paper Hearing Answer at 15-16.

<sup>148</sup> Brookfield Second Paper Hearing Reply at 3.

<sup>149</sup> *Id.*

<sup>150</sup> PJM IMM Answer at 2.

<sup>151</sup> *Tilton Energy v. PJM Interconnection, L.L.C.*, 171 FERC ¶ 61,150, at PP 45-46 (2020). ("The crux of Tilton's and PJM's disagreement centers on the meaning of the phrase 'eligible coordinated flowgate.' Tilton and Brookfield maintain that the word

93. PJM’s Tariff provides the basic parameters it must apply in determining whether an external generator seeking to pseudo-tie to PJM must satisfy to pass the Flowgate Test. Namely, there must be at least “one generation resource that has a historic economic minimum offer lower than its historic economic maximum offer, located inside the metered boundaries of the PJM Region, has a minimum flow distribution impact of 1.5 percent on each eligible coordinated flowgate resulting from such Pseudo-Tie.”<sup>152</sup> Brookfield argues that PJM’s varying Flowgate Test results for the Facilities’ pseudo-tie indicate a discrepancy or inconsistency in how it conducts the Flowgate Test. We disagree. As PJM explains, PJM updated the Flowgate Test assumptions for all tested resources to improve the accuracy of the test results. We believe these changes do not conflict with PJM’s Tariff and that it was appropriate for PJM to refine its assumptions to better reflect operational realities.

#### **4. Notice and Transparency to Pseudo-Tie Applicants**

##### **a. Complaint and Responsive Pleadings**

94. Brookfield refers to PJM’s pseudo-tie tests as “opaque” and states that “a reasonable person could not determine what the rule in question and the Commission’s order regarding it actually meant.”<sup>153</sup>

95. Brookfield takes issue with PJM’s change to modeling assumptions utilized in the M2M Flowgate Test, noting that such a change is a change in how this Test is conducted and certainly can result in very different outcomes.”<sup>154</sup> Brookfield argues that the Commission should not permit PJM to “adopt and continuously modify critical terms,

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‘eligible’ modifies the term ‘coordinated flowgate,’ and therefore a flowgate must already be coordinated in order for the Flowgate Test to apply. In contrast, PJM asserts that the phrase ‘eligible coordinated flowgate’ refers to a flowgate that would become eligible for coordination as a result of the pseudo-tie.... We find PJM provides the better interpretation.”).

<sup>152</sup> Pseudo-Tie Enhancement Order, 161 FERC ¶ 61,197 at P 79 (directing PJM to revise PJM, Intra-PJM Tariffs, OATT, Attachment DD, § 5.5A(b)(i)(B), setting forth the Flowgate Test, to include the 1.5 percent impact level, as quoted above); *see also* PJM, Compliance Filing, Docket No. ER17-1138-002 (filed Dec. 15, 2017).

<sup>153</sup> Complaint at 26, 37.

<sup>154</sup> *Id.* at 7.

assumptions and standards” governing the application of the pseudo-tie requirements without public disclosure and stakeholder and Commission review and approval.<sup>155</sup>

**b. Commission Determination**

96. We find the Complaint raises a concern regarding the lack of a sufficient level of notice and transparency with respect to the Flowgate Test. We find PJM’s tariff is unjust and unreasonable in not providing an open and transparent process for pseudo-tie applicants to determine the reasons why PJM has determined their resource fails the Flowgate Test.<sup>156</sup>

97. The Commission has recognized that the complexity of electrical system modeling means that RTO customers themselves cannot run tests, like the ones at issue here, to validate an RTO’s conclusions; for this reason, the Commission relies on notice and transparency to ensure RTO customers understand the application of tariff provisions to their projects.<sup>157</sup> In this case, PJM’s changing of modeling assumptions and its associated flowgate impact highlights the need to require PJM to provide for enhanced transparency in its Tariff.

