

171 FERC ¶ 61,040  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

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

PJM Interconnection, L.L.C.

Docket No. ER19-105-004

ORDER DENYING REHEARING

(Issued April 16, 2020)

1. On April 15, 2019, the Commission accepted, pursuant to section 205 of the Federal Power Act (FPA),<sup>1</sup> PJM Interconnection, L.L.C.'s (PJM) quadrennial revision of its Variable Resource Requirement (VRR) Curve used in the Reliability Pricing Model (RPM), effective January 17, 2019.<sup>2</sup> PJM Power Providers Group (P3), PSEG<sup>3</sup>, and the Public Interest Entities<sup>4</sup> requested rehearing of the April 2019 Order. For the reasons discussed below, we deny rehearing.

**I. Background**

2. The VRR Curve is an administratively-determined demand curve that is used, in combination with the supply curve formed from capacity supplier sell offers, to clear

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<sup>1</sup> 16 U.S.C. § 824d (2018).

<sup>2</sup> *PJM Interconnection, L.L.C.*, 167 FERC ¶ 61,029 (2019) (April 2019 Order).

<sup>3</sup> PSEG is comprised of Public Service Electric and Gas Company, PSEG Power LLC and PSEG Energy Resources & Trade LLC.

<sup>4</sup> The Public Interest Entities consists of: Sierra Club, the Office of the People's Counsel of the District of Columbia, the Maryland Office of People's Counsel, West Virginia Consumer Advocate Division, and the Delaware Division of the Public Advocate. However, given our determination below to deny West Virginia Consumer Advocate Division's late filed intervention, West Virginia Consumer Advocate Division is not a party to this proceeding.

PJM's capacity auctions, which use the RPM.<sup>5</sup> The PJM Open Access Transmission Tariff (Tariff) requires PJM and its stakeholders to review both the shape of the VRR Curve used to clear capacity auctions and the inputs to that curve every four years (Quadrennial Review).<sup>6</sup> These inputs include the Gross Cost of New Entry (CONE)<sup>7</sup> established by a representative, theoretical new power plant (Reference Resource) and the expected Net Energy and Ancillary Services (EAS) revenues that the Reference Resource would earn in PJM's other markets. Net CONE is determined by subtracting the EAS revenues from Gross CONE.<sup>8</sup>

3. On October 12, 2018, following its Quadrennial Review, PJM proposed revisions to its VRR Curve for implementation in connection with the 2019 BRA for capacity for the 2022/2023 Delivery Year.<sup>9</sup> The revisions were based on the analyses produced by PJM's independent consultant, the Brattle Group (Brattle). As relevant to the rehearing requests, PJM proposed to retain its selection of a combustion turbine (CT), peaking plant as the Reference Resource but proposed a tariff change to use an H-Class turbine in place of an F-Class turbine. PJM then updated the Gross CONE estimate based on that Reference Resource. In addition to updating the Gross CONE values, PJM proposed to shift the VRR Curve to the left by one percent and to include a 10% cost adder in the Net EAS offset calculation.

4. In the April 2019 Order, the Commission found PJM's proposed quadrennial revisions to be a just and reasonable and not unduly discriminatory or preferential modification to PJM's existing VRR Curve.<sup>10</sup> The Commission found that PJM's proposed changes result in a curve that meets PJM's reliability needs at a reasonable total cost to load. The Commission also found that the curve will produce accurate market

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<sup>5</sup> PJM October 12, 2018 Filing at 4. PJM's capacity auctions consist of a base residual auction (BRA), which is held every three years before a delivery year, and three incremental auctions for each individual year. *See* PJM, Intra-PJM Tariffs, OATT, Attachment DD.5.4 Reliability Pricing Model Auctions (5.0.0), § 5.4(a) & (b).

<sup>6</sup> PJM, Intra-PJM Tariffs, OATT, Attach. DD, Auction Clearing Requirements (26.1.0) § 5.10(a)(i)-(iii).

<sup>7</sup> CONE represents the levelized capital costs and fixed operations and maintenance (O&M) expenses of a new plant. *See* PJM October 12, 2018 Filing at 4.

<sup>8</sup> PJM, Intra-PJM Tariffs, OATT, Definitions-L-M-N (22.0.0) (definition of "Net Cost of New Entry").

<sup>9</sup> PJM October 12, 2018 Filing at 2.

<sup>10</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 16.

signals that will encourage capacity investment and achieve an adequate level of reliability. Accordingly, the Commission accepted the proposed revisions to become effective on January 17, 2019.

5. PSEG, P3, and Public Interest Entities filed timely rehearing requests on several issues from the April 2019 Order. We address each issue below and deny rehearing.

## **II. Discussion**

### **A. Procedural Matters**

6. On May 16, 2019, the West Virginia Consumer Advocate Division submitted a motion to intervene out-of-time. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2019), we deny West Virginia Consumer Advocate Division's late intervention. In ruling on a motion to intervene out-of-time, we apply the criteria set forth in Rule 214(d) of the Commission's Rules of Practice and Procedure, and consider, among other things, whether the movant had good cause for failing to file the motion within the time prescribed. When, as here, late intervention is sought after the issuance of a dispositive order, the prejudice to other parties and burden upon the Commission of granting the late intervention may be substantial. Thus, the movant bears a higher burden to demonstrate good cause for granting such late intervention.<sup>11</sup> West Virginia Consumer Advocate Division's motion to intervene out-of-time fails to address the criteria for late interventions in Rule 214(d), or offer an explanation for why the motion could not have been timely filed. Accordingly, we find that West Virginia Consumer Advocate Division has failed to demonstrate the requisite good cause, and we deny the motion to intervene out-of-time.

### **B. Reference Resource**

#### **1. Rehearing Requests**

7. Public Interest Entities argue that PJM did not satisfy its burden under FPA section 205 to demonstrate that a CT plant was the appropriate Reference Resource.<sup>12</sup> In the view of Public Interest Entities, PJM should instead have used a combined cycle (CC) as the Reference Resource. Public Interest Entities contend that the Commission was overly deferential to PJM's proposal and erroneously shifted the burden to intervenors,

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<sup>11</sup> See, e.g., *PJM Interconnection, L.L.C.*, 167 FERC ¶ 61,209 at P 24 (2019); *PaTu Wind Farm LLC v. Portland Gen. Elec. Co.*, 151 FERC ¶ 61,223, at P 39 (2015); *Columbia Gas Transmission Corp.*, 113 FERC ¶ 61,066, at P 5 (2005).

<sup>12</sup> Public Interest Entities Rehearing Request at 9.

including the Public Interest Entities, to overcome a presumption that PJM's continued use of the CT as the Reference Resource was just and reasonable.<sup>13</sup>

8. Public Interest Entities assert that the Commission has established a framework for determining the appropriate Reference Resource according to the following three factors: (1) whether the plant is likely to be developed in the region; (2) whether the cost and revenue estimates for that plant can be developed with confidence; and (3) whether the resulting curve produces prices high enough to meet the reliability standard but not so high as to add unnecessary costs (ISO-NE framework).<sup>14</sup> Public Interest Entities argue that the ISO-NE framework applies to ongoing evaluations of the Reference Resource and that the Commission only partially followed the ISO-NE framework in the April 2019 Order.<sup>15</sup> With respect to the first factor, Public Interest Entities allege that the Commission ignored evidence suggesting that new CT development in PJM is increasingly rare. Noting the Commission's reliance on PJM's statement that two new CT plants have been added since 2014, Public Interest Entities claim that the Commission ignored evidence that a significant portion of infrastructure for these plants was already in place, which would set the cost of the plants well below those of a greenfield facility.<sup>16</sup> Public Interest Entities add that in the same time period that those two CTs were built, nearly 17 times as much capacity from CC plants cleared the auction.<sup>17</sup>

9. With respect to the second factor in the ISO-NE framework, Public Interest Entities argue that the Commission ignored record evidence showing that the EAS revenues for CC plants are less prone to misestimation than those of a CT plant.<sup>18</sup> Public Interest Entities also argue that the Commission's statement that misestimation "could result in the curve failing to meet the required reliability statements"<sup>19</sup> is inconsistent with record evidence showing that a CC-based VRR Curve would exceed the 0.1 loss of

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<sup>13</sup> *Id.* at 10.

<sup>14</sup> *Id.* at 11 (citing *ISO New England, Inc.*, 161 FERC ¶ 61,035 (2017)).

<sup>15</sup> *Id.* at 12.

<sup>16</sup> *Id.* at 13.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at 15-16.

<sup>19</sup> *Id.* at 17 (citing April 2019 Order, 167 FERC ¶ 61,029 at P 61).

load event (LOLE) target by a factor of nearly two, on average, and only falls below the reliability requirement in five percent of all simulated years.<sup>20</sup>

10. With respect to the final factor in the ISO-NE framework, Public Interest Entities argue that the Commission failed to weigh evidence as to whether a CT-based VRR Curve would ensure reliability without unnecessary cost. Public Interest Entities claim that the Commission did not consider the costs to ratepayers associated with the amount and price of capacity that PJM's revised VRR Curve would yield, and likewise did not consider whether those costs justify the achieved level of resource adequacy. Public Interest Entities allege that the Commission ignored evidence from Brattle showing that a CC-based curve would yield "annual average procurement costs that are \$140 million per year lower than with a left-shifted CT-based curve while still exceeding PJM's one-in-10 LOLE standard."<sup>21</sup>

11. Both P3 and PSEG argue on rehearing that the Commission erred in accepting PJM's proposed change to the H-class technology. P3 asserts that a CT using the H-class technology has not been, and is unlikely to be, developed in PJM.<sup>22</sup> P3 argues that it is unjust and unreasonable to accept this technology without having current data on the technology. P3 maintains that the CT F-class turbine is the appropriate Reference Resource and technology and is consistent with the previously approved Reference Resource.<sup>23</sup>

12. PSEG argues that the Commission's adoption of the H-class technology is unreasonable and not supported by substantial evidence and requests that the Commission schedule an evidentiary hearing on this issue.<sup>24</sup> PSEG maintains that the selection of the H-class technology is inconsistent with the actual development of peaking plants in PJM, particularly since no stand-alone CT plants using the H-class turbine have been built or are planned in PJM. While acknowledging that there has been development of CC plants with H-class technology, PSEG states that there are unknowns about its development in the simple cycle mode used by CT plants. PSEG contends that the only evidence in the record to support the likelihood of the selected configuration is "an unsubstantiated opinion" by the consulting firm Sargent & Lundy

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<sup>20</sup> *Id.* at 17.

<sup>21</sup> Public Interest Entities Rehearing at 19.

<sup>22</sup> P3 Rehearing at 8.

<sup>23</sup> *Id.* at 8.

<sup>24</sup> PSEG Rehearing Request at 7, 11.

(S&L).<sup>25</sup> PSEG also argues that PJM lacks the ability to develop cost and revenue estimates for the H-class technology, as shown by PJM's response to the Commission's deficiency letter, which, according to PSEG, did not provide meaningful evidence to support its cost assumptions, especially labor costs.<sup>26</sup>

## 2. Commission Determination

### a. Use of Combustion Turbine

13. We deny rehearing and affirm the Commission's determination to accept the Reference Resource as a CT plant. The Commission did not, as Public Interest Entities contend, improperly shift the burden of proof to intervenors. The issue before us is not whether, as rehearing requesters posit, the use of a CC plant as the Reference Resource is just and reasonable or whether the use of a CC is a preferable to a CT, but whether continued use of the CT is just and reasonable.<sup>27</sup>

14. We affirm the finding in the April 2019 Order that record evidence continues to support PJM's selection of the CT as the Reference Resource as just and reasonable. As an initial matter, we note that although Public Interest Entities claim that the Commission must adhere to the framework followed in ISO-NE when evaluating PJM's selection of a Reference Resource, the April 2019 Order appropriately explained that PJM's Tariff is "not prescriptive as to how PJM will choose the Reference Resource."<sup>28</sup> Nonetheless, as discussed below, we find PJM's selection of the CT as a the Reference Resource is just and reasonable even when evaluated in accordance with the factors from the ISO-NE framework as cited by Public Interest Entities in its rehearing request.

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<sup>25</sup> *Id.* at 10.

<sup>26</sup> *Id.*

<sup>27</sup> To be just and reasonable, proposed revisions do not have to be the most just and reasonable among all possible alternatives. *PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,103, at P 59 (2014); see *Petal Gas Storage, L.L.C. v. FERC*, 496 F.3d 695, 703 (D.C. Cir. 2007) ("FERC is not required to choose the best solution, only a reasonable one."); *Cities of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984) ("FERC has interpreted its authority to review rates under the FPA as limited to an inquiry into whether the rates proposed by a utility are reasonable—and not to extend to determining whether a proposed rate schedule is more or less reasonable than alternative rate designs.").

<sup>28</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 58.

15. As to the likelihood of CT development in the region, PJM observed, and the Commission noted in the April 2019 Order, that over 1,600 MW of new CT plants have been added since the RPM was adopted, including two new CT plants that have been added in PJM since 2014.<sup>29</sup> The fact that these plants were not greenfield facilities does not diminish the likelihood of future development of CT plants, particularly in light of our finding that CT plants typically are built at a lower total cost than CC plants, and as a result, that CTs typically can be deployed quickly to address any potential resource adequacy or reliability concerns.<sup>30</sup> As to Public Interest Entities' argument that CC construction has exceeded CT construction since 2014, the Commission's April 2019 Order cited precedent indicating that the Reference Resource need not be the most frequent entrant into the PJM capacity auctions.<sup>31</sup> As the Commission has previously explained, different technologies can efficiently exist within the market and are needed to meet different types of demand.<sup>32</sup> Regarding confidence in revenue estimates, we find that PJM outlined reasonable concerns as to the relative risk of misestimation of a CT-based Net CONE as compared to a CC-based Net CONE.<sup>33</sup> PJM explained that estimating a CC-based Net CONE is more difficult than a CT-based Net CONE because there is substantially greater risk of mis-estimating energy market revenues for a CC plant.<sup>34</sup> Finally, in its filing, PJM pointed to Brattle's long-term simulations showing that switching to a CC-based Net CONE would entail specific reliability risks, which would be exacerbated by mis-estimation risks.<sup>35</sup> Accordingly, we conclude that PJM's proposal is supported by substantial evidence, and we are not persuaded by Public Interest Entities' arguments to the contrary.

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<sup>29</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 61.

<sup>30</sup> *Id.* P 59.

<sup>31</sup> *Id.* P 61 (citing *PJM Interconnection, L.L.C.*, 126 FERC ¶ 61,275, at P 39 (2009), *order on reh'g and clarification*, 128 FERC ¶ 61,157, at P 40 (2009)).

<sup>32</sup> *PJM Interconnection, L.L.C.*, 128 FERC ¶ 61,157 at P 40 (2009). *See also PJM Interconnection, L.L.C.*, 126 FERC ¶ 61,275 at P 39 (noting the negative impacts of shifting between a CT and CC plant from year to year).

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

<sup>34</sup> PJM Answer December 17, 2018 Answer at 10.

<sup>35</sup> PJM October 12, 2018 Filing at 12.

**b. H-Class Technology**

16. We conclude that PJM has satisfied its section 205 burden concerning its proposal to revise its tariff to use the H-class technology in place of the F-Class technology. As discussed in the April 2019 Order, PJM's selection of the H-class turbine was reasonable given evidence presented by PJM as to project development trends, lower costs, and improved technology.<sup>36</sup> Contrary to P3 and PSEG's arguments, the fact that the H-class technology has not been deployed in a CT plant does not render its use unreasonable. As the Commission explained in the April 2019 Order, there is no minimum amount of operational experience necessary to determine the viability of a particular technology and whether it may be selected as the Reference Resource.<sup>37</sup> PJM explained that the H-class technology is 14% less expensive than the F-class technology and is more efficient, as it yields faster start times, faster ramp rates, and larger turn down, when compared with F-class turbines.<sup>38</sup> To the extent that CTs continue to be developed—a trend that neither PSEG nor P3 is questioning given their support of the CT over the CC—it was reasonable for PJM to conclude they may be deployed with the H-class technology, which already has been adopted in CC plants based on more favorable economics and efficiency.

**C. Cost of Capital for Gross CONE Calculation**

**1. Rehearing Requests**

17. PSEG and P3 argue that the Commission erred in accepting PJM's proposed after-tax weighted average cost of capital (Cost of Capital) for the purpose of estimating Gross CONE. P3 asserts that the 8.2% Cost of Capital adopted by the Commission as a component of Gross CONE does not reflect proper financing assumptions of the

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<sup>36</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 60. *See also* PJM December 17, 2018 Answer, Affidavit of Johannes P. Pfeifenberger and Bin Zhou at P 11 (commenting on appealing attributes of H-class technology for investors); February 14, 2019 Deficiency Letter Response at 3 (supporting choice of H-class technology based on efficiencies and cost savings).

<sup>37</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 62 (citing *N.Y. Indep. Sys. Operator, Inc.*, 146 FERC ¶ 61,043, 58 (2014)).

<sup>38</sup> PJM February 14, 2019 Deficiency Letter Response at 2-3. A generator's "turn down ratio" refers to the ratio of a generating unit's economic maximum megawatts to its economic minimum megawatts. PJM, Intra-PJM Tariffs, OATT, Definitions-T-U-V (19.0.0).



component parts of the cost of debt and cost of equity.<sup>39</sup> While acknowledging that PJM derived its Cost of Capital from the same methodology used and accepted by the Commission in the 2014 Quadrennial Review process, P3 argues that the Commission failed to recognize significant changes since that time to the manner in which projects are financed. Specifically, P3 takes issues with the list of “comparable companies” used as a proxy group in the Brattle study. P3 also contends that the Commission erred by accepting stale debt financing rates, arguing that PJM’s proposed six percent debt rate is too low when compared to the current rates for B and BB rated companies and should have been 7.5%. In addition, P3 argues that the investment horizon used by Brattle is shorter than what would be required for an investor in a generation facility.<sup>40</sup> P3 states that the errors in the debt rate calculation are compounded by incorrect assumptions used in calculating the cost of equity.<sup>41</sup>

18. Similarly, PSEG argues the Commission failed to consider record evidence demonstrating that: (1) PJM improperly relied on publicly-traded Independent Power Producers (IPPs) in developing the risk profile for the Reference Resource; (2) PJM’s use of Brattle’s proxy group of comparable companies is not representative of investors that finance peaking resources in PJM; (3) a 13% cost of equity is “out of touch with reality” and below the “recently-approved 13.08% cap” approved for New England regulated public utilities providing transmission service; and (4) merchant generation is riskier than transmission investment and the market as a whole.<sup>42</sup> In light of this record evidence, PSEG argues that PJM failed to sustain its burden of proof to support an 8.2% Cost of Capital and that, at a minimum, the Commission should set this matter for hearing.