98. While we agree that the RTO should be able to change assumptions to better reflect operational realities, such changes must be transparent and afford interested parties the opportunity to question and challenge the changes. PJM admits in its response to Question 5 that it provided an explanation as to why Brookfield failed the Flowgate Test that is “incorrect and was made in error.”<sup>158</sup> Greater transparency in PJM’s Tariff would allow a pseudo-tie applicant to identify, and PJM to address, such errors. Without greater transparency and the opportunity to question and challenge modeling changes, the Commission may continue to see complaints like those cited by Brookfield.

99. The Commission instituted a paper hearing in part to better understand why Brookfield’s resources purportedly failed the Flowgate Test with respect to Flowgate No. 93209 when other seemingly similarly-situated resources passed. PJM responded by

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<sup>155</sup> *Id.* at 7-8.

<sup>156</sup> See *Transource, LLC*, 168 FERC ¶ 61,119, at PP 82-85 (2019) (finding PJM’s tariff unjust and unreasonable for not providing sufficient transparency).

<sup>157</sup> *Id.* PP 78-85 (2019) (requiring PJM to include information in its tariff to ensure its interconnection process is transparent); *PJM Interconnection, L.L.C.*, 165 FERC ¶ 61,078, at P 23 (2018) (finding the “complexity” of the calculations does not preclude PJM from relying on its tariff methodology as long as it provides sufficient transparency).

<sup>158</sup> PJM Paper Hearing Response at 15.

noting that Brookfield's resources passed Flowgate No. 93209, as discussed above, due to a change in PJM's assumption regarding the "sink." Even though PJM asserts that Brookfield failed the other 23 flowgates after it changed the sink assumption in its IDC model, this changed result demonstrates that such modeling assumption changes can be material and could impact the ability of an external generator to participate in PJM's capacity market.

100. To remedy the unjustness and unreasonableness of the Tariff, we require PJM to include in the Flowgate section of its tariff, PJM Tariff Attachment DD, § 5.5A(b)(i)(B), provisions similar to those we require for the Electrical Distance requirement in a contemporaneous order.<sup>159</sup> Specifically, PJM must amend its tariff to require that:

- (1) PJM will provide a copy of the results of the Market-to-Market Flowgate Test to the pseudo-tie applicant as well as related work papers, if requested;
- (2) PJM post on its website the material assumptions that are used in its modeling software in the conduct of the Market-to-Market Flowgate Test and that are applicable to all tested generators, e.g., (A) the definitions of the sink and source used in the Market-to-Market Flowgate Test and (B) the definition of eligible coordinated flowgates as applicable to the Market-to-Market Flowgate Test.
- (3) Upon request, PJM meet with each pseudo-tie applicant to discuss specific modeling assumptions and the results of the Market-to-Market Flowgate Test of the individual pseudo-tie applicant.

## 5. Other Matters

### a. Brookfield Motion for Extension of the Transition Period

101. On June 28, 2019, Brookfield filed a motion requesting that the Commission issue an order granting the Complaint by no later than August 1, 2019, or, in the alternative, that the Commission grant the Complaint to the extent necessary to provide as interim relief a remedy extending by one year the current five-year transition period for external resources with existing pseudo-ties that wish to remain pseudo-tied so that these resources can participate in the upcoming 2019 PJM capacity market auction.<sup>160</sup> Brookfield explains that if the Commission grants the Complaint at a later date finding that PJM's new pseudo-tie requirements are unjust, unreasonable, and unduly

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<sup>159</sup> *Cube Yadkin Generation, L.L.C. v. PJM Interconnection, L.L.C.*, 171 FERC ¶ 61,152 (2020).

<sup>160</sup> Brookfield Motion for Prompt Commission Action at 2-3.

discriminatory and preferential, the existing Brookfield pseudo-tied resources and other similarly situated resources will have been irreparably harmed by their inability to participate in the PJM capacity auction for the 2022/2023 Delivery Year.