## **2. Commission Determination**

19. We deny rehearing and affirm the Commission’s acceptance of PJM’s proposed 8.2% Cost of Capital. As discussed above, under section 205 of the FPA, PJM need not show that its proposal is the most just and reasonable among all possible alternatives so long as it demonstrates that the proposal is just and reasonable.<sup>43</sup> We conclude that PJM has done so. P3 and PSEG are incorrect in arguing that PJM did not account for the risks associated with merchant generation development or that it did not account for other

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<sup>39</sup> P3 Rehearing Request at 6.

<sup>40</sup> *Id.* at 7.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.* at 19-21.

<sup>43</sup> *See supra* note 27.

changes since the last Quadrennial Update. To the contrary, PJM adjusted its Cost of Capital in recognition of such risks and changed conditions. As the Commission explained in the April 2019 Order, PJM's consultant reasonably made "an upward adjustment to the Cost of Capital based on assumptions that a stand-alone merchant project would be riskier than the average portfolio of IPPs that have some long-term contracts in place, and that the Tax Cuts and Jobs Act of 2017 would modestly increase the Cost of Capital."<sup>44</sup>

20. As to whether Brattle's proxy group of comparable companies is representative of investors that finance peaking resources in PJM, we find that PJM's reliance on data from publicly-traded IPPs is appropriate and supported. We agree with PJM that the Cost of Capital depends on the use of capital, not its source.<sup>45</sup> Accordingly, the Commission accepted Brattle's assessment that private equity investors' cost of capital for the purpose of investments in merchant generation is no different from the cost of capital of publicly-traded merchant generation companies making the same investments.<sup>46</sup>

21. P3 contends that PJM used "stale" debt financing rates in its Cost of Capital calculation. We disagree. The Commission was not persuaded by this argument in the April 2019 Order, emphasizing that PJM's six percent proposed cost of debt falls within the range of B and BB rated corporate bonds.<sup>47</sup> Additionally, P3 is incorrect when it argues that PJM assumed an investment horizon "closer to a 5-year tenor."<sup>48</sup> As noted by Brattle, the B and BB bond yields incorporate into its Cost of Capital study were "based on a sample of similarly-rated long-term (10-plus years) corporate bonds[.]"<sup>49</sup>

22. Next, we turn to P3's and PSEG's challenge to PJM's proposed cost of equity. As an initial matter, P3's objection to the proposed cost of equity is not fully explained in its rehearing request, where P3 instead refers generally to "incorrect assumptions on the cost of equity" without specifying what those assumptions are, other than through a citation to

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<sup>44</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 104.

<sup>45</sup> *Id.* P 97, n.212 (recognizing the basic economic principle that the cost of capital depends on its use, not its source).

<sup>46</sup> *Id.* n.212 (citing PJM Answer, Attach. C, Answering Aff. of Johannes P. Pfeifenberger and Bin Zhou at P 4).

<sup>47</sup>*Id.* P 110.

<sup>48</sup> P3 Rehearing Request at 7.

<sup>49</sup> PJM October 12, 2018 Filing, Ex. No. 2, 2018 CONE Study at 39.

its prior pleading.<sup>50</sup> The incorporation of arguments by reference from prior pleadings in a rehearing request is inconsistent with section 313(a) of the FPA, which states that “[t]he application for rehearing shall set forth specifically the ground or grounds upon which such application is based.”<sup>51</sup> Consistent with the Commission’s practice,<sup>52</sup> we dismiss P3’s challenge because it lacks specificity and is based only on incorporation by reference of an earlier pleading. As to PSEG’s arguments on the cost of equity calculation, they are simply a repetition of other parties’ protests, including the vague claim that PJM’s proposed cost of equity is “out of touch with reality” or that it is below the cap in *Coakley Mass. Attorney Gen. v. Bangor Hydro-Elec. Co.*<sup>53</sup> The Commission considered and rejected these arguments in the April 2019 Order, and we see no reason to revisit that determination on rehearing.<sup>54</sup> PJM’s cost of capital contains sufficient justification for us to conclude it is just and reasonable.<sup>55</sup>

#### **D. Labor Hour Estimates for Gross CONE Calculation**

##### **1. Rehearing Request**

23. PSEG argues that the Commission did not provide a reasoned explanation for accepting PJM’s proposed number of labor hours required to construct the Reference

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<sup>50</sup> P3 Rehearing Request at 7.

<sup>51</sup> 16 U.S.C. § 8251(a) (2018); *see also* 18 C.F.R. § 385.203(a)(7) (2019) (pleadings must articulate the position taken by the filing party, including the basis in fact and law for such position).

<sup>52</sup> *See PJM Interconnection, L.L.C.*, 164 FERC ¶ 61,206 (2018) (explaining that “incorporation by reference in a rehearing request places the Commission in the untenable position of determining which arguments are still relevant (and how, and to what degree) following the issuance of a Commission order on the merits”); *Alcoa Power Generating Inc.*, 144 FERC ¶ 61,218, at P 10 (2013) (requiring all grounds to be set forth in the rehearing request, and dismissing any ground only incorporated by reference”).

<sup>53</sup> 165 FERC ¶ 61,030 (2018).

<sup>54</sup> *See* April 2019 Order, 167 FERC ¶ 61,029 at PP 106-107.

<sup>55</sup> Resolution of cost-of service calculations are of the type committed to the Commission’s expert judgement. *See Ass’n of Oil Pipe Lines v. FERC*, 83 F.3d 1424, 1431 (D.C. Cir. 1996) (“Because the subject of our scrutiny is a ratemaking—and thus an agency decision involving complex industry analyses and difficult policy choices—the court will be particularly deferential to the Commission’s expertise.”).

Resource while rejecting the estimates that PSEG provided. PSEG asserts that the Commission should not have accepted labor estimates based solely on S&L's opinion without any "meaningful explanation" for how the labor hours were derived.<sup>56</sup> PSEG points out that PJM has not identified the particular projects or locations that comprise S&L's experience in developing its estimates.

24. PSEG argues that the Commission's acceptance of PJM's labor hours is inconsistent with *Susquehanna Int'l Grp. LLP v. SEC*, where the United States Court of Appeals for the District of Columbia Circuit required the Securities and Exchange Commission to make its own findings and determinations rather than merely accepting fee practices made by the Options Clearing Corporation.<sup>57</sup>

25. PSEG refers back to its protest, where it states that it provided details of PSEG's extensive experience constructing CT and CC plants and had estimated the required labor hours for constructing the Reference Resource as ranging from 628,672 and 665,934, which, according to PSEG, is "far in excess of the 260,918 hours recommended by PJM."<sup>58</sup> PSEG disagrees with the Commission's statement that PSEG's evidence "does not fully and properly account for differences to the standalone CT Reference Resource" and that its estimates are "overly simplistic."<sup>59</sup> PSEG refers to testimony submitted in its protest detailing how it accounted for the differences between the natural gas plants it constructed and the Reference Resource. Noting a CT H-class plant has never been constructed to date, PSEG contends that the Commission has held PSEG to a higher evidentiary standard than PJM.<sup>60</sup>

## 2. Commission Determination

26. We deny rehearing on this issue. We disagree with PSEG's claim that PJM's labor estimates are unsupported. PJM retained two independent consulting firms, Brattle and S&L, to develop estimates, including labor hours, in connection with the Gross CONE calculation. In support of these estimates, PJM included in its filing a joint affidavit from consultants at Brattle and S&L, along with an exhibit detailing each of the

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<sup>56</sup> PSEG Rehearing Request at 11-12.

<sup>57</sup> *Id.* at 13.

<sup>58</sup> *Id.* at 14-15.

<sup>59</sup> *Id.* at 15 (citing April 2019 Order, 167 FERC ¶ 61,029 at P 77).

<sup>60</sup> *Id.* at 17.

consultants' qualifications.<sup>61</sup> Similarly, the Commission did not accept the PJM filing without any meaningful explanation, as PSEG avers. As noted in the Brattle report, all CONE data, including labor estimates, are based on complete plant design and S&L's proprietary database on actual projects.<sup>62</sup> Brattle explained that "[e]stimates for the number of labor hours and quantities of material and equipment needed to construct [CT] and [CC] plants are based on S&L experience on similarly sized and configured facilities[.]"<sup>63</sup> S&L's experience concerning labor hour estimates are reflected in the documentation in the record concerning the estimation of labor rates. As Brattle explained, labor rates have been developed by S&L through a survey of prevalent wages in each region in 2017.<sup>64</sup> Brattle further states that S&L bases its labor costs on trade rates weighted by the combination of trades required in constructing a reference unit and that, in regions where multiple labor pools can be drawn upon, the trade rates used are the average of the possible labor rates.<sup>65</sup>

27. The Commission has not, as PSEG argues, held PSEG to a higher evidentiary standard. The issue before us is whether PJM's proposed estimate is reasonable. As discussed above, we need not consider whether PSEG's alternative estimate is reasonable or whether it was more reasonable than PJM's proposal.<sup>66</sup> As discussed in the April 2019 Order, PSEG's estimate did not account for the differences in installing one H-class turbine versus the six LM6000 turbines that were required in the plants constructed by PSEG. Though we agree it may be challenging to develop labor hour estimates because the Reference Resource with the H-class technology has not yet been constructed, we find that PJM's estimate is reasonable because it was derived by independent consultants that utilized a database of the labor hours required to construct actual CT and CC plants that are "similarly sized and configured."<sup>67</sup> These estimates factor in plant design and materials and supplies necessary to construct these types of plants. PSEG offers no support for its assertion that PJM must provide specific names or locations of the

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<sup>61</sup> PJM October 12, 2018 Filing, Attachment E, Affidavit of Samuel A. Newell, John M. Hagerty, and Sang H. Gang, including Qualifications attached as Exhibit No. 1.

<sup>62</sup> PJM October 12, 2018 Filing, Ex. No. 2, 2018 CONE Study at 3.

<sup>63</sup> *Id.* at 21.

<sup>64</sup> *Id.* at 59.

<sup>65</sup> *Id.*

<sup>66</sup> *See supra* note 27.

<sup>67</sup> PJM October 12, 2018 Filing, Ex. No. 2, 2018 CONE Study at 21.

“similarly sized and configured” facilities incorporated into its analysis, nor does it provide a basis to question the credibility of PJM’s selected expert. Accordingly, while PSEG has provided some contradictory evidence, albeit not reflecting the one H-class turbine that is part of the Reference Resource, the Commission reasonably determined that PJM satisfied its FPA section 205 burden of proof through PJM’s reasonable reliance on expert consultants.<sup>68</sup>

## **E. VRR Curve Shift**

### **1. Rehearing Request**

28. Noting changes and uncertainties in the market, P3 argues that the Commission erred in accepting PJM’s proposal to undo the previous one percent rightward shift from the 2014 Quadrennial Update. P3 contends that the Commission “spends very little time on this issue” and objects to the Commission’s determination that issues concerning state subsidized resources are more appropriately addressed in Docket No. EL16-49 et al.<sup>69</sup> P3 states that although the uncertainties that caused PJM to shift the VRR Curve to the right in 2014 have been resolved, similar uncertainties exist, such as the presence of 3,500 MWs of subsidized nuclear resources in New Jersey that “will likely participate in [the 2019 BRA] without application of the minimum offer price rule to their offer.”<sup>70</sup> P3 argues that such participation will suppress clearing prices to levels the Commission has deemed unjust and unreasonable.

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<sup>68</sup> PSEG’s discussion of *Susquehanna Int’l Grp. LLP v. SEC*—to which it provides no case citation—is also unavailing. PSEG references this case for the proposition that an agency must make its own findings and determinations rather than rely on statements of others. But the Commission is entitled to rely on expert analysis, even in the face of disputing experts, and, as explained above, appropriately relied on PJM’s expert here. See *Fla. Mun. Power Agency v. FERC*, 315 F.3d 362, 368 (D.C. Cir. 2003) (explaining that “[t]he question we must answer, however, is not whether record evidence supports [petitioner’s] version of events, but whether it supports FERC’s” and that “a particularly deferential standard” applies “where, as here, FERC decided between ‘disputing expert witnesses’”) (citing, e.g., *Wis. Valley Improvement Co. v. FERC*, 236 F.3d 738, 746-47 (D.C. Cir. 2001)).

<sup>69</sup> P3 Rehearing at 9.

<sup>70</sup> *Id.* at 10.

## 2. Commission Determination

29. We deny rehearing. In the 2014 Quadrennial Update, PJM proposed, and the Commission accepted, a one percent rightward shift of the curve as a conservative approach to address uncertainties in the market. The 2018 Quadrennial Update proposed a one percent shift to the left, which effectively cancels the 2014 rightward shift. The Commission agreed that the proposed leftward shift in the instant filing was appropriate because the specific concerns justifying the 2014 shift had largely been resolved.<sup>71</sup> P3 does not dispute that these concerns have been resolved but argues instead that they have been replaced with different uncertainties, specifically relating to the application of the minimum offer price rule.<sup>72</sup> The specific uncertainty cited by P3 as to whether subsidized nuclear resources will be subject to a minimum offer price rule has now also been resolved in light of the Commission's December 19, 2019 Order in Docket Nos. EL16-49-000, et al.<sup>73</sup> Accordingly, we find that P3's objections to the leftward shift have become moot.

### F. Ten Percent Adder for EAS Offset

#### 1. Rehearing Request

30. Public Interest Entities argue that the Commission erred in accepting PJM's proposal to use a 10% adder in calculating the EAS offset. Public Interest Entities claim that the Commission did not address commenters' analysis indicating that the adder was not likely to be employed on a regular basis because, according to Public Interest Entities, the adder decreases the competitiveness of a unit in the energy market.<sup>74</sup> Additionally, Public Interest Entities argue that "the use of the 10 [percent] adder in all offers reduces the Reference Resource's net E&AS revenues by 20 to 25 [percent] in most zones and by 32 [percent] in the entire RTO."<sup>75</sup>

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<sup>71</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 27. Specifically, the Commission noted that the EPA Mercury and Toxic Standards Rule had been implemented and upheld, Order No. 745 had been upheld, and the greenhouse gas rule was not implemented. *Id.*

<sup>72</sup> P3 Rehearing Request at 9.

<sup>73</sup> *Calpine Corp. v. PJM Interconnection L.L.C.*, 169 FERC ¶ 61,239 (2019).

<sup>74</sup> Public Interest Entities Rehearing Request at 20.

<sup>75</sup> *Id.*

## 2. Commission Determination

31. We deny rehearing on this issue. We affirm the Commission's finding that PJM's proposal to include a 10% adder in calculating the Net EAS offset is reasonable given that PJM's currently-effective energy market rules include the use of this adder.<sup>76</sup> Other components of energy offers are already included in the EAS offset estimate and we agree that it is appropriate to include the 10% adder as well since it, too, is a permissible component of energy offers.<sup>77</sup> Contrary to Public Interest Entities' arguments on rehearing, this is sufficient grounds to support the reasonableness of including the adder in the EAS offset calculation. We conclude that the adder is reasonable because taking into account a significant energy offer component improves accuracy of the EAS net revenue estimate and therefore helps to ensure just and reasonable Net CONE values.

### G. Capacity Oversupply

#### 1. Rehearing Request

32. Public Interest Entities argue that the Commission erred in failing to address "evidence of the significant oversupply of capacity on the PJM system."<sup>78</sup> Public Interest Entities reiterate arguments that in the last four BRAs, the cleared capacity exceeded the target installed reserve margin by 4.1 to 6.7%.<sup>79</sup> Public Interest Entities maintain that excessive administrative Net CONE values are the leading cause of this excess capacity procurement.<sup>80</sup> Specifically, Public Interest Entities cite to evidence presented from Brattle showing that new entry to PJM had occurred at levels 50-80% lower than PJM's administratively-determined Net CONE.<sup>81</sup> Public Interest Entities assert that the Commission acknowledged Public Interest Entities' discussion of the excess capacity problem but then dismissed the concerns in the April 2019 Order by "shoehorning them into a narrow issue of whether PJM complied with its tariff obligation to revisit the shape

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<sup>76</sup> April 2019 Order, 167 FERC ¶ 61,029 at P 128.

<sup>77</sup> *PJM Interconnection, L.L.C.* 153 FERC ¶ 61,289, at P 30 (2015) (finding that the inclusion of a 10% adder in cost-based incremental energy offers is just and reasonable).

<sup>78</sup> Public Interest Entities Rehearing Request at 3.

<sup>79</sup> *Id.* at 6-7.

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

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



of the VRR Curve in each quadrennial review process.”<sup>82</sup> Public Interest Entities maintain that the oversupply condition in PJM “should inform the Commission’s consideration of whether the parameters that will determine administrative Net CONE will ensure resource adequacy at a reasonable cost to consumers.” Public Interest Entities allege that, by failing to address the relevance of capacity oversupply, the Commission has abdicated its responsibility to set just and reasonable rates.<sup>83</sup>

## 2. Commission Determination

33. We deny Public Interest Entities’ request for rehearing on this issue. Public Interest Entities’ concerns regarding capacity oversupply are overly broad. Public Interest Entities insist that the capacity oversupply condition should inform consideration of the administrative Net CONE parameters, but fail to identify how specific parameters should be adjusted in light of this concern, and thus fail to persuade us that there is anything unreasonable about the individual parameters. Without such specificity,<sup>84</sup> we cannot evaluate the claim that administrative Net CONE values are “excessive” or that they are the “leading cause of excess capacity procurement.”<sup>85</sup> As explained throughout this order, alternative assumptions and inputs can also be reasonable, but we consider only whether the proposal put forward by PJM is just and reasonable.<sup>86</sup> For the reasons discussed in the April 2019 Order, which we affirm in this rehearing order, we conclude that PJM’s proposal is appropriately supported and is therefore just and reasonable.