102. On July 8, 2019, PJM filed an answer opposing Brookfield's request for interim relief on the grounds that the five-year transition period is embedded in PJM's Tariff and would require a showing under section 206 of the FPA that the current five-year transition period is unjust and unreasonable.<sup>161</sup>

103. We deny Brookfield's motion for an extension of the transition period. As discussed above, we deny the Complaint as Brookfield has not demonstrated that the pseudo-tie rules are unjust and unreasonable, unduly discriminatory or preferential. External resources cannot provide capacity to load in PJM until they comply with PJM's pseudo-tie rules.

**b. Economic and Reliability Harm**

104. Brookfield asserts that PJM's pseudo-tie rules will decrease reliability and increase costs, i.e., by potentially eliminating thousands of megawatts (MW) that cleared in prior auctions, and PJM will have to rely on less geographically diverse resources to supply capacity, necessarily decreasing reliability. Moreover, Brookfield argues that by removing those MWs from the supply stack, clearing prices in the capacity auction will rise.<sup>162</sup>

105. We find that Brookfield's concerns, that PJM's pseudo-tie rules will decrease reliability and increase costs, are not persuasive or supported by the record. Brookfield argues that removing those cleared MWs from the supply stack, capacity clearing prices will undoubtedly rise. We addressed similar issues in the order on complaint by Potomac Economics and found that potential price impacts do not render PJM's pseudo-tie requirements unjust or unreasonable, because these data do not refute PJM's showing that the pseudo-tie requirement is just and reasonable as it helps ensure that external resources are as reliable as internal resources when PJM needs to call upon them.<sup>163</sup>

106. We also find that Brookfield's concern about a decrease in reliability due to a less geographically diverse set of resources to supply capacity is unsupported and speculative. We find that nothing in the record indicates a risk to reliability from PJM administering its pseudo-tie rules.

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<sup>161</sup> PJM Answer to Motion for Prompt Commission Action at 2.

<sup>162</sup> Complaint at 36.

<sup>163</sup> *Potomac Economics*, 171 FERC ¶ 61,039 at P 68.

c. **Participation of Pseudo-Tied Resources in PJM's Capacity Market**

107. The PJM IMM asserts that PJM's filed approach to enabling pseudo-tie participation in PJM's capacity market is too lenient because it allows participation of external resources that are not comparable to internal resources they would displace if cleared.<sup>164</sup> The PJM IMM explains that the Flowgate Test is necessary to ensure PJM has appropriate means to mitigate congestion on native Balancing Authority Areas. The PJM IMM further explains that external capacity resources must be full substitutes for internal capacity resources, but that under PJM's current rule, they are not.

108. The PJM IMM argues without adequate generation to redispatch to alleviate the flow caused by a pseudo-tie, the only controlling action available to PJM would be to redispatch the pseudo-tied resource, which means that the full output of the resource is not operationally available to PJM, and consequently, that the resource is not a full substitute for an internal resource.<sup>165</sup> The PJM IMM argues further PJM would not be able to meet its obligations under the CMP or the NERC TLR process, making such lack of available generation an operational and reliability issue.<sup>166</sup>

109. PJM IMM's arguments about pseudo-tied resources' participation in PJM's capacity market are outside the scope of this complaint proceeding.

The Commission orders:

(A) The Commission hereby denies the Complaint in part and grants the Complaint in part, as discussed in the body of this order.

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<sup>164</sup> PJM IMM Answer at 2. The PJM IMM agrees with PJM that units that are similarly situated geographically may not be similarly situated electrically.

<sup>165</sup> IMM Answer at 4. The IMM concludes if external capacity resources cannot fully substitute for internal capacity resources, they are inferior products and should not be permitted in the PJM capacity market because they will suppress the price for internal resources and produce inefficient market outcomes, contrary to the interests of PJM generation and load. *Id.* at 4-5.

<sup>166</sup> *Id.* at 3.

(B) PJM is directed to make a compliance filing within 45 days of the date of this order, proposing amendments to its Tariff to include greater notice and transparency, as discussed in the body of this order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.