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<sup>82</sup> *Id.* at 8 (citing April 2019 Order at P 20).

<sup>83</sup> Public Interest Entities Rehearing Request at 8-9.

<sup>84</sup> The Commission requires and the courts likewise have repeatedly found that rehearing arguments should be raised with specificity. *See* 18 C.F.R. § 385.713(c)(2); *see also Constellation Energy Commodities Group, Inc. v. FERC*, 457 F.3d 14, 20 (D.C. Cir. 2006) (“Parties are required to present their arguments to the Commission in such a way that the Commission knows ‘specifically . . . the ground on which rehearing [[i]s being sought’”); *Allegheny Power v. FERC*, 437 F.3d 1215, 1220 (D.C. Cir. 2006) (noting that objections in a rehearing request must be raised with specificity).

<sup>85</sup> Public Interest Entities’ Rehearing Request at 2, 7.

<sup>86</sup> *See supra* note 27.

The Commission orders:

The requests for rehearing of the April 2019 Order are hereby denied, as discussed in the body of this order.

By the Commission. Commissioner Glick is dissenting with a separate statement attached.

( S E A L )

Kimberly D. Bose,  
Secretary.

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.

Docket No. ER19-105-004

(Issued April 16, 2020)

GLICK, Commissioner, *dissenting*:

1. I dissent from today's order because PJM has failed to show that its proposal will produce just and reasonable rates. Instead, today's order will only perpetuate PJM's over-procurement of capacity resources, raising customers' rates and dulling the price signals established in PJM's other markets. That is because the Commission is approving a Reference Resource whose costs are so much higher than the actual resources entering the market that it will distort PJM's entire capacity market design. And, if that were not bad enough, in so doing, the Commission commits several of the cardinal sins of administrative law: Today's order is unsupported by substantial evidence, inconsistent with Commission precedent, and it altogether fails to address arguments made on rehearing. Simply put, it is inconsistent with both our statutory mandate under the Federal Power Act (FPA) and basic principles of reasoned decisionmaking.

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2. For many years now, the PJM capacity market has procured too much capacity at too high a price. The root of that problem is PJM's excessively high Net Cost of New Entry<sup>1</sup> (Net CONE) parameter. Net CONE provides the "anchor" point for the demand curve—known as the "Variable Resource Requirement" curve (VRR curve)—used to clear the capacity market.<sup>2</sup> The last few years have provided mountains of evidence that

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<sup>1</sup> Net CONE is used to establish the administratively determined demand curve that—along with the supply curve formed from capacity supplier sell offers—is used to clear capacity auctions in PJM. The higher the Net CONE figure, the higher the market-clearing price and the higher the total capacity cleared.

<sup>2</sup> PJM Transmittal, Attachment G, Exhibit 2, at iv, vii (2018 VRR Curve Report) (explaining that for the VRR curve to procure enough capacity to meet and not substantially exceed PJM's resource adequacy requirements, the curve must be anchored on the price at which investors are willing to add capacity, and that new gas-fired resources have been entering the market at clearing prices that are less than half of PJM's Net CONE estimate and "[a]s a result, the cleared quantities in the PJM capacity auctions

PJM's Net CONE figure is much too high. Since the 2015/2016 Base Residual Auction, over 31,000 MW of new generation resources have cleared the PJM capacity market, despite the auctions clearing at prices that were, on average, less than half of Net CONE.<sup>3</sup> Those figures indicate that developers are willing to enter the market at a fraction of PJM's estimate,<sup>4</sup> suggesting that the actual net cost of new entry is nowhere near as high as "Net CONE." That means that PJM's capacity market is *designed* to procure too many resources at too high a price, with obvious harm for customers.

3. But the harm from an inflated Net CONE estimate goes beyond its direct impact on customers. Because it causes PJM to retain too many resources, it dulls the price signals in the energy and ancillary service markets, impairing their ability to incentivize the services we need to operate the grid reliably.<sup>5</sup> In addition, Net CONE plays a critical role in mitigating market power by helping to set the market seller offer cap, which is the maximum level at which a capacity resource can bid at without having that bid automatically reviewed by the market monitor.<sup>6</sup> Because an artificially high Net CONE

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have exceeded the PJM reserve margin target by 3 to 6 percentage points").

<sup>3</sup> PJM Transmittal, Attachment E, Exhibit 2 at 4 (2018 CONE Study). The 31,000 MW figure is equivalent to roughly 20 percent of the reliability requirement procured through the capacity auction in any given year. *See* The Independent Market Monitor for PJM, *Analysis of the 2021/2022 RPM Base Residual Auction* 10-11 (2018), available at [http://www.monitoringanalytics.com/reports/Reports/2018/IMM\\_Analysis\\_of\\_the\\_20212022\\_RPM\\_BRA\\_Revised\\_20180824.pdf](http://www.monitoringanalytics.com/reports/Reports/2018/IMM_Analysis_of_the_20212022_RPM_BRA_Revised_20180824.pdf) (stating PJM's reliability requirement in the most recent capacity auction was roughly 150,000 MW). In addition, the 60 percent figure represents the clearing price in the auction, meaning that many new entrants cleared the auction with bids even lower than that. 2018 CONE Study at 4; *see also id.* Fig. 1 (comparing PJM capacity market clearing prices and Net CONE).

<sup>4</sup> "As the clearing prices reflect the offer price of the marginal unit clearing the market, new generation resources must have on average been submitting offers into the auction at even lower prices." *Id.* at 4.

<sup>5</sup> The capacity market procures capacity—the ability to produce electricity—but not the services, such as the ability to respond quickly to price signals and dispatch instructions, that are increasingly important to operating the grid safely and reliably. To the extent those services are compensated at all, it is through the energy and ancillary services markets.

<sup>6</sup> The market seller offer cap is calculated by multiplying Net CONE by the historical average of the Balancing Ratios experienced during Performance Assessment Intervals/Hours in the three most recent calendar years. PJM's tariff states that bids up to the market seller offer cap "shall not, in and of itself, be deemed an exercise of market

raises that cap, it increases the potential for market power abuse.<sup>7</sup> Suffice it to say, the Net CONE figure is the root of many of the most vexatious issues facing PJM. By the same token, getting Net CONE right would go a long way toward ensuring that PJM's markets produce just and reasonable rates.

4. Given those stakes and the mountains of evidence indicating that PJM's capacity market is over-procuring resources,<sup>8</sup> you might expect the Commission to take a hard look at how PJM proposes to establish the VRR Curve—and Net CONE in particular. But you would be wrong. In the underlying order, the Commission breezed over these issues, uncritically adopting PJM's rationale even in the face of contrary Commission precedent, persuasive protestor arguments, and many contested issues of material fact.<sup>9</sup> As explained below, today's order on rehearing is no better.

5. The main problem with PJM's proposed Net CONE value—and, thus, with its entire filing to establish the VRR Curve—is its choice of Reference Resource. The Reference Resource is a “theoretical new power plant” that PJM examines to determine the representative cost of entering the market.<sup>10</sup> In establishing Net CONE, PJM sums up all the costs of building a new version of the Reference Resource and then subtracts the revenue that the resource could be expected to earn from energy and ancillary services—hence the “*net*” in Net CONE.<sup>11</sup> Net CONE is the so-called “anchor” of the VRR Curve,

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power.” PJM Tariff, Attachment DD § 6.4(a).

<sup>7</sup> This is not just theoretical. Recently, excessive Net CONE values have resulted in very high market seller offer caps. These market seller offer caps have elicited concerns from the Market Monitor that the exercise of market power caused the clearing price to exceed competitive levels in the most recent capacity auction. *See* Monitoring Analytics, Analysis of the 2021/2022 RPM Base Residual Auction 3-4 (Aug. 9, 2018).

<sup>8</sup> *E.g.*, Public Interest Entities Rehearing Request at 6-7 (“The record shows that PJM's Base Residual Auction regularly clears a substantial excess amount of capacity. . . In the last four Base Residual Auctions, the cleared capacity has exceeded the target installed reserve margin by between 4.1 and 6.7%.” (footnotes omitted)).

<sup>9</sup> PJM Interconnection, L.L.C, 167 FERC ¶ 61,029, at PP 59, 61 (2019) (Order), *order on reh'g*, 171 FERC ¶ 61,040 (2020) (Rehearing Order); *see generally* Order, 167 FERC ¶ 61,029 (Glick, Comm'r, dissenting) (criticizing the Commission's failure to wrestle with contrary record evidence).

<sup>10</sup> Order, 167 FERC ¶ 61,029 at P 3.

<sup>11</sup> 2018 VRR Curve Report at iii (“Net CONE represents the capacity revenue a new generator would need to be willing to enter the market. It reflects the levelized investment and fixed costs (or CONE) of an economic reference technology, minus

making it critical to the capacity market's ability to send efficient price signals.<sup>12</sup> If it is too high it will incentivize the entry or retention of resources that are not needed, but that customers will still have to pay for. If it is too low, it will not incentivize enough resources to participate in the market, potentially raising reliability concerns. PJM previously proposed, and the Commission accepted, a proposal to make the Reference Resource a "combustion turbine" (CT) unit—one of the two principal types of natural gas power plants, the other being a combined-cycle (CC) unit.

6. In preparation for this filing, PJM commissioned reports by the Brattle Group, an independent consultancy that studies these things. As relevant here, Brattle recommended that PJM change the Reference Resource from a CT to a CC.<sup>13</sup> Brattle concluded that maintaining the CT as the Reference Resource would beget a VRR Curve that would over-procure capacity given that new CCs would likely continue to enter the market at prices well below the resulting Net CONE estimate.<sup>14</sup> To better align the curve with the cost at which capacity is actually available, which would further PJM's objective of meeting resource adequacy requirements cost-effectively, Brattle recommended switching to a CC as the reference technology.<sup>15</sup>

7. Brattle provided several reasons for recommending a CC. It explained that a CC would (1) align the VRR curve with the facts on the ground, which show that CCs have been the dominant technology entering the market for the decade and a half and will likely remain so for the foreseeable future,<sup>16</sup> (2) avoid unnecessary costs while continuing to meet reliability objectives,<sup>17</sup> and (3) more accurately reflect revenue from energy and

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expected net energy and ancillary service . . . revenues.”).

<sup>12</sup> 2018 VRR Curve Report at iv.

<sup>13</sup> PJM Transmittal, Attachment G at P 14 (Affidavit of Samuel A. Newell and David Luke Oates) (“We recommended in the 2018 VRR Curve Report a VRR Curve based on the estimated Net CONE of a CC plant.”).

<sup>14</sup> 2018 VRR Curve Report at iv.

<sup>15</sup> *Id.* at 69.

<sup>16</sup> *Id.* at iii, 32, 63.

<sup>17</sup> *Id.* at 32. Brattle also explained that its analysis indicated that using a CC-derived Net CONE would yield a loss of load expectation 2-3 times better than the industry standard and at much lower cost to customers. *Id.* at 65.

ancillary services since those figures are easier to predict for a CC than a CT.<sup>18</sup> In making that recommendation, Brattle recognized that selecting a CC would result in a Net CONE value 25-63% lower than if PJM selected a CT. Brattle explained that lower figure reflects the fact that, although a CC would cost slightly more to build, it would more than offset those higher costs by earning significantly more energy and ancillary service revenue over the life of the facility, thereby reducing its *net* cost.<sup>19</sup>

8. Notwithstanding that recommendation, PJM proposed to continue using a CT as the Reference Resource.<sup>20</sup> It observed that roughly 1,600 MW of CT capacity had been added to PJM in the 15 years since its current capacity construct was inaugurated, including two CT units developed in the last five years.<sup>21</sup> In addition, PJM pointed to what it suggested were various benefits of using a CT over a CC, including the fact that CTs are cheaper and easier to build and that there is great risk to misestimating the revenue that a CC would earn from energy and ancillary services.<sup>22</sup> The Commission accepted the filing based on those representations.<sup>23</sup>

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<sup>18</sup> Brattle explained that, because modern CCs are widespread in PJM, it can study their historical performance to validate its estimates of a CC's energy and ancillary service revenue, but that it cannot do the same for a CT because there are so few modern CTs in PJM and those that exist lack the pollution controls needed to operate as frequently as the theoretical CT it used to estimate energy and ancillary service revenue. *Id.* at 19-20.

<sup>19</sup> *Id.* at 17 (“Net CONE for gas-fired combined-cycles (CCs)—the dominant technology of new generation in PJM for more than fifteen years— is 44-76% lower than PJM’s 2021/22 CT-based Net CONE parameter, and 25-63% below the updated CT Net CONE estimate, depending on location. This difference is mostly due to the much higher E&AS revenues of CCs and plant costs that are only slightly higher than those of CTs on a dollar-per-kW basis.”).

<sup>20</sup> Order, 167 FERC ¶ 61,029 at P 5. PJM did follow Brattle’s proposal to change the type of turbine used in the Reference Resource from so-called “F-class” turbine to an “H-class” turbine. *Id.*

<sup>21</sup> *Id.* P 32. That may initially sound like a large number, but, for context, 27,000 MW of new CC capacity has cleared the PJM capacity market in the last five years alone. 2018 CONE Study at 5.

<sup>22</sup> Order, 167 FERC ¶ 61,029 at P 33.

<sup>23</sup> *Id.* PP 59, 61.

9. A group of self-described Public Interest Entities<sup>24</sup> sought rehearing. They principally contended that it was unreasonable for the Commission to approve a CT as the Reference Resource for establishing Net CONE when the record showed the costs of the proposed CT were much higher than the resources actually entering the market. They argued that the Commission failed to adhere to the three-part test it had previously applied when reviewing ISO New England Inc.'s choice for the Reference Resource-equivalent in its capacity market.<sup>25</sup> That test requires the Commission to consider (1) whether the reference resource is likely to be developed in the region, (2) whether cost and revenue estimates for that unit can be developed with confidence, and (3) whether the resulting curve produces "prices high enough to meet the reliability standard but not so high as to add unnecessary costs."<sup>26</sup> In particular, Public Interest Entities argued, with extensive supporting detail, that the Commission had ignored the evidence suggesting that precious few CTs had built in recent years, especially relative to CCs, and that the Commission had essentially failed to weigh the costs and benefits of selecting a CT.<sup>27</sup>

10. Today's order does not provide a reasoned response, doubling down on the flawed reasoning in the underlying orders. The Commission simply does not wrestle with the basic point that it is unjust and unreasonable to approve a Reference Resource whose net costs are not at all representative of the resources that are actually entering the PJM market. As discussed above, that choice will distort the market, raising costs to consumers, impairing the market's ability to send efficient price signals, and increasing the risk of an exercise of market power.<sup>28</sup> Rather than confront that issue, which is squarely presented on rehearing, the Commission provides only half-hearted responses that are unsupported by substantial evidence, inconsistent with the Commission's own precedent, and that ignore arguments in the record.

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<sup>24</sup> The Public Interests Entities consists of: The Office of the People's Counsel of the District of Columbia, the Delaware Division of the Public Advocate, the Illinois Citizens Utility Board, the New Jersey Board of Public Utilities, the Maryland Office of the People's Counsel, the Sierra Club, and the West Virginia Consumer Advocate Division. *See* Order, 167 FERC ¶ 61,029 at n.15.

<sup>25</sup> Public Interest Entities Rehearing Request at 11-19.

<sup>26</sup> *See ISO New England, Inc.*, 161 FERC ¶ 61,035, at P 38 (2017), *reh'g denied* 170 FERC ¶ 61,052 (2019); *see also* Rehearing Order, 171 FERC ¶ 61,040 at P 8 (summarizing Public Interest Entities' discussion of the three-part framework applied in the *ISO New England* order).

<sup>27</sup> Public Interest Entities Rehearing Request at 11-19.

<sup>28</sup> *See supra* PP 2-3.



11. As an initial matter, the Commission briefly suggests that it is not required to apply the same three-part test that it applied to ISO New England's filing because PJM's Tariff does not explicitly define the criteria that the Commission must consider in evaluating the proposed Reference Resource.<sup>29</sup> That assertion would, on its face, seem to contravene "the great principle that like cases must receive like treatment"<sup>30</sup> as there are no relevant differences between the role that Net CONE and the VRR Curve play in PJM's capacity market and the role that their equivalents play in ISO New England's capacity market.<sup>31</sup> But, in any case, the Commission elects not to pursue that point, instead justifying its acceptance of the CT as the appropriate Reference Resource solely on the basis that it comports with that same three-part test.<sup>32</sup> Accordingly, its acceptance of PJM's proposed Reference Resource must stand or fall solely based on whether its application of that three-prong test was the product of reasoned decisionmaking.

12. Let's go through the three prongs one-by-one. First, today's order fails to seriously address the arguments that the proposed CT Reference Resource is unlikely to be developed in the region. As noted, the overwhelming majority of new entry in PJM—and almost all new natural-gas fired capacity—over the last five years has consisted of CCs, not CTs.<sup>33</sup> Only two merchant CT units—consisting of a total of less than 500 MW of capacity—have been developed over that same period. In addition, as discussed further below, both of those CTs were "brownfield" resources built on the site of existing

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<sup>29</sup> Rehearing Order, 171 FERC ¶ 61,040 at P 14.

<sup>30</sup> *Baltimore Gas & Elec. Co. v. FERC*, No. 18-1298, 2020 WL 1482394, at \*6 (D.C. Cir. Mar. 27, 2020) (quoting *NLRB v. Gen. Stencils, Inc.*, 438 F.2d 894, 905 (2d Cir. 1971) (Friendly, J.)); see *W. Deptford Energy, LLC v. FERC*, 766 F.3d 10, 20 (D.C. Cir. 2014) ("It is textbook administrative law that an agency must provide . . . a reasoned explanation for departing from precedent or treating similar situations differently.").

<sup>31</sup> See, e.g., *New England Power Generators Ass'n, Inc. v. FERC*, 881 F.3d 202, 211 (D.C. Cir. 2018) (finding that the Commission "did not engage in the reasoned decisionmaking required by the Administrative Procedure Act" when it accepted an ISO New England filing with rationale that appeared to conflict with a comparable finding regarding PJM).

<sup>32</sup> Rehearing Order, 171 FERC ¶ 61,040 at PP 14, 15.

<sup>33</sup> See 2018 Cone Study at 5 ("Nearly all new generating units entering the BRAs are natural-gas-fired. Most of these new natural gas plants consist of CC plants, as shown in Figure 2 below, while the Net CONE parameter is currently set based on a CT. There were significant additions of new CTs in PJM prior to 2005, but limited merchant entry since then."); *id.* Figure 2 (comparing new CC and CT capacity clearing in each of the last several capacity auctions).

power plants.<sup>34</sup> As such, they do not indicate that PJM's proposed "greenfield" CT Reference Resource is likely to be built anywhere in PJM. To the contrary, to the extent new entry is needed, it will almost certainly be in the form of a CC, not a CT.

13. Nevertheless, the Commission brushes those concerns aside, contending that "the Reference Resource need not be the most frequent entrant into the PJM capacity auctions."<sup>35</sup> That's not the point; no one is contending that the Reference Resource can *only* be the most common new entrant. The point is that it is unreasonable to select a CT as the Reference Resource when CTs are so rarely developed and when a CC is overwhelmingly more likely to be developed.<sup>36</sup> The Reference Resource may not need to be the most common new entrant, but it also should not be one of the least common either, at least not without further explanation.<sup>37</sup>

14. But that is only part of the problem. Today's order completely glosses over Public Interest Entities' argument that, even if you assume for the moment that a CT is the appropriate Reference Resource, the Commission erred in approving a greenfield CT rather than a brownfield CT.<sup>38</sup> As noted, the two CTs developed in recent years in PJM were at "brownfield" sites that already housed existing power plants.<sup>39</sup> That means that there is no evidence in the record that a greenfield CT is likely to enter the market. And that matters because it is generally much cheaper to develop a resource at an existing site

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<sup>34</sup> See Order, 167 FERC ¶ 61,029 (Glick, Comm'r, dissenting at P 7) (discussing the 340 MW Doswell Peaking Unit and the 141 MW Perryman Unit 6 The Doswell Peaking Unit, which are on the site of the existing Doswell Energy Center and Exelon's existing Perryman Generating Station, respectively (Public Interest Entities Protest, Attachment A at P 39 (Wilson Affidavit)).

<sup>35</sup> Rehearing Order, 171 FERC ¶ 61,040 at P 15.

<sup>36</sup> See *supra* 33.

<sup>37</sup> The only other explanation that is even plausibly related to this point is the Commission's statement that "different technologies can efficiently exist within the market and are needed to meet different types of demand." Rehearing Order, 171 FERC ¶ 61,040 at P 15. That is true. But the economic viability of multiple resource types hardly justifies PJM's selection of this particular resource type as the Reference Resource.

<sup>38</sup> Public Interest Entities Rehearing Request at 13; Order, 167 FERC ¶ 61,029 (Glick, Comm'r, dissenting at P 7).

<sup>39</sup> 2018 CONE Study at 5 & n.17; Wilson Affidavit at P 39; *see also* Order, 167 FERC ¶ 61,029 (Glick, Comm'r, dissenting at P 7) (similar).

than an altogether new one. After all, think how much cheaper it would be to add a new bedroom onto a five-bedroom house than to buy a freestanding one-bedroom house in the same neighborhood. A greenfield CT and a brownfield CT are equally different propositions and the development of one does not necessary suggest that the development of the other is likely. Accordingly, the Commission's finding that a greenfield CT was sufficiently likely to be developed was not supported by substantial evidence.

15. The Commission responds to Public Interest Entities' argument with the puzzling assertion that the absence of any recent greenfield CTs does not suggest that they are unlikely to be developed, since CTs "typically are built at a lower total cost than CC plants, and as a result, . . . CTs typically can be deployed quickly to address any potential resource adequacy or reliability concerns."<sup>40</sup> Whatever the Commission thinks about CTs generally, the fact that *no* greenfield CTs have recently been developed in PJM would seem to suggest that they *are* unlikely to be developed, even if they have certain advantages.<sup>41</sup> At the very least, if the Commission is going to rely on the theoretical cost advantages of a CT to justify its assertion that they are likely to be developed, it must confront the contrary evidence (*i.e.*, the total absence of any developers capitalizing on those advantages to build a greenfield CT) and explain why its decision is rational in the face of that evidence.<sup>42</sup> That is especially so given Brattle's conclusion that CCs are likely to remain more economic for the foreseeable future, which would seem to offset

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<sup>40</sup> Rehearing Order, 171 FERC ¶ 61,040 at P 15.

<sup>41</sup> Order, 167 FERC ¶ 61,029 (Glick, Comm'r, dissenting at P 7); *see* Public Interest Entities Rehearing Request at 12-13; *see also Am. Gas Ass'n v. FERC*, 593 F.3d 14, 19 (D.C. Cir. 2010) (citing *Chamber of Commerce v. SEC*, 412 F.3d 133, 137-38 (D.C. Cir. 2005)); *see also Kamargo Corp. v. FERC*, 852 F.2d 1392, 1398 (D.C. Cir. 1988) (recognizing that while the case may "present[] a difficult problem for the Commission, . . . it has no alternative but to confront the questions raised by the dissent").

<sup>42</sup> *See Fred Meyer Stores, Inc. v. NLRB*, 865 F.3d 630, 638 (D.C. Cir. 2017) (holding that failing to "grapple with contrary evidence . . . disregard[s] entirely the need for reasoned decisionmaking"); *Sorenson Commc'ns Inc. v. FCC*, 755 F.3d 702, 710 (D.C. Cir. 2014) ("holding that leaving contrary evidence unaddressed is arbitrary and capricious"); *see also Sw. Airlines Co. v. Transportation Sec. Admin.*, 650 F.3d 752, 759-60 (D.C. Cir. 2011) (explaining that it is arbitrary and capricious for an agency to reject contrary evidence based only on its "knowledge and experience" (quoting *Int'l Union, United Mine Workers of Am. v. Mine Safety & Health Admin.*, 626 F.3d 84, 93 (D.C. Cir. 2010))).

the fact that a CT can be built cheaply and deployed quickly.<sup>43</sup> Most developers are, after all, in the business of turning a profit, not just putting steel into the ground.

16. Second, today's order also fails to rigorously apply the second prong of the Commission's three-part test: Whether cost and revenue estimates can be developed with confidence. PJM contended that it is more challenging to measure energy and ancillary services revenue for a CC than a CT because a CC generally makes much more revenue from those services (which is a big part of why a CC is so much more economic than a CT).<sup>44</sup> But as explained in my underlying statement, the fact that energy and ancillary service revenue may be more important to developing an accurate Net CONE for a CC does not mean that it cannot be developed with confidence.<sup>45</sup> After all, Brattle explained that while estimated energy and ancillary service revenue may be more important for a CC, those revenue estimates can be verified using the performance data of actual CCs—something that is impossible for a CT because there are so few of them in operation.<sup>46</sup> The Commission, however, never wrestled with those points, instead simply parroting back PJM's statement about the importance of energy and ancillary service revenue when estimating a CC's Net CONE.<sup>47</sup>

17. Finally, today's order does not respond to Public Interest Entities' argument that the Commission failed to weigh whether the Reference Resource will lead to prices high enough to meet the reliability standard but not so high as to impose unnecessary costs. One of the foundational principles of administrative law is that an agency must respond to the arguments raised before it.<sup>48</sup> Public Interest Entities argued vigorously that the

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<sup>43</sup> VRR Curve Report at 63.

<sup>44</sup> Rehearing Order, 171 FERC ¶ 61,040 at P 15.

<sup>45</sup> Order, 167 FERC ¶ 61,029 (Glick, Comm'r, dissenting at P 8).

<sup>46</sup> See *supra* note 18.

<sup>47</sup> Rehearing Order, 171 FERC ¶ 61,040 at P 15.

<sup>48</sup> See *BNP Paribas Energy Trading GP v. FERC*, 743 F.3d 264, 270 (D.C. Cir. 2014) (observing that a court “cannot affirm [an agency order] on the basis of a Commission rationale that fails to respond to critical arguments raised before the agency”); *Pub. Serv. Comm'n of Kentucky v. FERC*, 397 F.3d 1004, 1008 (D.C. Cir. 2005) (“The Commission must also respond meaning-fully to the arguments raised before it.” (citing *Canadian Ass'n of Petroleum Producers*, 254 F.3d 289, 299 (D.C. Cir. 2001)); *Frizelle v. Slater*, 111 F.3d 172, 177 (D.C. Cir. 1997) (holding that an agency's decision is arbitrary and capricious to the extent that it fails to respond to arguments that “do not appear frivolous on their face”); see also *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (agency decision is arbitrary and

Commission failed to balance those concerns in a reasoned fashion<sup>49</sup> and today's order even spent an entire paragraph summarizing that argument.<sup>50</sup> Yet the Commission completely ignores that argument in responding to Public Interest Groups' rehearing request.<sup>51</sup> The utter failure to address arguments about one-third of the relevant legal standard is inarguably arbitrary and capricious and itself a basis for invalidation.

18. In any case, there is not much in the record that the Commission could have pointed to in response. The one thing the record clearly shows is that new resources (overwhelmingly CCs) are entering the market at less than half PJM's current Net CONE estimate and will likely continue to do so at a fraction of the revised CT-based Net CONE.<sup>52</sup> The Reference Resource is supposed to be the basis for developing an estimate of the representative net cost of a new resource entering the market. It cannot do that job if its net costs are well above the resources actually entering the market. Although the record before us is unambiguous that the costs of a greenfield CT vastly exceed the costs of the CCs entering PJM—meaning that a greenfield CT-based Net CONE will, by design, lead to the over-procurement of capacity—the Commission sidesteps the issue entirely, abdicating its responsibility to ensure just and reasonable rates. That is arbitrary and capricious.

19. It is also inconsistent with Commission precedent. In addressing this same issue in ISO New England, the Commission found a proposed reference unit just and reasonable partly because it was “more economically efficient than the next lowest cost technology, indicating that the proposed Net CONE value will be high enough to incent new entry into the market, but not so high as to introduce unnecessary costs.”<sup>53</sup> Today's order, however, seems to ignore the fact that, in PJM, a CC “is significantly more

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capricious insofar as it “entirely failed to consider an important aspect of the problem”).

<sup>49</sup> Public Interest Entities Rehearing Request at 8, 11, 18-19.

<sup>50</sup> Rehearing Order, 171 FERC ¶ 61,040 at P 10; *see id.* (“With respect to the final factor in the ISO-NE framework, Public Interest Entities argue that the Commission failed to weigh evidence as to whether a CT-based VRR Curve would ensure reliability without unnecessary cost.”).

<sup>51</sup> Rehearing Order, 171 FERC ¶ 61,040 at PP 14-15.

<sup>52</sup> VRR Curve Study at vii (stating that the 27,000 MWs of new CC resources that cleared the capacity auctions in 2015/16 through 2020/21 “entered the market at clearing prices 50-80% below PJM's CT-based Net CONE estimates”).

<sup>53</sup> *ISO New England Inc.*, 170 FERC ¶ 61,052, at P 18 (2020) (internal quotation marks omitted).

economically efficient than the next lowest cost technology,”<sup>54</sup> making it more consistent with Commission precedent than a CT.<sup>55</sup>

20. I recognize that PJM proposed changes that may push Net CONE slightly in a better direction.<sup>56</sup> But while PJM’s proposal would lower Net CONE, it would remain substantially above the levels at which new resources have been entering the market over the last few years.<sup>57</sup> So long as the Commission fails to wrestle with the evidence indicating that using a greenfield CT as the Reference Resource will impose costs that are unnecessary to ensure reliability, its orders cannot be the product of reasoned decisionmaking.

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<sup>54</sup> *Id.* Remember that Brattle’s study found that Net CONE for a CC was 25-63 percent lower than a CT. 2018 VRR Curve Report at iii.

<sup>55</sup> In its transmittal letter in support of its filing, PJM suggested that choosing a CT would facilitate competition among diverse resources. Although the Commission does not rely on that point in its rehearing order, it deserves a brief mention. In particular, PJM asserted that the “VRR Curve should not be designed to limit competition from a plant type available to developers that has all the essential features of a peaking plant that is most reliant on capacity market revenues [*i.e.*, a CT].” PJM Transmittal at 13. It may be true that *the purpose* of the Reference Resource selection should not be to limit competition to a small subset of resource types. But, by the same token, if the economics of the various resource types are such that almost all new entry is coming from only a single resource type, I see no reason why Net CONE or the VRR Curve should be inflated to the point where all resource types can economically enter the market, if that is not what the market demands. 2018 VRR Curve Report at iv (explaining that the VRR Curve “must be anchored on the price at which investors are willing to add capacity”). That is, why should customers have to pay higher prices for the benefit of keeping all resource types theoretically viable? That certainly seems like an “unnecessary cost.”

<sup>56</sup> For example, PJM proposed a 1 percent leftward shift in the VRR curve, undoing a 1 percent rightward shift adopted in the most recent VRR Curve reset. Rehearing Order, 171 FERC ¶ 61,040 at PP 3, 29.

<sup>57</sup> *Compare* 2018 VRR Curve Report at iii (explaining that the updated estimate for CT Net CONE is 25-42 percent lower than PJM’s current Net CONE parameters) *with id.* at vii (observing that that CCs have been entering the market at prices 50-80 below PJM’s current Net CONE parameters); *see id.* at iii (noting that a Net CONE based on a CC unit is 25-63 percent below even the updated CT figures using reduced cost estimates).

21. Finally, recall that Net CONE, and the VRR Curve more generally, play an outsized role in many of the biggest and most contentious issues facing PJM.<sup>58</sup> Chief among those is PJM's persistent oversupply of capacity resources. That oversupply hurts customers directly—because they are paying too high a price for too much capacity—and indirectly insofar as it dulls the price signals in the energy and ancillary service markets that should, in theory, drive the efficiency of those markets. That oversupply is also a direct and eminently foreseeable consequence of an inflated Net CONE value.<sup>59</sup> Because an artificially inflated Net CONE is, in effect, the same thing as a rightward shift in the capacity market demand curve, it will, *by definition*, cause PJM to procure more capacity resources than are needed to ensure reliability at just and reasonable rates.

22. Although the Public Interest Entities raised this point in their rehearing request, the Commission brushed it aside as outside the scope of this proceeding.<sup>60</sup> Apparently the Commission believes that their concern is too general and that their rehearing request “fail[ed] to identify how specific parameters should be adjusted in light of this concern.”<sup>61</sup> I disagree. For one thing, the Public Interest Entities did identify specific parameters that should be adjusted, including the choice of a greenfield CT as the Reference Resource.<sup>62</sup> Moreover, I see no reason why the eminently foreseeable costs of messing up a market design fall outside the scope of the Commission's just and reasonable review, especially in instances when the Commission's precedent requires a balancing test that explicitly weighs incremental reliability benefits against the costs to consumers. To the contrary, those concerns illustrate the stakes of this proceeding and why Public Interest Entities' concerns deserved a more thorough evaluation than they get in today's order.

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<sup>58</sup> *See supra* PP 2-3.

<sup>59</sup> 2018 VRR Curve Report at vii (explaining that resources have been entering the market at less than half of PJM's estimate of Net CONE, which has caused PJM to procure a quantity of capacity resources that exceed its target reserve margin by 3-6 percent).

<sup>60</sup> Order, 167 FERC ¶ 61,029 at P 33.

<sup>61</sup> *Id.*

<sup>62</sup> Public Interest Entities Rehearing Request at 11-19 (detailing reasons why the selection of a CT, as opposed to a CC, was not just and reasonable); *id.* at 19-21 (objecting to the Commission's acceptance of PJM's proposal to include a 10 percent adder on energy market offers, which will have the effect of reducing estimated revenue from energy and ancillary services and, thus, increasing Net CONE).

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23. Many of the issues addressed in today’s order are the type of technical judgments for which the Commission receives deference.<sup>63</sup> But the fundamental flaws in several aspects of the Commission’s reasoning are not the sort of thing that deference can paper over. Instead, they are exactly the type of arbitrary and capricious judgments that the Administrative Procedure Act was enacted to address.<sup>64</sup> As noted, the Commission’s acceptance of PJM’s proposed Reference Resource is unsupported by substantial evidence, contrary to Commission precedent, and utterly fails to respond to certain arguments raised in the record. That is not reasoned decisionmaking and should not withstand review no matter how technical the particular issues at play.

For these reasons, I respectfully dissent.

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Richard Glick  
Commissioner

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<sup>63</sup> See, e.g., *NextEra Desert Ctr. Blythe, LLC v. FERC*, 852 F.3d 1118, 1122 (D.C. Cir. 2017) (“Congress explicitly delegated to FERC broad powers over ratemaking, . . . and because the Commission has greater technical expertise in this field than does the Court, we accord deference to the Commission’s interpretation[s].” (quoting *Lomak Petroleum, Inc. v. FERC*, 206 F.3d 1193, 1198 (D.C. Cir. 2000))); *Transcon. Gas Pipe Line Corp. v. FERC*, 518 F.3d 916, 919 (D.C. Cir. 2008) (“Our review is ‘particularly deferential when FERC is involved in the highly technical process of ratemaking.’” (*E. Ky. Power Co-op, Inc. v. FERC*, 489 F.3d 1299, 1306 (D.C. Cir. 2007))).

<sup>64</sup> See, e.g., *State Farm*, 463 U.S. at 43 (listing the “normal” bases for finding agency action arbitrary and capricious).